

FEDEROVICI, C., ing.

Optimum structure of the transporting technological process
in reed exploitation. Cel hirtle 11 no.2:41-48 F'62.

FEDEROWICZ, Wladyslaw, mgr., ins.

Methods of combating accidents in servicing electric installations in Poland. Wiad elektrotech 28 no.11/12:330-334 N-D '61.

1. Przewodniczacy Centralnej Komisji Ochrony Pracy, Stowarzyszenie Elektrykow Polskich, Warszawa.

FEDEROWICZ, Wladyslaw, mgr., inż.

Modern methods for industrial safety at electric installations.
Wiad elektrot 30 no.3:70-73 '62.

1. Przewodniczacy Centralnej Komisji Technicznej Ochrony Pracy
Stowarzyszenia Elektrykow Polskich.

FEDEROWSKI, W.

"Wages for work connected with the reconstruction of agricultural system." p. 47
(Przegląd Geodezyjny, Vol 9, No 2, Feb 1953, Warszawa)

SO: Monthly List of East European Accessions, Vol ² ~~I~~, No ⁹ ~~I~~, Library of Congress ^{Sept 53} ~~XXXXXX~~ Uncl

FEDEROWSKI, W.

FEDEROWSKI, W., Supplementary surveying of state farms. p. 181.

Vol. 11, no. 6, June 1955, Warszawa, Poland. SCIENCE

SO: Monthly List of East European Accessions (EMAL), LC, Vol. 5, No. 2 Feb. 1956

USSR/Human and Animal Physiology - (Normal and Pathological). T
Nervous System. Electroencephalogram of Man.

Abs Jour : Ref Zhur Biol., No 4, 1959, 17922

Author : Peymer, N.A., Fedeyeva, A.A.

Inst : Military-Medical Academy

Title : Changes of Electroencephalogram in the Process of Con-
ditioned-Reflectory Activity in Patients with Closed
Trauma of the Brain.

Orig Pub : Tr. Voen-med. akad., 1957, 74, 286-293

Abstract : In comparison with healthy people, patients with trauma-
tic encephalopathy had a reaction to an indifferent sti-
mulus that was more prolonged (10 sec) and stable (extin-
guishes by 8-10 test). The transformation of the stimu-
lus into a conditioned stimulus induced the same changes
as well as the appearance of high-amplitude slow waves

Card 1/2

USSR/Human and Animal Physiology - (Normal and Pathological). T
Nervous System. Electroencephalogram of Man.

Abs Jour : Ref Zhur Biol., No 4, 1959, 17922

and "ejections", especially strongly expressed in diffe-
rentiated stimuli. To these changes corresponded a lar-
ge latent period and prolonged character of motor reac-
tion, intersignal reaction and a frequently encountered
inability to produce differentiation. -- T.G. Beteleva

Card 2/2

KAYBICHEVA, M.N., TULIN, N.A., BASTRIKOV, N.F., FEDYEVA, N.I.

Wall blocks of electric steel-smelting furnaces made of magnesite-
chromite brick wastes. Ogneupory 25 no.4:186-188 '60. (MIRA 13:8)
(Firebrick--Testing) (Chelyabinsk--Smelting furnaces)

FEDICHKIN, G. Ya.

Methods of growing hemp and ambary in the zone of light Sierozems
of the Chu Valley. Trudy Otd.pochv.AN Kir.SSR no.5:63-71 '55.
(MLRA 9:11)

(Chu Valley--Sierozem soils) (Hemp) (Ambary hemp)

FEDICHKIN, I. K.

36676. Fedichkin, I. K. Opyt stroitelstva zemlyanoy plotiny na moshchnom sloye razzhizhennogo ila. Gidrotekhnika i melioratsiya, 1949, no. 5, c. 50-59

SO: Letopis' Zhurnal'nykh Statey, Vol. 50, Moskva, 1949

FEDICHKIN, I.K., prof.; OVCHARENKO, I.KH., inzh.; AVTONOMOV, B.P., inzh.;
KONOCHKIN, F.G., inzh.

Features of water intake from a river during the low-water period
by port-type water intakes. Izv. vys. ucheb. zav.; energ. 6
no.6:111-114 Je '63. (MIRA 16:11)

1. Novosherkasskiy inzhenerno-meliorativnyy institut.
Predstavlena nauchno-tekhnicheskoy konferentsiyey.

FEDICHKIN, N., red.; GOLIN, A., tekhn. red.

