GOL'DIN, G.I., doktor med. nauk. (Moskva)

History of the Moscow Society of Urologists. Urologiia 24 no.1:67-69
Ja-F '59.   (MIRA 12:1)
          (MOSCOW--UROLOGICAL SOCIETIES)

GOL'DIN, G.I., doktor med.nauk (Moskva)

Report on the activities of the Moscow Society of Urologists in 1958.
Urologiia   24 no.2:77-79 Mr-Ap '59.   (MIRA 12:12)
                    (MOSCOW--UROLOGICAL SOCIETIES)

EPSHTEYN, I.M., prof.; GOL'DIN, G.I., doktor med.nauk

      In memory of Rikhard Mikhailovich Fronshtein; on the 10th anniversary
      of his death. Urologiia 24 no.3:3-5 My-Je '59.   (MIRA 12:12)
           (BIOGRAPHIES,
                Fronshtein, Rikhard M. (Rus))

GOL'DIN, Grigoriy Izrailevich

      *[Cystitis] TSistitv. Moskva, Medgiz, 1960. 193 p.
         (BLADDER--DISEASES)   (MIRA 13:9)

GOL'DIN, G.I., doktor med.nauk (Moskva)

Cystitis. Med. sestra 19 no.12:28-33 D '60.   (MIRA 13:12)
                        (BLADDER--DISEASES)

GOL'DIN, G.I.

Surgical approach to the adrenal damaged by pheochromocytoma.
Urologiia   25 no.2:39-42 Mr-Ap '60.   (MIRA 13:12)
            (ADRENAL GLANDS—SURGERY)

PORUDOMINSKIY, Il'ya Mironovich, prof.; GOL'DIN, G.I., red.;
    BUL'DYAYEV, N.A., tekhn.red.

    [Sexual disorders in men; etiology, clinical aspects and
    treatment] Polovye rasstroistva u muzhchin; etiologiia,
    klinika i lechenie. Izd.2., perer. i dop. Moskva, Medgiz,
    1960. 278 p.   (MIRA 15:5)
        (GENERATIVE ORGANS, MATE—DISEASES)

MURATKIN, Dmitriy Semenovich, kand.med.nauk; GOL'DIN, G.I., red.;
        BALDINA, N.F., tekhn. red.

        [Primary epithelial tumors of the kidney pelvis and ureters]
        Pervichnye epitelial'nye opukholi pochechnoi lokhanki i mo-
        chetochnika. Moskva, Medgiz, 1961. 127 p.   (MIRA 15:7)
            (KIDNEYS--CANCER)   (URETERS--CANCER)

GOL'DIN, G. I., doktor med. nauk

Erroneous laparotomy in undiagnosed diseases and anomalies of the
kidneys. Urologiia no.3:5-11 '61.   (MIRA 14:12)

1. Iz Moskovskoy gorodskoy bol'nitsy No. 29 imeni N. E. Baumana.

(KIDNEYS—DISEASES)

LOPATKIN, Nikolay Alekseyvich; GOL'DIN, G.I., red.; LYULKOVSKAYA,
        L.I., tekhn. red.

        [Translumbar aortography] Transliumbal'naia aortografiia.
        Moskva, Medgiz, 1961. 192 p.   (MIRA 17:3)

FYTEL', A.Ya., prof.; GOLIGORSKIY, S.D., doktor med. nauk; DZHAVAD-
ZADE, M.D., kand. med. nauk; LOPATKIN, N.A., doktor med. nauk;
GOL'DIN, G.I., red.; POGOSKINA, N.V., tekhn. red.

[Artificial kidney and its clinical use]Iskusstvennaia pochka
i ee klinicheskoe primenenie. Pod red. i s predisl. A.IA.Pytelia.
Moskva, Medgiz, 1961. 201 p.   (MIRA 15:10)
                    (KIDNEYS, ARTIFICIAL)

GOL'DIN, G. I.

    Fourth All-Union Conference of Urologists. Urologiia no.6:67-68
    '61.   (MIRA 15:4)

                (UROLOGY—CONGRESSES)

PETROV, B.D., red.; GOL'DIN, G.I., red.; DUNAYEVSKIY, L.I., red.;
        PORUDOMINSKII, I.M., red.; EPSHTEYN, I.M., red.; KUDRYAVTSEV,
        M.A., red.; NAVROTSKIY, O.G., tekhn. red.

        Mikhard Mikhailovich Fronshtein. Pod red.B.D.Petrova. Moskva,
        Gos.izd-vo med.lit-ry, 1962. 65 p.   (MIRA 15:9)

        1. Moscow. Pervyy meditsinskiy institut. 2. Zaveduyushchiy ka-
        fedroy istorii meditsiny 1-go Moskovskogo ordena Lenina medi-
        tsinskogo instituta (for Petrov).
                (FRONSHTEIN, MIKHAIL MIKHAILOVICH, 1882-1949)

FRUMKIN, A.P., prof., zasl. deyatel' nauki, red.; GOL'DIN, G.I., red.

[Urgent problems in urology]Aktual'nye voprosy urologii; na-
uchnye trudy. Pod red. A.P.Frumkina. Moskva, 1962. 337 p.
                                                    (MIRA 16:1)
1. Moscow. TSentral'nyy institut usovershenstvovaniya vrachey.
                    (UROLOGY)

GOL'DIN, G.I., doktor med.nauk

Surgical methods in the treatment of impotence. Urologiia
no.1:76-81 '62.   (MIRA 15:11)

1. Iz Moskovskoy gorodskoy bol'nitsy No.29 imeni N.E. Baumana.
                            (IMPOTENCE)

FRUMKIN, A. P., zasl. deyatel' nauki prof, red. [deceased]; PYTEL',
        A. Ya., prof., zam. red.; VOROBTSOV, V. I., kand med. nauk,
        red.; GOL'DIN, G. I., doktor med. nauk, red.; LEVANT, D. Ye.,
        dots., red.; PORUDOMINSKIY, I. M., prof., red.; EPSHTEYN, I. M.
        prof., red.; LEVANT, D. Ye., red.; BEL'CHIKOVA, Yu. S., tekhn.
        red.

        [Transactions of the Fourth All-Union Conference of Urologists,
        Moscow, June 24-30, 1961] Trudy Vsesoiuznoi konferentsii uro-
        logov. 4th, Moscow, 1961. Moskva, Medgiz, 1963. 238 p.
                                                        (MIRA 17:3)

        1. Vsesoyuznaya konferentsiya urologov. 4th, Moscow, 1961.

DZHAVAD-ZADE, Mirmamed Dzhavadovich; GOL'DIN, G.I., red.

[Polycystic disease of the kidneys; clinical aspects
and treatment] Polikistoz pochek; klinika i lechenie.
Moskva, Meditsina, 1964. 262 p.   (MIRA 17:6)

GOL'DIN, Grigoriy Izailevich, doktor med. nauk; LOPATKIN, N.A.,
     red.

          [A contribution to the history of Russian urology] K isto-
          rii otechestvennoi urologii. Moskva, Meditsina, 1964. 230 p.
                                             (MIRA 17:9)

SOURCE CODE: UR/0069/66/028/006/0777/0780

AUTHOR: Averbakh, K. O. (Moscow); Gol'din, G. S. (Moscow); Deryagin, B. V. (Moscow);
Smirnov, O. K. (Moscow)

ORG: none

TITLE: Formation of hydrosol in hydrocarbon media at low temperatures

TOPIC TAGS: hydrosol particle, hydrosol in toluene, hydrosol formation, toluene, hydrocarbon

ABSTRACT: A study has been made of the formation kinetics of hydrosol particles in
toluene by ultramicroscopy. The equipment and procedure are described in the text.
The effects of the time of the appearance of hydrosol nuclei, and of the water
content and temperature of toluene on the formation of the aqueous phase were
investigated. The experiments were conducted with toluene containing 0.014—0.024%
water. It was shown that at -5 to -8C the particle concentration first increases
rapidly with time, and then more slowly as the water content of the toluene drops;
the rate of formation of hydrosol particles increases with the water content of the
toluene. Experiments conducted in a wide temperature range indicated that the rate
of formation of hydrosol particles increase, with dropping temperature. Orig. art.
has: 5 figures.

ACCESSION NR: AP4026854   S/0065/64/000/004/0066/0069

AUTHOR: Averbakh, K.O.; Shor, G. S.; Smirnov, O. K.; Gol'din, G. S.

TITLE: Methods of preventing the formation of ice crystals in fuels

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 4, 1964, 66-69

TOPIC TAGS: Fuel, hydrocarbon fuel, ice formation, ice crystal formation, prevention, mechanical water removal, additive, ice prevention additive, surface active agents, review, literature survey.

ABSTRACT: This is a literature survey relating to the behavior of water in hydrocarbon fuels at low temperatures and to methods of preventing crystalization in them. The solubility of water in the hydrocarbon fuels at different temperatures, the transfer of water molecules between the fuel and air, formation of micro-droplets of water on cooling, and conditions for the formation of ice crystals are included. Various physical and mechanical means of preventing or removing ice have not proven too successful. Two types of additives have helped solve the problem. The addition of 0.1-3% of materials which dissolve water and which are dissolved in hydrocarbons at low temperatures, e.g., certain alcohols, glycols or ethers, increases the solubility of water in the hydrocarbon fuel. The use of

Card 1/2

ACCESSION NR: AP4026854

smaller amounts, 0.004-1%, of anionic, cationic, or non-ionic surface active
materials, which also exhibit some emulsifying action, appears extensively in
the current Soviet and foreign literature.

ASSOCIATION: None

SUBMITTED: 00   DATE ACQ: 28Apr64   ENCL: 00

SUB CODE: FL   NO. REF. SOV: 018   OTHER: 047

Card 2/2

L 19682-65 EWT(m)/EPF(c)/EPR/EWP(j)/T/EWP(t)/EWP(b) Pa-4/Po-4/Pr-4/Ps-4 IJP(c)/
ACCESSION NR: AP5003603 RPL JD/JW/RM S/0191/64/000/007/0026/0028

AUTHOR: Gol'din, G. S.; Ivanova, N. L.; Kucher, A. G.

TITLE: Synthesis of bis-(trimethylsilyl)-dimethylethylenediamine and N,N"-bis-
trimethylsilyl)N,N',N"-trimethyldiethylenetriamine

SOURCE: Plasticheskiye massy, no. 7, 1964, 26-28

TOPIC TAGS: amine, hydrazine, organosilicon compound

Abstract: It was shown that in the exchange between silylhydrazines and
di- and triamines, the hydrazino group of the silylhydrazine can be replaced
by an amino group. N,N"-Bis-(trimethylsilyl)-N,N'N"-trimethyldiethylene-
triamine, previously undescribed in the literature, was produced by three
different methods: by the reaction of trimethylchlorosilane with trimethyldie-
thylenetriamine, by transamination of trimethyl-(diethylamino)-silane, and
by amination of trimethyl-N,N-dimethylhydrazinosilane with N,N'N"-trimethy-
ldiethylenetriamine in the presence of catalytic amounts of trimethylchloro-
silane. The previosuly described N,N'-bis-(trimethylsilyl)-N,N'-dimethyl-
ethylenediamine was also produced by these three methods, and N,N"-bis-
(trimethylsily)-ethylenediamine, also previosuly described, was produced by
ex.action of trimethyl-N,N-dimethylhydrazinosilane with ethylenediamino.
Orig. art. has 1 table.

Card 1/1

SHOR, G.S.; CHERTKOV, Ya.B.; GOL'DIN, G.S.

Characteristics of the oxidation product composition of
polymer distillate of the butane-butylene fraction. Zhur.
prikl. khim. 37 no.9:2080-2082 S '64.

(MIRA 17:12)

GOLUBIN, G.A., IVANOVA, N.G.

Dehydrazidation of silylhydrazines. Zhur. ob. khim. 35
no.5 911-913 My '65.   (MIRA 18:6)

SERGEYEV, A.P.; GUL'DIN, I.A.

Nonsaturation method of obtaining ammonium sulfate. Koks i khim. no.2:
36-39 '63.   (MIRA 16:2)

1. Makeyevskiy koksokhimicheskiy zavod.
    (Donetsk Province—Coke industry—By-products)(Ammonium sulfate)

(GOL'DIN, I)

Ushakov, Gavriil Alekseyevich, Candidate of Technical Sciences, Docent, and Iosif Davidovich Gol'din, Candidate of Technical Sciences

Naglyadnyye marksheyderskiye grafiki (Mine Surveyors' Illustrative Graphics) Kharkov, Metallurgizdat, 1959. 187 p. Errata slip inserted. 2,800 copies printed.

Resp. Ed.: M.V. Korzhik; Ed. of Publishing House: Ye K. Sinyavskaya; Tech. Ed.: S. P. Andreyev

PURPOSE: This book is intended for engineering and technical personnel of the mining industry and for students of mine surveying.

COVERAGE: This book gives comprehensive coverage to the basic principles of constructing illustrative graphics used in the mining industry. The types of projections are described as are the geometric relationships. Affine relationships and

Card 1/6

Card $3/6$

Card 5/6

Mine Surveyors' Illustrative Graphics   SOV/2024

AVAILABLE: Library of Congress

                                        MM/rj
                                        7-7-59

Card 6/6

GOL'DIN, I.D.

Universal tantograph (UA-3). Razved. i okh. nedr 31 no.7:
52-53 Jl '65.   (MIRA 18:11)

1. Khar'kovskiy institut gornogo mashinostroyeniya avto-
matiki i vychislitel'noy tekhniki.

GOL'DIN, I.D., dots.

Construction of block diagrams by means of affine transition of
surfaces and cross sections. Izv.vys.ucheb.zav.; gor.zhur. no.2:
49-52 '60.   (MIRA 14:5)

1. Khar'kovskiy gornyy institut,
                            (Mine surveying)

AUTHOR:

TITLE:

PERIODICAL:

TEXT:

[Abstractor's note: Complete translation]

Card 1/1

GOL'DIN, I.D., dotsent

Projection methods of constructing perspective representations of mines.   Izv.vys.ucheb.zav.; gor.zhur.   5   no.9:40-47 '62.

(MIRA 15:11)

1. Khar'kovskiy gornyy institut. Rekomendovana kafedroy nachertatel'noy geometrii i grafiki.

(Mining engineering)

GOL'DIN, I.B.

Use of a special instrument to construct block diagrams. Razved.
i okh.nedr. 28 no.11:19-23 N '62.   (MIRA 15:12)

1. Khar'kovskiy gornyy institut.
                        (Block diagrams)

VARSHAVSKIY, Aleksandr Borisovich; GOL'DIN, Iser Isaakovich; ZYUZENKOV,
        I.P., red.; ATROSHCHENKO, L.Ye., tekhn.red.

     [Metalwork] Obrabotka metallov. Moskva, Izd-vo "Znanie,"
     1960. 29 p.   (MIRA 14:1)
             (Metalwork)

OBSHADKO. Boris Iosifovich; GOL'DIN, I.I., nauchnyy red.; SAZIKOV,
M.I., red.; LCRODNOVA, L.A , tekhn. red.

[Theory of tolerances tolerances and fits.Checking and measur-
ing instruments and the techniques of measurement; methodo-
logical manual]Poniatie o dopuskakh i posadkakh. Kontrol'no-
izmeritel'nye instrumenty i tekhnika izmereniia; metodiche-
skoe posobie. Mockva, Proftekhizdat, 1962. 59 p.

(MIRA 15:9)
(Tolerance (Engineering)) (Gauges) (Mensuration)

GOL'DIN, Iser Isaakovich; TRISHTSYAK, L.I., nauchnyy red.;
MUFKINA, V G., red , PEREDERIY, S.P., tekhn. red.