[Use polymers in production; collection of materials of the Scientific and Technological Conference on the Use of Polymers in Industry held in Penza] Polimery - v proizvodstvo; sbornik materialov. Penza, Sovet. nar. khcz. Penzenskogo ekon. administrativnogo raiona, 1962. 110 p.
(MIRA 17:3)

1. Nauchno-tekhnicheskaya konferentsiya po voprosu primeneniya polimerov v promyshlennosti, Penza.

FEDICHKINA T. L.

ca

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Detection of nitrotoluene in nitrobenzene and of toluene in benzene. I. H. Ya. T. Eklus and T. L. Fedichkina. *Dokl. acad. sci. U. R. S. S. Classe sci. chim.* 1940, 276-81, 273-7. The method used by Raikow and Orkevitch (*Chem. Ztg.* 30, 295(1906)) for the detection of toluene (I) in benzene (II) is based on the assumption that the mixt. of I and II gives on nitration a mixt. of nitrotoluenes (III) and nitrobenzene (IV) in which III can be detected since it supposedly gives at ordinary temp. a yellow-brown compd. with pulverized NaOH whereas IV does not react under these conditions. It is shown now, however, that this method is erroneous because neither IV nor any of the 3 isomeric nitrotoluenes gives an immediate yellow-brown coloration with solid NaOH. The color observed by R. and O. is due to the product formed from 1,3-dinitrobenzene (V) and solid NaOH, V being always found among the nitration products of II. A method which allows the detn. of I in II in amts. as low as 0.4% has been developed which is based on the different color reactions given by III, IV and V with solid KOH and petr. ether. Thus a mixt. contg. III, IV, and V gives 3 distinct colored zones with KOH which appear with different velocities.

G. Stuebe, Berlin

ASS. S. L. A. METALLURGICAL LITERATURE CLASSIFICATION

100 AND 416, CROSS

PROCESSING AND PROPERTIES INDEX

FEDICHKINA, T. L.

CA

17

Sulfanilamide. G. I. Braz and T. L. Fedichkina. U.S.S.R. 64,306, Feb. 28, 1945. Sulfanilamide is obtained by heating formylsulfanilamide with H₂O or an aqueous soln. of NH₃ at ordinary or elevated pressure. M. Hosh

ASB-55A METALLURGICAL LITERATURE CLASSIFICATION

10000 2147 0147 434

CLASSIFY

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CLASSIFY

FEDIK, A

27-8-12/32

SUBJECT: USSR/Agricultural Schooling

AUTHOR: Fedik, A., Deputy Director of Agricultural Mechanization School #4, (Vinnitsa Oblast')

TITLE: Large Training Farms are Required (Nuzhny Krupnyye Uchebnyye Khozyaystva)

PERIODICAL: Professional'no - Tekhnicheskoye Obrazovaniye, Aug 1957, #8 pp 19-20 (USSR)

ABSTRACT: The article deals with questions of training students in agricultural mechanization schools and supports the assignment of larger training farms, the size depending on the number of students and the kind of soil.

INSTITUTION: Uchilishche Mekhanizatsiyi Sel'skogo Khozyaystva # 4 (Vinnitskaya Oblast') (Agricultural Mechanization School #4 (Vinnitsa Province).

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress
Card 1/1

16.7300

S/258/62/002/002/009/018
I028/I228

AUTHOR: Fedik, I. I. (Moscow)

TITLE: Tension of discs of a plastically non-uniform material

PERIODICAL: Inzhenernyy zhurnal, v. 2, no. 2, 1962, 324-331

TEXT: A disc of a material having a yield-point which is a function of the distance from the surface is considered. As plasticity condition is taken St-Venant's condition. The equilibrium equation for discs of variable thickness and the equation of consistency of deformations are determined. The set of equations is then integrated for discs of uniform and variable thickness: the cases of elastic, plastic-elastic, and plastic zones are treated separately. The load P_{max} at which elastic deformations disappear completely can be determined from the equations obtained. Tables of P_{max} for both fixed and variable yield-point are given. There are 2 figures and 2 tables.