[Laboratory work on mechanical engineering in vocational
and technical schools] Laboratornye raboty po tekhniche-
skoi mekhanike v professional'no-tekhnicheskikh uchilishchakh.
Moskva, Proftekhizdat, 1963. 93 p.   (MIRA 16:5)
          (Mechanical engineering--Study and teaching)

GOL'DIN, I., prepodavatel'

Complex tasks on design combining several subjects. Prof.-tekh.
obr. 20 no.1:13-15 Ja '63.   (MIRA 16:2)

1. Tekhnicheskoye uchilishche No.7 Moskvy.
    (Project method in teaching)   (Vocational education)

GOL'DIN, Iser Isaak...;   ...red., ...;
        nauchn. red.

        [Instruction in mechanical engineering] Prepodavanie
        tekhnicheskoi mekhaniki. Moskva, Vysshaia shkola, 1965.
        165 p.   (MIRA 18:7)

GOL'DIN, I. L.

Krapivensky District - Forestry Research

Research and experimental work at the Krapivenskiy Technical School.   Les. khoz. 5 no. 9, 1952.

GOL'DIN, I.L.

Some features of the "Tula abatis" oak woods. Bot.zhur. 44
no.11:1658-1659 N '59.   (MIRA 13:4)

1. Lesnoy tekhnikum, Krapivenskiy rayon Tul'skoy oblasti.
        (Tula Province--Forest ecology)

GOL'DIN, K.R.

New designs of photographic cameras. Opt.-mekh.prom. [25] no.3:44—47
Mr '58.   (MIRA 11:9)
                    (Cameras)

GOL'DIN, L.A.; ZHGULEV, A.S.

The 209-Gr electric vibratory screen. Biul, tekh.-ekon. inform.
Gos. nauch.-issl. inst. nauch. i tekh. inform. 17 no.2:3-4
'64.   (MIRA 17:6)

BUKATY, G.B.; GOL'DIN, L.A.; ZHGULEV, A.S.

Introducing the 185-Gr vibratory screen. Nauch. tekh.-ekon.
inform. Gos. nauch.-issl. inst. nauch. i tekh. inform.
18 no.10:7-8 O '65.   (MIRA 18:12)

GOL'DIN, L. L.

7   Investigation with the Aid of C^{13}, of the Renewal of
     Dicarboxylic Aminoacids in the Liver. A. S. Konikova,
     V. N. Orekhovich, M. G. Kritsman, S. Ya. Davydova,
     A. S. Khokhlov, M. G. Kukavadze, B. V. Ottesen, M. I.
     Menshikov, and L. L. Gol'din. Doklady Akad. Nauk-
     S.S.S.R. 65, 325-7 (1949)(In Russian).

It has been generally accepted until recently that the synthe-
sis of proteins is more intensive in tissues that are regen-
erating than in normal tissues. According to recent findings,
this view is erroneous (Rittenberg et al. Currents in Bio-
chemical Research, New York, 1946, p.272). The authors
contributed new material by showing that the intensities of
the formation of free dicarboxylic amino acids and of the
renewal of carbon in normal and regenerating liver are
equal. They introduced C^{13} into slices of liver tissue of a
rat, in vitro, in the following experiments. Samples of tis-
sue, normal or regenerating after operation, were incubated
for several hours with a bicarbonate buffer containing
$NaHC^{13}O_3$. After the precipitation of the proteins, dicar-
boxylic amino acids were isolated both from the precipitate
and the filtrate (free acids); the carbon of the acids was
converted into CO_2, in which C^{13} content was determined
with a mass-spectrometer.

MELNIK, L. L., ZHELTR, V. A., AIKIN, A. I. and KIRAVOLM, L. A.

        "The U_{235} Fission Yields of Rare Earth Isotopes".

        Institute of Biological and Medical Chemistry, Academy of Medical Sci. USSR
on the Peaceful Use of Atomic Energy, 1-5 July 1955", Publishing House of Academy
of Sciences USSR, 1955.

SO: Sum 721, 27 Nov 1955.

GOLDIN, LL.

L4117   AEC-tr-2435((Pt. 2) (p. 125-8))

YIELDS OF VARIOUS NEODYMIUM AND CERIUM ISOTOPES
IN THE FISSION OF U[235].   G. M. Kukavadze, M. P. Anikina,
L. L. Goldin, and B. V. Ershler.   p. 125-8 of CONFER-
ENCE OF THE ACADEMY OF SCIENCES OF THE USSR ON
THE PEACEFUL USES OF ATOMIC ENERGY, JULY 1-5,
1955. SESSION OF THE DIVISION OF CHEMICAL SCIENCE
(Translation).   4p.

This paper was originally abstracted from the Russian
and appeared in Nuclear Science Abstracts as NSA 3-7083.

4077   AEC-tr-2435((Pt. 1) (p.107-82))
α-SPECTRA OF HEAVY ELEMENTS. L. L. Goldin, G. I.
Novikova, and E. F. Tretyakov. p.107-82 of CONFERENCE
OF THE ACADEMY OF SCIENCES OF THE USSR ON THE
PEACEFUL USES OF ATOMIC ENERGY, JULY 1-5, 1955.
SESSION OF THE DIVISION OF PHYSICAL AND MATHE-
MATICAL SCIENCES. (Translation). 16p.
· This paper was originally abstracted from the Russian
and appeared in Nuclear Science Abstracts as NSA 9-7905.

GOL'DIN, L. L.

Yields of neodymium and cerium isotopes from the fission of uranium-233. G. M. Kukavadze, M. P. Anikina, L. L. Gol'din, and B. V. Ershler. (Sektsiya Akad. Nauk S.S.S.R. po Naronomu Ispol'zovaniyu Atomnoi Energii, July 1-5, 1955, Zasedaniya Otdel. Khim. Nauk (Moscow), 205-9 (English summary).—The fission yields of various isotopes of Ce and Nd were detd. mass spectroscopically by the isotope-diln. method. The yields are as follows: Ce^{142}, 3.0 ± 0.17%; Ce^{143}, 5.8 ± 0.17%; Nd^{143}, 6.15 ± 0.3%; Nd^{145}, 3.67 ± 0.3%; Nd^{146}, 3.00 ± 0.3%; Nd^{148}, 2.34 ± 0.10%; Nd^{150}, 1.15 ± 0.10%; and $Nd^{??}$, 0.01 ± 0.04%. The yield ratios of the Nd isotopes are detd. with an accuracy of 3-5% and that of the Ce isotopes with an accuracy of 1%. The U^{233} fission yields curve in this heavy mass region (140-150) is similar to that for U^{235}, but displaced by one mass unit in the direction of the light masses.   J. H. Leech

Goldin, L.L.

4963

SYNCHROTRON OSCILLATIONS IN STRONG-FOCUSING
ACCELERATORS. (LINEAR THEORY). L. L. Goldin
and D. G. Koshkarev (Academy of Sciences of the U.S.S.R.,
Moscow). Nuovo cimento (10) 2, 1251-66(1955) Dec.
(In English)

Equations describing synchrotron oscillations in strong-
focusing accelerators are deduced and solved. In deriving
them, it was taken into account that the accelerating field
frequency is automatically connected with the magnetic field
intensity. A general solution for oscillations both in the
adiabatic and critical regions has been found, and respective
integrals of motion have been obtained. It is shown that
motion in the critical region may be simply represented by
the effective frequency of oscillation. The paper investi-
gates the influence of the fluctuations, ripples and noise of
the frequency and amplitude of the accelerating voltage,
and magnetic field. Computation formulas are given for
respective tolerances. (auth)

SUBJECT   USSR / PHYSICS

AUTHOR   VLADIMIRSKIJ,V.V., KOMAR,E.., LING,A.L.. GOL'DIN,L.L.,
               KOSKAREV,D.G., MONOSZON,N.A., NIKITIN,S.JA., RUTKINSKII.E..
               SKACKOV,S.V., STREL'COV,N.S., TARASOV,E N.