VB

ASSOCIATION: Institut mekhaniki AN SSSR (Institute of Mechanics AS USSR)

SUBMITTED: November 28, 1961

Card 1/1

S/879/62/000/000/012/088
D234/D308

AUTHOR: Fedik, I. I. (Moscow)

TITLE: Momentless orthotropic shells of revolution subject
to large deformationsSOURCE: Teoriya plastin i obolochek; trudy II Vsesoyuznoy konfe-
rentsi, L'vov, 15-21 sentyabrya 1961 g. Kiev, Izd-vo
AN USSR, 1962, 111-114

TEXT: The author formulates the equations of equilibrium

$$\frac{d\zeta}{dx} = \frac{\cos \psi}{\cos \varphi} h^m \left(\frac{x}{\xi}\right)^n ;$$

$$\frac{dh}{dx} = -\frac{h}{x} \frac{a \ln \frac{x}{\xi} + b \ln h + c \left(1 - \frac{x}{\xi} \frac{d\zeta}{dx}\right)}{1 + c \ln \frac{x}{\xi} + \ln h} ;$$

Card 1/2

Momentless orthotropic ...

S/879/62/000/000/012/088
D234/D308

$$\cos \phi = \sqrt{1 - \left[\frac{Mx}{h \ln h + c \ln \frac{x}{\xi}} \right]^2} \quad (4)$$

(m, n, a, b, c are expressions in terms of Poisson's coefficients) and applies them to a spherical shell and to a cylindrical shell with rigid end plates. Some special cases are discussed, in particular the initial form of a shell which becomes spherical when subject to pressure. There are 2 figures.

Card 2/2

FEDIK, I.I. (Moskva)

Stressed state of disks made of plastically nonhomogeneous material. Inzh.zhur. 2 no.2:324-331 '62. (MIRA 15:6)

1. Institut mekhaniki AN SSSR.
(Strains and stresses)

FEDIKOV, N.F.

Stand for washing samples of deep-sea bottom fauna. Trudy Inst.
ocean. 41:254-256 '60. (MIRA 13:9)
(Pacific Ocean--Dredging (Biology))

FEDIN, A.A.

Improving the radio circuit for recording the instance of explosion.
Geofiz. razved. no.2:119-120 '60. (MIRA13:12)
(Radio in prospecting)

FEDIN, A. A.

FEDIN, A. A.: "The effect of autoclave processing on the properties of lime-clay materials of plastic formation". Moscow, 1955. Min Higher Education USSR. Moscow Order of Labor Red Banner Construction Engineering Inst imeni V. V. Kuybyshev. (Dissertations for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya letopis', No. 52, 24 December, 1955. Moscow.

FEDIN, A.A., kand.tekhn.nauk; BERDYSHEV, S.K., inzh.; KALASHNIKOV, A.V.,
inzh.; KUZNETSOVA, L.S., inzh.

Large aerated silicate blocks. Stroi. mat. 6 no.12:22-23 D '60.
(MIRA 13:11)

(Sand-lime products)

FEDIN, A.A., kand. tekhn.nauk; GHERNYSHOV, Ye.M., inzh.

Improving techniques and eliminating flaws in the manufacture of
air-entrained silicate products. Stroi. mat. 8 no.4:25-28 Ap
'62. (MIRA 15:8)

(Sand-lime products)

VLASYUK, P.A., akademik, red.; ROMANENKO, I.N., akademik, red.; RODIONOV, S.P., red.; TYULENEV, red.; PSHENICHNIY, P.D., akademik, red.; DAVYDOV, kand.ekon.nauk, red.; KUGUKALO, I.A., kand.ekon.nauk; BEREZIKOV, V.S., red.; FEDIN, A.D., red.; KOZAKEVICH, T.A., red. izd-va; SIVACHENKO, Ye.K., tekhn.red.

[Proceedings of the Conference on Problems in Developing Production in Polesye] Konferentsiia po voprosam razvitiia proizvoditel'nykh sil Poles'ia USSR, Kiev, 1955. Pt.3 [Problems in the development of agriculture in Polesye; stockbreeding and feed supply, land improvement and reclamation of swamps] Voprosy razvitiia sel'skogo khoziaistva Poles'ia; zhivotnovodstvo i kormovaia baza, melioratsiia i osvoenie bolot. Kiev, Izd-vo Akad. nauk USSR, 1958. 208 p. (MIRA 12:1)

1. AN USSR; Ukrainskaya akademiya sel'skokhoz.nauk i Vsesoyuznaya akademiya sel'skokhoz.nauk im. V.I. Lenina (for Vlasyuk). 2. Ukrainskaya akademiya sel'skokhoz.nauk, chlen-korrespondent Vsesoyuznoy akademii sel'skokhoz. nauk im. V.I. Lenina (for Romanenko). 3. Chlen-korrespondent AN USSR (for Rodionov, Tyulenev). 4. Institut fiziologii rasteniy i agrokhimii AN USSR (for Tyulenev). 5. Ukrainskaya akademiya sel'skokh. nauk (for Pshenichnyy). 6. Zamestitel' nachal'nika otdela svodnykh perspektivnykh planov Gosplana USSR (for Beresikov). 7. Nachal'nik podotdela sel'skogo khozyaystva otdela svodnykh perspektivnykh planov Gosplana USSR (for Fedin). (Polesye--Agriculture)

LUK'YANOV, V.B.; MAKAROV, A.V.; FEDIN, A.D.