TITLE   The Main Characteristics of the Projected Proton Accelerator
               for 50-60 BeV with Strong Focussing

PERIODICAL   Atomnaja Energija, 1, fasc. 4,
               Issued: 19.10.1956

The maximum energy selected is certainly sufficient for the multiple production
of mesons and for the production of the antiparticles of all known types of
elementary particles. With a particle energy of from 50 to 60 BeV the kinetic
energy in the center of mass system attains 9 nucleon masses on the occasion of
the collision of a proton with a single nucleon. The peak power used for feeding
the magnet is about 100 megawatts. The weight of the magnet system is less than
11,000 t. For the stabilization of the phase near transition energy a system
for the compensation of the oscillations of the length of the particle orbit is
used in this project by means of which the critical energy is shifted to in-
finity. With this compensation process the enforced oscillations of particles,
the energy of which is distinguished from the equilibrium momentum are used.
Every eigth magnet has an inversely directed magnetic field, and the order of
this magnet is periodically changed. This compensation system makes it possible
to attain rather high frequencies of the transversal oscillations of the par-
ticles, viz. 13,75 and 12,75 per revolution in the case of radial and vertical

Distr: 4E3d/4E3c/4E4Lb/4E4c

538.125.66 | 537.533 | 621.384.6 | 621.3.7.43

6032.   MEASUREMENT OF THE FIELD OF MAGNETS OF
ACCELERATORS WITH STRONG FOCUSING.
N.N.Orohov, A.P.Pukhov and L.L.Deltsin.
Pribory i tekh. Eksper., 1960, No. 3, 15-21. In Russian.

A method of measurement of a long-varying magnetic field
with an almost constant gradient is described. Special cells, which
enable the gradient of the magnetic field at the centre of the cell to
be measured directly, and its compensator with a stabilized zero, were
used. The results were read from an oscillograph. This method
measured the magnetic field configuration to an accuracy of 0.05%.
The high sensitivity of the apparatus made possible the study of a
number of weak effects, for example, measurement of the field con-
figuration when thin non-magnetic sheets were introduced into the
gap.

P.Collins

BERESTETSKIY, V.B.; GOL'DIN, L.L.; KOSHKAREV, D.G.

Injection of particles into the alternating-gradient accelerator
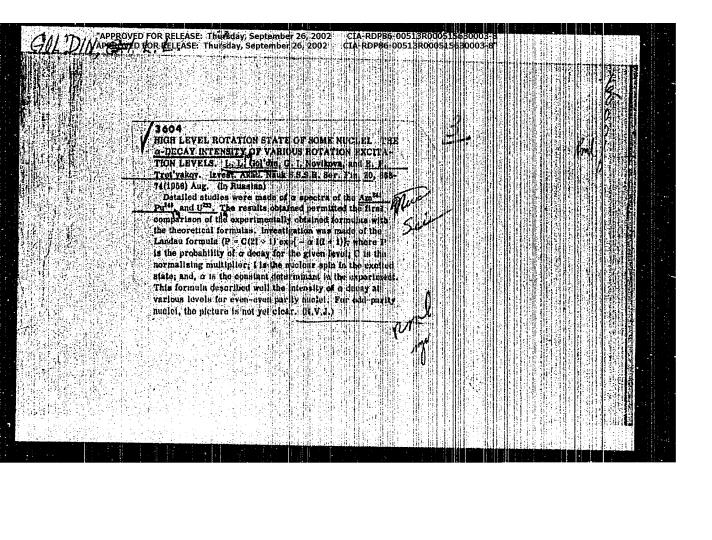chamber. Prib.i tekh.eksp.no.3:26-31 N-D '56.   (MLRA 10:2)
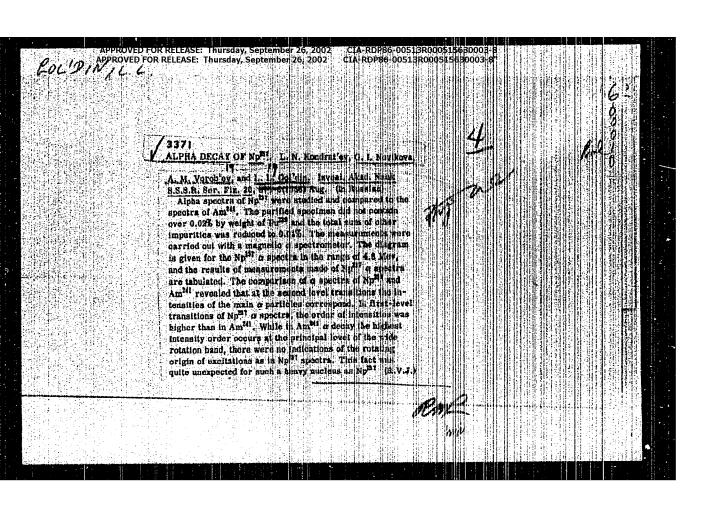   (Particle accelerators)

VLADIMIRSKIY, V.V.; GOL'DIN, L.L.; DANIL'TSEV, Ye.N.; KOSHKAREV, D.G.;
        MEYMAN, N.N.

    Ejection of proton beams from the 7 BEV alternating-gradient
    accelerator. Prib.i tekh.eksp.no.3:31-35 N-D '56.
        (Particle accelerators)   (MLRA 10:2)

Precision magnetic α-spectrometer. N. N. Gol'din and
E. F. Tret'yakov. (Izvest. Akad. Nauk S.S.S.R., Ser. Fiz., 1956,
20, 859-6(1956).—A spectrometer with photographic reg-
istration is described, which has a resolution of 0.5 e.v.
at 5.3 m.e.v. Incorporated in the construction is a non-
uniform transversal axial symmetry magnetic field of 6000
oersteds for spatial focussing. The profile of the gap is de-
scribed. α-Emitters are prepd. by evapn. of chlorides from
a Ta ribbon on glass in thin layers (few γ/sq. cm.). The
prepns. must be kept in vacuum. The energy E of the
max., displaced from the center of the photographic plate
by X mm., is calcd. with the empirical formula $E = E_{center}$
$[1 + (0.954 + 5.4 \times 10^{-3}X)10^{-3}X]$. Spectra of Pu²³⁹ in the
5-m.e.v. region and of Pu²³⁸ and Pu²⁴⁰ are shown as illus-
tration.   S. Pakswer

3604

HIGH LEVEL ROTATION STATE OF SOME NUCLEI. THE
α-DECAY INTENSITY OF VARIOUS ROTATION EXCITA-
TION LEVELS. L. L. Gol'din, G. I. Novikova, and E. F.
Tret'yakov. Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. 20, 866-
74 (1956) Aug. (In Russian)

Detailed studies were made of α spectra of the Am^{241},
Pu^{240}, and U^{232}. The results obtained permitted the first
comparison of the experimentally obtained formulas with
the theoretical formulas. Investigation was made of the
Landau formula ($P = C(2I + 1) \exp[- \alpha I(I + 1)]$; where P
is the probability of α decay for the given level; C is the
normalising multiplier; I is the nuclear spin in the excited
state; and, α is the constant determinant in the experiment.
This formula described well the intensity of α decay at
various levels for even–even parity nuclei. For odd-parity
nuclei, the picture is not yet clear. (N.V.J.)

3371

ALPHA DECAY OF Np[237]. L. N. Kondrat'ev, G. L. Novikova

A. M. Vorob'ev and L. L. Gol'din, Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. 20, (1956) Aug. (in Russian)

Alpha spectra of Np[237] were studied and compared to the spectra of Am[241]. The purified specimen did not contain over 0.02% by weight of Pu[238] and the total sum of other impurities was reduced to 0.1%. The measurements were carried out with a magnetic α spectrometer. The diagram is given for the Np[237] α spectra in the range of 4.6 Mev, and the results of measurements made of Np[237] α spectra are tabulated. The comparison of α spectra of Np[237] and Am[241] revealed that at the second level transitions the intensities of the main α particles corresponded. In first-level transitions of Np[237] α spectra, the order of intensities was higher than in Am[241]. While in Am[241] α decay the highest intensity order occurs at the principal level of the wide rotation band, there were no indications of the rotating origin of excitations as in Np[237] spectra. This fact was quite unexpected for such a heavy nucleus as Np[237]. (R.V.J.)

GOL'DIN, L.L.

SUBJECT   USSR / PHYSICS   CARD   2   IA - 1771
AUTHOR   KONDRAT'EV,L.N., NOVIKOVA,G.I., SOBOLEV,JU.P., GOL'DIN,L.L.
TITLE   The α-Decay of Pu^{240}.
PERIODICAL   Zurn.eksp.i teor.fis,31,fasc.5,771-774 (1956)
               Issued: 1 / 1957

The authors investigated the aspectrum of two plutonium sources within the
energy range of from 4.800-5.050 MeV by means of the α-spectrometer of the
Academy of Science in the USSR. The results obtained by the experiments which
took 2 weeks each, are illustrated in form of a diagram. A line A_1, which is
known from literature, and which is due to the α-decay of Pu^{240} on to the
level 4+ of the daughter nucleus, is clearly marked. The authors were able
to give precise definitions of the parameters obtained for this level. Besides
this line A_1, also the lines A_2,A_3,A_4 and A_5 are visible in the spectrum of
the source A (12% Pu^{239}, 88% Pu^{240}, < 0,2% Pu^{241}, < 0,2% Pu^{242}). In the
spectrum of the source B (80% Pu^{239}, 17% Pu^{240}, 3% Pu^{241}, 0,5% Pu^{242}), apart
from the line A_1 also the lines B_4 and B_5 are visible. The last two lines are
apparently due to the admixture of Pu^{241} and Pu^{242} in the source B, but the
line B_5 originates from the superposition of the first satellites. A table
contains the energies and relative intensities of the α-particles of Pu^{241}
and Pu^{242}. The line A_5 apparently belongs neither to Pu^{241} nor to Pu^{242}.

There remains the assumption that the line A_5 belongs to Pu^{240}. This is all the more natural as the excitation energy of the corresponding level (it is .313 keV) corresponds exactly to the energy of the level 6+. The excitation energy of the level 4+, which was determined from the spectrum, amounts to 147 keV. The energies of the levels 2+,4+,6+ are in the ratio of 1:3,33:7,0, and this is in excellent agreement with experimental data.

At present it is still difficult to say anything about the weak lines A_2 and A_3, they cannot belong to the isotopes Pu^{239}, Pu^{241} and Pu^{242}. Apparently also these lines are connected with the α-decay of Pu^{240}. They apparently belong to the odd rotation structure, and for their moment of their quantity of motion and for their symmetry the pairs of values 1 - and 3 - are valid. The experimental results obtained by this work are shown in form of a table. The scheme of the α-decay of Pu^{240} and of the levels of the daughter nucleus U^{236} were shown in a table. For the intensities of transitions to the levels 2-, 4+ and 6+ the theoretical ratio :

$1 : 0,32 : 1,2.10^{-3} : 5.10^{-8}$ is here found. The observed intensity of transition to the level 6+ thus is found to be 800 times higher than the computed intensity.

INSTITUTION:

The equations of synchrotron-oscillations: The acceleration of particles with
the charge e is investigated. The maximum energy attained after the rotation
of a particle is eu. Those particles are described as being in equilibrium which
maintain a constant phase shift with respect to the accelerating electric field.
For the modification of the momentum of the particle which is in equilibrium
the following equation is found: $dp/dt = eu \sin \phi /L$. Here L denotes the length
of the orbit of the particle and ϕ - the phase of the acceleration of the par-
ticle in equilibrium. The particles which are not in equilibrium are charac-
terized by the deviations π and q of their momentum and phase respectively
from the momentum and phase of the particles which are in equilibrium. In the
case of small deviations it is then true that $d\pi/dt = (eu \cos \phi /L) q +$
$+ (e \sin \phi /L) \triangle u/u$. For the deviations of the phase it is true that
$dq/dt = \triangle \omega_p - q \triangle \omega$. Here $\triangle \omega_p$ denotes the radiotechnical deviation of the

frequency and $\triangle \omega$ - the deviation of the rotation frequency of particles from
their ideal values. The equation for free oscillations is determined and the be-
havior of q on the occasion of passage through the critical point is discussed

in short.

The free synchrotron oscillations: The equation of these free oscillations is
transformed to new variables, after which it is solved by approximation by
development in series. The equation for the phase oscillations in the adiabatic
domain is inspected more closely.

The electrotechnical and radiotechnical tolerances. (The case with lacking re-
sonance). Essential importance for the computation of tolerances is attained by
the oscillations of the parameters, which develop with a frequency that is
similar to the momentary frequency of synchrotron oscillations. Such disturb-
ances must, of course, be investigated separately. The more rapid oscillations
are quickly balanced and are therefore no danger. The jump-like modifications
of ω_p and also the slow modifications of $\Delta\omega_p$, Δu and ΔV are dealt with.

(V denotes the voltage feeding the magnet). The passage through the critical
point is now discussed, on which occasion also the disturbances are estimated
which occur because the phase of the accelerating phase does not change
immediately.

In conclusion the resonance and the swinging of synchrotron oscillations due to
the noise is studied. Resonance causes oscillations to swing considerably.

INSTITUTION:

This survey is arranged as follows: Experimental technics, a - - corre-
lations (quite recently α-rays are examined by the determination of the
angular correlations between δ-particles and ⌢ -rays); the classical theory
of α-decay; α-decay on the ground level of the daughter nucleus (the indi-
vidual properties of nuclei depend more on the number of protons than on the
number of neutrons, apparently because in heavy nuclei there are far more
neutrons than protons. On the occasion of α-decay the properties of the mother
nucleus and not of the daughter nucleus probably play the essential part); the
deviation of nuclei from the spherical shape and the rotation structure of the
excited levels; the rotation levels and the fine structure of α-rays; the in-
tensity of the lines in α-spectra, simplified and not simplified transitions;
the intensity of α-transitions on rotation levels.

Summary: The present theory of α-decay is not satisfactory Essentially,
nothing has been done except computing the transparence of barriers for a
spherical nucleus. This is, however, quite insufficient because the α-active
nuclei are by no means spherical. Nothing whatever is as yet known about the
probability of the creation of α-particles. Undeniable progress was made by
the discovery that a considerable part of the lower excited levels has rota-
tional character. Nevertheless, many points still remain unexplained (par-

Highly excited rotational states of some nuclei. Registry of α-decay to rotational excited levels. L. L. Gol'din, O. I. Novikova, and E. F. Tret'yakov (Acad. Sci. USSR, Moscow). *Phys. Rev. 103*, 1016-K (1956).

ATIC. The spectra of Pu-238 and U-234 were investigated. The intensity of the Pu-238 α-line which corresponds to the transition to the 4+ level of the daughter nuclei 0.0005 ± 0.00016. New lines in the spectrum of U-234 correspond to levels at 164 ekv ($0.07 \pm 0.01\%$) and 276 ekv ($0.01 \pm 0.005\%$). Successive transitions to excited states from the ground level (spin 5/2) to the level with spin 5/2 have been observed. Earlier results on the nuclei... the population of the levels between 5/2 and 9/2 are used in the discussion. The α-intensities are compared with available theoretical formulas.

— R. M. Peter

GOL'DIN, L. L.,   KONDRAT'YEV, L. N., NOVIKOVA, G. I.   and TRETIAKOV
                    (Acad. Sci. USSR

"Rotational Bands with K = $\frac{1}{2}$ and Low Excited Levels of Uranium-235,"

paper submitted at the All-Union Conf. on Nuclear Reactions in Medium and Low
Energy Physics. Moscow, 19-27 Nov 57.

GOLDIN, L. L., VLADIMIRSKIY, V. V., DANILTSEV, F. N., KOSHKAREV, D. G.
    MEYMAN, N. N.