Mathematical statistics in the control of radiometric apparatus.
Zav.lab. 29 no.7:844-849 '63. (MIRA 16:8)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Radiometry) (Mathematical statistics)

SEGEYEV, N.N.; IVANOV, K.V.; ~~XXXXXXXXXXXXXXXXXXXX~~ FEDIN, A.F.; KRASOVSKIY, Yu.P.; TKACHENKO, A.P.

Rapid building of the Pervomayskiy open-pit mine in the Severnoya
Mining and Ore Dressing Combine. Met. i gornorud. prom. no.3:73-74
My-Je '63. (MIRA 17:1)

FEDIN, A. Kh.

PROCESSES AND PROPERTIES IN THE

Accumulation of nitrates in the Batum soils A. Kh. Fedin, *Soviet Subtropics* 1938, No. 12, 27-8; *Khim. Referral. Zhur.* 2, No. 5, 55(1939). - In mulched and drained soils (a ditch around the lemon tree with a radius of 1 m.) the content of nitrates was greater than in unmulched and untrained lemon tree soils. In the first case the amt. of nitrates remained at a fairly const. level, in the second case sharp variations were observed, especially during the autumn-winter period. W. R. H.

ASIA SUBS. METEOROLOGICAL LITERATURE CLASSIFICATION

FEDIN, A. Kh.

"Maintaining the Viability of Preserved Potato Berries," Usp. sovr. biol.,
33, No.2, 1952

FEDIN, A. Kh.

"A New Genus of Fossil Conifers Papaninia Involucrata Fedin,"

Dokl. Ak. Nauk SSSR, 41, No. 8, 1943 .

FEDIN, A.Ye.

Strength of public influence. Izobr. v SSSR 2 no.6:37-38 Je '57.
(Inventions) (Efficiency, Industrial) (MLRA 10:8)

FEDIN, A. Ye.

FEDIN, A. Ye.

Visiting innovators. Izobr. v SSSR 3 no.1:34-35 Ja '58. (MIRA 11:1)

1. Nachal'nik Byuro sodeystviya ratsionalizatsii i izobretatel'stva
Moskovskogo zavoda "Frezer."
(Inventors)

FEDIN, A. Ye.

Work of the invention section of the factory committee. Izobr. v
SSSR 3 no.2:41-42 F '58. (MIRA 11:3)

1. Nachal'nik Byuro sodeystviya ratsionalizatsii i izobretatel'stvu
savoda "Frezor."

(Inventions)

SOV/117-58-11-6/36

AUTHORS: Braginskiy, Ye.O., Engineer, Fedin, A.Ye.

TITLE: ~~6000~~
The Modernization of the Semi-Automatic Milling Machine Model 6V-1 (Modernizatsiya frezernogo poluavtomata modeli 6V-1)

PERIODICAL: Mashinostroitel', 1958, Nr 11, p 8 (USSR)

ABSTRACT: The semi-automatic milling machine model 6B-1 is used for milling screw grooves. In the regulation of the spindle, there were several drawbacks. The modernized spindle has been mounted on rolling bearings. The longitudinal stresses are absorbed by support bearings. In the front support of the spindle, a two-range roller bearing AZ182116 has been inserted which ensures the rigidity of the spindle and the exactness of the revolutions. The clearances between bearings have been abolished. There is 1 diagram.

1. Milling machines--Performance 2. Milling machines---Design

Card 1/1

STROYEV, A. S., BUDZINSKIY, O. Z., IVANOV, A. M. and FEDIN, B. V.
Institute of Aircraft Materials.

FEDIN, B. V.

"Vacuum Arc Melting of Refractory Metals."

paper presented at Second Symposium on the Application of Vacuum in Metallurgy.

Moscow, 1-6 July 1958

PLATE I BOOK EXTRACTS 807/548

Abstracts from USSR. Kuznetsov on Emission Spectra of Plasma-Induced Arcs
Primeneniye plazmy v metallurgii (Use of Plasma in Metallurgy) Moscow, Izdatse
AN SSSR, 1960. 114 p. Russian slip inserted. 4,500 copies printed.