        "Deflection of the Beam of a 7 GeV Strong Focusing Proton
Accelerator," paper presented at CERN Symposium, 1956, appearing
in Nuclear Instruments, No. 1, pp. 21-30, 1957

GOL'DIN, L. L., Doc of Phys-Math Sci -- (diss) "Alpha-disinte ration of

the level of heavy nonspheric nuclei." Mos, 1957, 11 pp (Academy of

Sciences USSR), 150 copies (KL, 30-57, 90)

AUTHOR: MJASISCEVA,G.G., ANIKINA,M.P., GOL'DIN,L.L., ERSLER,B.V.
TITLE: Measuring of the Cross Section of Th^{232} for Thermal
            Neutrons and of the Resonance Integral of the Absorption
            on Neutrons (Russian)

ABSTRACT: These measurements were carried out on a reactor with heavy
            water. In the reactor considerably diluted solutions of the
            nitrates of the substances investigated were irradiated.
            While the cross sections were being measured, the solutions
            arranged side by side which contained thorium and the
            gauging material were simultaneously irradiated. Also
            measuring of cadmium relations is discussed in short. The
            β-activity was measured by means of a counter with a mica
            window. The values measured for activity were extrapolated
            for the point of time at which irradiation ended.
            Results: The cadmium relations measured for thorium, gold,
            uranium, and indium in various channels of the reactor are
            shown together in a table. The cross sections of thorium were
            compared with the cross sections of gold, indium, and
            uranium. The relations obtained immediately from the ex-
            periment have no simply physical significance, but it is

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Measuring of the Cross Section of Th^{232} for Thermal
Neutrons and of the Resonance Integral of the Absorption
on Neutrons (Russian)

possible, from them, to determine the cross section of
thorium for thermal neutrons as well as the amount of the
resonance integral of absorption. Next, the notion of the
average cross section is introduced, which depends on the
spectrum of the neutrons and also on the gauging material.
The average cross sections of thorium are given in a table.
From the data hitherto discussed it is then possible to
compute the cross section of thorium for thermal neutrons;
the values found are shown in form of a table. The cross
sections found with gold agree excellently with one another.
The cross sections measured with indium are noticeably
smaller than those measured with gold. Whereas the cross
sections of thorium, which were measured with uranium as
a gauging material, differ most among one another, measure-
ments on the occasion of which gold was used for gauging
gave the best results. The resonance integral of the ab-
sorption for thorium was computed according to the

Card 2/3

AUTHORS: Gol'din, L.L. and Kochkarev, D.G.

TITLE: Linear Theory of Synchrotron Oscillations. II - Particle
Losses During Acceleration and the Tolerance Theory (Lineynaya
teoriya sinkhrotronnykh kolebaniy. II. Poteri chastits v
protsesse uskoreniya i teoriya dopuskov)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, Nr 1, pp 3-9
(USSR).

ABSTRACT: This paper is a continuation of the work first reported
in (Ref.1). It was shown there, and in (Ref.1), that existing
synchrotron theories do not go beyond computation of the a-
building of synchrotron oscillations produced by various
types of perturbations such as axial modulation of the m n g
in field strength, frequency or amplitude of the accelerating
voltage, and the ripple modulation of these quantities with
synchrotron oscillation frequencies. For tolerance oscilla-
tions, however, it is not the increment of the synchrotron
oscillation amplitude that is required but rather the frac-
tion of particles lost as a consequence of action of the per-
turbations. It was shown in (Ref.1) that in regions which
are remote from the critical point, synchrotron oscilla-
tions obey the equation:

Card 1/3

Linear Theory of Synchrotron Oscillations II- Particle Losses
During Acceleration and the Tolerance Thoery.

$$p = (\Omega/\Omega_1)^{1/2}\left[C_1\cos\Omega x + C_2\sin\Omega x\right] \qquad . \qquad (1)$$

where $x = pc/E_0$, p is the particle momentum, c is the
velocity of light, E_0 is the rest energy of the accelerat-
ed particles, Ω is the frequency of the synchrotron
oscillations at an arbitrary moment (with respect to x),
and Ω_1 is the value of Ω at injection. The relation be-
tween x and t (acceleration time) is expressed by the
formula:

$$dx/dt = ceu \sin \phi/E_0 L \qquad (2)$$

where e is the particle charge, eu the maximal energy,
which can be acquired by a particle during a revolution, ϕ
the equilibrium acceleration phase and L the orbit length.
In the absence of perturbations amplitudes C_1 and C_2 are
integrals of motion and are called "particle invariants".

Linear Theory of Synchrotron Oscillations, II - Results from
D…… Considerations and the Tolerance Theory.

A function $P_1(c_1, c_2, x)$ is introduced … an is ……
…ity … … particle … … … … … probability … the
point c_1, c_2 at the … … x . … … … P_1 …
…rticle is considered lost if it enters … … … …
… of unstable motion. This … … … solved by
means of the Fokker-Planck equation. The probability funct-
ion P for a real particle distribution … … obtained by
putting P equal to the particle distribution at the …
of injection. The integral of $1-C_1 x$ … … over the … -
ion of … … motion yields the mathematical expectation of
the number of remaining particles. If the perturbations do
not exactly repeat themselves from cycle to cycle … may
also be considered as the average particle position in
c_1 and c_2 , averaged over a set of cycles. Non-linearity
of the equations and gas scattering may lead to the result
that the perturbations of the various particles … … be
identical and in this case P will describe to a certain
degree the particle distribution in c_1 and c_2 even
during a single cycle. The Fokker-Planck equation is not

Linear theory of Synchrotron Oscillations, II - particle in the Drift Approach to the Tolerenace Theory.

is in the form:

$$\frac{\partial \Xi}{\partial \tau} = \frac{\partial}{\partial r}\left(\gamma \frac{\partial \Xi}{\partial r} \right) + \frac{U'_{max}}{\Delta U} \frac{\partial}{\partial r}\left(\gamma \Xi \right) \tag{9}$$

where $U = c_1^2 + c_2^2$, $\gamma = U/U_{max}$, $d\tau = (\Delta U/U_{max})dx$,

$U'_{max} = \frac{d}{dx} U_{max}$, and $\Xi(\gamma, \tau)$ is the particle distribu-

tion function. The boundary condition is:

$$\Xi(1, \tau) = 0, \tag{10}$$

where:

$$U'_{max} / \overline{\Delta U} = -\frac{\Omega'}{\Omega} \frac{A_{max}}{\Delta A} \tag{11}$$ — and A is the

Card 4/

and the Tolerance Theory.

the Tolerance Theory.

1. Synchrotrons-Oscillation   2. Mathematics-Theory

VLADIMIRSKIJ, V.V.; KOMAR, Je.G.; MINC, A.L.; GOL'DIN, L.L.; KOSKAREV, D.C.;
    MONOSZON, N.A.; NIKITIN, S.Ja.; RUBCINSKIJ, S.M.; SKACKOV, S.V.;
    STREL'COV, N.S.; TRASOV, Je.K.; MEDONOS, S., inz. [translator]

Main characteristics of the planned proton accelerator for 50-60
BeV energy with sharp focusing. Jaderna energie 3 no.2:56-57 F '57.

Gol'din LL.

Distr: 4E3d
3340   19

SYNCHROTRON OSCILLATIONS IN STRONG FOCUSING
ACCELERATORS. I. LINEAR THEORY. A. A. Kol'ma
and D. G. Koshkarev. Soviet Phys. JETP 5, 881-90(1957)
June.

The equations which describe synchrotron oscillations in
strong focusing accelerators are examined, taking into ac-
count the relations between the field and the frequency. A
general solution is found which describes the oscillations
both in the adiabatic and in the critical region and the cor-
responding integrals of motion are obtained. It is shown
that the motion in the critical region can be simply de-
scribed by means of the "effective frequency" of the oscil-
lations. The effect of fluctuations of the radio frequency, of
the accelerating voltage and of the magnetic field is con-
sidered, along with the question of the influence of noise
on the synchrotron oscillations. The transition through the
critical point is studied. The computations are carried to
the point of the derived formulas which determine the
tolerances for the corresponding fluctuations. (auth)

Gol'DIN, L.L.

<u>Distr: 4E3d</u>

3393

ALPHA DECAY OF Pu[238], L. N. Kondrat'ev, G. I. Novikov, Iu. P. Sobolev, and L. L. Gol'din, Soviet Phys. JETP 4, 645-7(1957) June.

In this work results are given of investigations on the α spectrum of Pu[238] carried out with the help of an α spectrometer. The α spectra obtained are presented along with a level scheme for the U[234] nucleus. The parameters of the 4[+] level are given with precision; the first α line corresponding to the transition to a 6[+] level is observed, and the parameters of this level measured; two weak lines are found which can be assigned to the α decay of Pu[239]. A comparison of the experimental data with the theoretical formula of Landau is made for the intensities of the 0[+], 2[+], 4[+], and 6[+] levels. (auth)

GOL'DIN, L.L.

47201

MEASUREMENTS OF THE EFFECTIVE THERMAL NEUTRON CROSS-SECTION AND THE RESONANCE ABSORPTION INTEGRAL OF ^{232}Th. G. G. Mirzabekov, M. K. Anikina, L. L. Gol'din, and B. V. Ershler. Nuclear Energy 5, 110-51(1957).

The effective thermal neutron cross section of thorium ($\sigma_a = 7.31 \pm 0.10$ barn) and the resonance integral for thorium have been measured in a heavy-water reactor by an activation method. Gold, indium, and uranium were used as standards. Improved values for the effective thermal neutron cross section of indium ($\sigma_a = 168 \pm 10$ barn) and for the resonance integral of indium (RI = 3340 $\pm$ 300 barn) were determined. (auth)

AUTHORS   Tret'yakov, Ye.F., Gol'din L.L., and Grishuk, C.I.

TITLE   A Toroidal Beta-spectrometer for Studying the Conversion
           Radiation Accompanying Alpha-decay (Toroidal'nyy Beta-
           spektrometr dlya issledovaniya konversionnogo izlucheniya
           soprovozhdayushchego al'fa-raspad)

PERIODICAL: Pribory i Tekhnika Eksperimenta 1957. No. 6.
                      pp. 22 – 26 (USSR).

ABSTRACT: An ironless spectrometer of alpha-particles with
           spatial focussing of electrons is described. The instrument
           has a resolution of about 1% and an illumination of 7%
           (electrons). It can be used to study conversion lines with
           intensities of the order of 10⁻⁴ electrons per alpha-decay.
           The construction of the spectrometer is illustrated in Fig. 3.
           The main part of the spectrometer is a toroidal coil which
           produces the focussing field when a current passes through it.
           It consists of 800 copper turns which are water-cooled.
           Currents up to 30 A can be passed through the coil and electrons
           with energies up to 0.6 MeV can be focussed. The coil is
           placed in a copper cylinder which is evacuated to a pressure
           of 2 x 10⁻⁵ mm Hg. Close to the source is placed a photo-
           multiplier 14 which records alpha-particles. This photo-
           multiplier can be placed either below or above the source.

Card
1/2

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48-7-1/21

AUTHORS: Kondrat'yev, L.N.,   Novikova, G.I.,   Dedov, V.B.,   Gol'din, L.L.

TITLE: α -Decay of Pu^{238} (α -Raspad Pu^{238})

PERIODICAL: Izvestiya Akad. Nauk SSSR, Ser. Fiz., 1957, Vol. 21, Nr 7,
                pp. 907 - 908 (USSR)

ABSTRACT: The knowledge of the α -decay intensities on the successive lev-
                els which belong to a rotation level permits to draw important
                conclusions on the formation of the daughter nuclei. The most
                accurate values of the α -decay intensities can be determined
                by direct measurement of the α -transitions by means of an
                α -spectrometer or by an ionization chamber. The determination
                of the intensities by other methods sometimes leads to great
                errors. The low intensity of the transitions to the levels $4^+, 6^+$
                and so on make it necessary to chose comparatively short-lived
                substances for the investigation by means of an α -spectrometer.
                In this work the highest excited states of rotation of U^{234}
                which show themselves in the α -decay of Pu^{238} were investigated,
                where the investigation was carried out by means of a magnetic
                α -spectrometer of the Academy of Science of the USSR. Pu^{238}
Card 1/2   was obtained as a product of the α -decay of Cm^{242} which had

G . L   B I N   L. L.

48-7-2/21

AUTHORS: Agapkin, I.I., Gol'din, L.L.

TITLE: The Energy of the α -Particles of Po210 (Energiya α-chastits Po210)

PERIODICAL: Izvestiya Akad. Nauk SSSR, Ser. Fiz., 1957, Vol. 21, Nr 7,
                pp. 909 - 912 (USSR)

ABSTRACT: Magnetic α -spectrometers permit to compare the energies of the
                investigated α -particles with the energy of those α -particles
                which are emitted by standards. Nevertheless the data obtained by
                different authors for one and the same groups of α -particles
                sometimes differ widely, especially when work is done with dif-
                ferent standards. Therefore the authors performed a new measure-
                ment of the energy of the α -particles of Po210. Further the
                magnetic α -spectrometer is described, as well as the method
                of operation. The measurement results of the energy of Po210
                are shown in table 1. The results of the investigation are re-
                presented by figure 1. Table 2 gives the measurement results of
                the energy of the α -particles of Em220 and figure 2 gives the
                results of the investigation of Em220. The obtained values lead

Card 1/2   to the conclusion that the energy of the α -particles of Em220

AUTHOR   NOVIKOVA, G.I., KONDRAT'YEV, L.N., SOBOLEV, Yu.P., GOL'DIN,L.L.C-5-11/55

TITLE   The Alpha-Decay of Pu239.
(Alfa-raspad Pu239.- Russian)

PERIODICAL Zhurnal Eksperim. i Tecret. Fiziki 1957, Vol 32, Nr 5, pp 1018-1021 (USSR)

ABSTRACT   First all the paper under review makes reference to some relevant
previously published papers and thus outlines the present stage in
the investigations with respect to the above problem. The authors
investigated the α-spectrum of Pu^{239} by means of a magnetic
α-spectrometer in the energy interval from 4,850 to 5,120 MeV.
The first diagram in the paper under review represents the
α-spectrum in the energy interval 5,025 - 5,120 MeV. One can
see quite distinctly a line that corresponds to the level of
84 keV. A second diagram shows the part of the spectrum situated
in the energy interval 4,850-5,080 MeV. With certainty one can
see here an α-line corresponding to the level with the excitation
energy of 151 keV. The intensity of this transition amounts to
(0.013   0.005) %. The excitation energy of the level with $I = 9/2$
belonging to the rotational band with $K = 1/2$ amounts to 153 keV
and thus coincides with the energy of the level discovered by
the authors of the paper under review. Thus the energies of

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The Alpha-Decay of Pu^{239}.   56-5-11/55

of Pu^{239} and the lowest level of the rotational bands have the
same parity. The transitions to the levels with the energy
13.2 and 52 keV take place with $1 = 2$, and the transitions to
the levels with the energy 84 and 151 keV with $1 = 4$. In
concluding, the authors of the paper under review also discuss
the γ-transition between the levels with the spin 1/2 and
7/2.
(3 reproductions)

ASSOCIATION: -
PRESENTED BY: -
SUBMITTED: 13.2. 1957
AVAILABLE: Library of Congress.

CARD 3/3

GOLDIN, L. L., ADEISON-VELSKIY, G. M., BIRZGAL, A. P., PILIYA, A. D. and
TER-MARTIROSYAN, K. A.   (Mosocw USSR)

"La Desintegration Alpha des non Spheriques."

report presented at the Intl. Congress for Nuclear Interactions (Low Energy) and
Nuclear Structure (Intl. Union and Pure and Applied Physics) Paris, 7-12 July 1958.

GOLDIN, L. L., KONDRAT'YEV, L. N., NOVIKOVA, G. I., PILIYA, A. D.,
TER-MARTIROSYAN, K. A.   (Moscow USSR)

"La Disintegration alpha des noyaux non Spheriques."

report presented at the Intl. COngress for Nuclear Interactions (Low Energy) and
Nuclear Structure (Intl. Union Pure and Applied Physics), Paris, 7-12 July 1958.

AUTHORS: Kondrat'yev, L. N., D-bov, V. E.   Gu du, L. L.