Abstracts from USSR. Institute of Metallurgy Soviet Acad. Sciences.
Kuznetsov on Emission Spectra of Plasma-Induced Arcs.
Kuznetsov, M. A. Sverdlov, Corresponding Member, Academy of Sciences USSR; Ed. of
Publishing house G. N. Kholodnyy; Techn. Sci. S.S. Moskva.

CONTRIBUTORS: This book contains information on steel melting in vacuum induction fur-
naces, and vacuum arc furnace, reduction processes in vacuum, and degassing of
steel and alloys. The functioning of apparatus and equipment, especially
vacuum furnaces and vacuum boiler pumps is also analyzed. Personalities are
mentioned in connection with some of the articles and will appear in the table
of contents. Three articles have been translated from English. Some of the
articles are: [A. A. Gerasimov and I. I. Polzun. Melting and Pouring of
Alloys in Vacuum (V. A. Doshkin, I. I. Lebedev, V. A. Akhshar, V. A. Akhshar,
A. I. Babitskiy and V. I. Molin participated in the work)]

Kobayashi, Tadao, and Y. C. Yoshida. Casting of Oxide-Film-Forming Alloys
in the Protective Atmosphere of Oxygen Vacuums
Yoshida, Tadao, Y. C. Yoshida, T. I. Furu, and Issa, Otsu. The Effects of
Melting and Casting in Vacuum and its Protective Atmosphere on the Properties
of Titanium Castings
Kobayashi, Tadao, and A. H. Sverdlov. Vacuum Melting of Stainless Steel
Pillayappan, S. K. The Effect of Vacuum Melting on the Quality of INCOLOY
800

PART II. MELTING OF STEEL AND ALLOYS IN VACUUM AND PROTECTIVE
ATMOSPHERES
Gerasimov, A. A., G. A. Gerasimov, A. H. Sverdlov, and I. I. Polzun. Melting of In-
termetallic Alloys in Vacuum in Furnaces
Polzun, I. I., G. A. Gerasimov, A. H. Sverdlov, and I. I. Polzun. Investigation of the
Properties of Cold-Chamber Steel Annealed in a Vacuum Arc Furnace
Johnson, A. H. Vacuum Arc Melting
Pillay, J. S., and E. J. Sverdrup. Melting of Stainless Steel in Vacuum
Arc Furnaces
Meyer, M. Properties of Alloys Melting in Vacuum
Sverdlov, I. I. Properties of Low-Carbon Ferronickels by Blowing Oxides
in Vacuum

PART III. REDUCTION PROCESSES IN VACUUM
Gallo, P. J., and G. J. Sverdlov. Kinetics of the Reduction of Silicon
in Vacuum by Carbon in Vacuum
Meyer, M. Vacuum-Plasma Reduction of Oxides of the Refractory Metals
by Carbon (O. I. Kozlov, G. J. Sverdlov, I. M. Litvin, G. I. Stepanov and
Ivanov, V. I. Kozlov, G. I. Sverdlov, I. M. Litvin, G. I. Stepanov and
Ivanov) conducted investigations on their this article is based
Part 3. [Partial People's Republic, Institute of Iron Metallurgy in
Abstracts: Decarburization of Ferronickels in Vacuum

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ZAKHAROVA, Galina Vasil'yevna, kand. tekhn. nauk; POPOV, Ivan Alekseyevich, kand. tekhn. nauk; ZHOROVA, Lilianna Pavlovna; FEDIN, Boris Vladimirovich; Prinimali uchastiye: MUKHINA, Z.S., zasl. deyatel' nauki i tekhn. RSFSR; POPOVA, I.A., zasl. deyatel' nauki i tekhn. RSFSR; YEGUROVA, N.D., zasl. deyatel' nauki i tekhn. RSFSR; NIMITINA, Ye.I., zasl. deyatel' nauki i tekhn. RSFSR; ZHEMCHUZHAYAYA, Ye.A., zasl. deyatel' nauki i tekhn. RSFSR; ZHABINA, V.A.; SAVITSKIY, Ye.M., red.; STROYEV, A.S., red.; ARKHANGEL'SKAYA, M.S., red. izd-va; KARASEV, A.I., tekhn. red.

[Niobium and its alloys] Niobii i ego splavy. By G.V.Zakharova i dr. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 368 p. (MIRA 14:12)
(Niobium)

FEDIN, B.V.