TITLE: The α-Decay of Cm²⁴⁴ (α-rasp; Cm²⁴⁴)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya
               Vol. 22, Nr 2, pr. 9 - 100 (USSR)

ABSTRACT: The intensity of the α-decay to the second excited level (4⁺)
               was calculated here and the values of calculation were com-
               pared with those of the experiments. The formula by L. D.
               Landau (Ref 1) and the data of Ref 2 were used for the com-
               parison. It is shown that in Cm²³⁸ and Cm²⁴⁴ nuclei an
               especially strong divergence of the values of calculation
               with those of the experiments occurs. As the intensity of
               the α-decay of curium had only been measured one (Refs 4 5)
               the authors checked the correctness of these experiments.
               The work was performed by means of the magnetic α-spectro-
               meter of the AS USSR. A number of photographs with an ex-
               posure of up to one week each were made. The energy of the
               main peak was not measured here. It was assumed as being
               equal to 5110 keV (Ref 3). The energies of the α-lines were
Card 1/2   measured with reference to this value. The α-line with

The α-Decay of Cm^{242}

5777 keV is clearly visible in section III of the α-spectrum and is no doubt connected with a Cm^{242} admixture. The results of these experiments show that the great divergence between the experimental and the calculated values of the intensity in the case of α-decay to level 4 is entirely real. Within the frame of the existing conceptions this must indicate that in the case of Cm^{242} the shape of the nucleus can in no case be satisfactorily expressed by the formula

$$ w(\vartheta) = c \left[1 - c_2 P_2(\cos \vartheta) \right] $$

(Ref 3) and that it is not ellipsoidal (Ref 4). The following scientists helped in the work: I. I. Agapkin, Ye. F. Tretyayev, Yu. M. Chernov, V. M. Kuznetsova. There are 2 figures, 1 table, and 6 references, 4 of which are Soviet.

AVAILABLE   Library of Congress

1. Cm^{242} (α) Decay Theory   2. Curium Isotopes (Radioactive)

Card 2/2

AUTHOR: Gol'din, L. L.   SOV/56-34-3-16/55

TITLE: The Dependence of the α - Decay Rate on the Energy of the
Rotational Level (Zavisimost' intensivnosti α - raspada ot
energii rotatsionnykh urovney)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958.
Vol. 34, Nr 3, pp. 643-645 (USSR)

ABSTRACT: The probability of the α -decay into the ground levels of the
daughter nuclei is connected by the Geiger-Nutall law (Geyger-
Nutoll) with the energy of the α-particles. This law which may be
stated in the form $\lg_{10} \lambda = C - D/\sqrt{E}$ describes especially
well the probability of the α-decay into the ground levels of
the even-even nuclei. In the case of odd nuclei the observed
probabilities of the α-decay are usually smaller than the values
computed by the above given formula. The problem is raised of the
computation of the intensity of the α-decay on such levels,
which belong to the same rotational band. The explanation of the
following problem would be interesting: 1) Up to which energies
E and angular momenta l can the formula $\lg_{10} \lambda(E,l) = \lg_{10} \lambda(E_o,0)$

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The Dependence of the α-Decay Rate on the Energy
of the Rotational Level

$+ A(E - E_o) + Bl (l+1) + \ldots$ with an omission of the higher
terms of the expansion be applied? 2) Does the energetic
part of the **formula just given** agrees with the before given
formula by Geiger-Nutall (Geyger-Nutoll)? This problem is not
simple, because in general it is not succeeded to separate the
dependence of the quantity λ from E and from L. This problem
is solved immediately in the analysis of the α-decay of the
nuclei with the spin 1/2 on such rotational levels of the
daughter nucleus, which belong to the band with K = 1/2. In
this case K denotes the projection of the component of the
momentum upon the axis of the nucleus. The author here investi-
gates the decay of Pu^{239}; the experimental data on this decay
which are taken from a work by G. I. Novikova (reference 4) are
compiled in a table. All levels, referred to in the table,
belong to one and the same rotational band. The author here
compares the intensity of the α-decay on the doublet levels
with the before given formula. This formula by Geiger-Nutall
(Geyger-Nutoll) describes the energy dependence of the α-decay
on the rotational levels not less accurately than the intensity
of the α-decay on the ground levels of the even-even nuclei.
The result where obtained besides shows that in the here given

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The   Dependence of the α-Decay Rate on the Energy of the   SOV/56-34-46/55
Rotational Level

expansion the square terms for $l\langle l$ are unessential. The
small and approximately equal predominance of the computed
values of λ_i/λ_{i+1} over the experimental values leads to the
conclusion that the value of D in the before given formula
has to be assumed somewhat lower than A. Bohr et al. (reference
1) have suggested.
There are 1 table, and 4 references, 2 of which are Soviet.

SUBMITTED: September 6, 1957.

Card 3/3

56-34-4-4/60

AUTHORS: Tret'yakov, Ye.F., Grishuk, G.I.,
             Gol'din, L.L.

TITLE: The Investigation of the Lower Excited Levels of U^{235} on the
             Basis of the Electrons of the Internal Conversion (Izucheniye
             nizhnikh vozbuzhdennykh urovney U^{235} po elektronam vnutrenney
             konversii)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958,
             Vol. 34, Nr 4, pp. 811 - 819 (USSR)

ABSTRACT: This work investigates the electrons of the internal conversion
             which are emitted from U^{235}-nuclei subsequent to the α-decay of
             Pu^{239} nuclei. In the introduction a short report is given on
             previous papers dealing with the same subject. These internal
             conversion electrons were examined by a large iron-free β-spectro-
             meter with a toroidal magnetic field. The first paragraph re-
             ports very shortly on the experimental technique. The authors
             investigated the conversion spectrum of the U^{235} up to electron
             energies of 350 keV, but conversion lines with an energy which
             considerably surmounts the background were found only in the

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The Investigation of the Lower Exited Levels of U^{235} 56-34-4-4/60
on the Basis of the Electrons of the Internal Conversion

range from 0 - 105 keV. Three different diagrams illustrate the
ranges of the conversion spectrum for 0 - 35 keV, 35 - 52 keV,
42 - 105 keV. The energies of the electrons and the intensities
of the conversion lines are compiled in a table. First the
authors report on the levels I and II (13,0 and 51,7 keV). These
two levels I and II are to be regarded as the first excited le-
vels of the rotation band with K = 1/2. According to this inter-
pretation the levels 0, I and II must possess the spins 1/2,
3/2 and 5/2 as well as the same parity. Almost all conversion lines
which belong to the transitions II-0, II - I and I - 0 clearly
show up in the spectrum. The authors also determined the mul-
tipole properties of these γ-transitions. The level 85,0 keV is
the third excited rotation level of the band with K = 1/2. On
this occasion the spin must be equal to 7/2 and the parity must
agree with the parity of the remaining levels of the same band.
The authors found only one transition starting from this level,
the transition III - I with the energy 70,8 ± 0,2 keV. Remark-
able is also the absence of the transition III - 0. From the
level IV (109,7 keV) transitions start, which is discussed in

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The Investigation of the Lower Emited Levels of U^{235} $56-34-4-4/66$
on the Basis of the Electrons of the Internal Conversion

greater detail. From the level V (172,6 keV) some weak conversion
lines start. This level seems to have the spin 7/2. Finally a
short report is given on level VI with the energy 234 keV. The
authors also looked for the electrons of an isomeric transition,
but without success. The Pu240-admixture in the investigated
samples allowed also the investigation of the conversion electrons
emitted from its daughter-substance U^{236}. The results of this
work show without doubt that the levels 0,I,II,III and IV of U^{235}
belong to the rotation band with K = 1/2. The investigation of
the α-spectrum of Pu239 speaks for the existence of a whole series
of higher excited levels of U^{235}, but the electromagnetic transi-
tions between these levels cannot be observed. At the end the
authors thank L.N.Kondrat'yev, I.I.Agaphin and G.Chernov for their
assistance in the measurements, and L.A.Sliv for the information
on the internal conversion coefficients on the L-shell. There
are 4 figures, 2 tables, and 19 references, 4 of which are Soviet.

SUBMITTED: November 15, 1957

1 Alpha particles—Decay   2. Uranium—Production   3. Beta
particles—Detection

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