PHASE I BOOK EXPLOITATION

SOV/5934

Zakharova, Galina Vasil'yevna, Ivan Alekseyevich Popov, Liliانا Pavlovna Zhorova,
and Boris Vladimirovich Fedin

Niobiy i yego splavy (Niobium and Its Alloys) Moscow, Metallurgizdat, 1961.
368 p. Errata slip inserted. 3700 copies printed.

Eds.: Ye. M. Savitskiy and A. S. Stroyev; Ed. of Publishing House: M. S.
Arkhangel'skaya; Tech. Ed.: A. I. Karasev.

PURPOSE: This book is intended for scientific research workers, metallurgical engineers
and designers concerned with the production or utilization of niobium. It
may also be useful to students at metallurgical schools of higher education.

COVERAGE: The book reviews the physicochemical and mechanical properties of
niobium and niobium alloys, methods of obtaining niobium in powder and con-
solidated form, the effect of gases on the properties of niobium, the
process of niobium oxidation in air, the machining and heat treatment of
niobium and its deformation, welding, metallography, and fields of application.

Card 1/1

Niobium and Its Alloys

SOV/5934

A large volume of material relating to equilibrium diagrams and the properties of niobium alloys is systematized. Chs. I, II, Section 1 of Ch. III, and Chs. IV, and X were written by G.V. Zakharova, Candidate of Technical Sciences; Ch. III, by B. V. Fedin; Ch. VI and VII, by I.A. Popov and L.P. Zhorova, Candidate of Technical Sciences; Ch. VIII, by L.P. Zhorova; Section 1 of Ch. IX, by G.V. Zakharova; Section 2 of Ch. IX, by Z.S. Mukhina, I.A. Popova, N.D. Yegorova, Ye. I. Nikitina, and Ye. A. Zhemchuzhina; and Section 3 of Ch. IX, by V.A. Zhabina. Each chapter is accompanied by references, Soviet and non-Soviet.

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Card 2/8

ZHOROVA, Liliana Pavlovna; KURGANOV, Georgiy Vladimirovich;
FEDIN, Boris Vladimirovich; FISHER, A.Ya., red.;
BRYUKHACHEVA, V.V., ved. red.

[Modern niobium alloys, the technology of their production and use; review of foreign techniques] Sovremenrye niobievye splavy, tekhnologiya ikh proizvodstva i primeneniye; obzor zarubezhnoi tekhniki. Moskva, GOSINTI, 1962. 27 p. (MIRA 17:5)

SOV/30-58-7-14/49

AUTHOR: Fedin, E. I.

TITLE: A Quadrupole Radiospectroscope (Kvadrupol'nyy radiospektroskop)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, ¹⁴Nr 7, pp. 79 - 81 (USSR)

ABSTRACT:

In 1950, the German scientists G. Demelt, G. Krüger (G. Kryuger) discovered the phenomenon of nuclear quadrupole resonance. The frequency of the quadrupole resonance is sensitive with respect to changes of the chemical properties of the atoms to be investigated and extremely sensitive with respect to insignificant modifications of the crystal lattice. The quadrupole resonance must be considered as the most sensitive amongst all physical methods of investigation with respect to chemical properties. The character of the chemical compound may be concluded from the intensity of the absorption line. In the Soviet Union no work has hitherto been carried out in this field. Recently, the Scientific Council of the Institute of Elemental-organic compounds, AS USSR (Uchenyy sovet Instituta elementoorganicheskikh soedineniy Akademii nauk SSSR) decided to start the investigations in this field. The author of this article - in collaboration with

Card 1/3

A Quadrupole Radiospectroscope

SOV/30-50-7-14/49

G.K.Semin - investigated a series of the schemes in the Laboratory of Organic Chemistry of Crystals and X-Ray Structural Analysis (Laboratoriya organicheskoy kristallogimii i rentgenostrukturnogo analiza) which is under the supervision of A.I. Kitaygorodskiy. A signal of nuclear quadrupole resonance was obtained in the USSR for the first time in summer 1957. After this success, the author - in collaboration with Yu.S.Konstantinov began to design a quadrupole radiospectroscope. The block scheme of this device is given in figure 1 and explained. The method of recording absorption lines of Cl^{35} in sodium chlorate at room temperature is shown in figure 2. Taking account of the sensitiveness of the quadrupole resonance for any structural changes, it will most probably be possible to apply this method to the control of chemical processes. As a conclusion, the author finds that the time has come to coordinate the work carried out in this field, whereby development would be accelerated. There are 2 figures.

Card 2/3

AUTHOR: Felin, E. I.

SOV/53-66-1-7/11

TITLE: Physical Methods of the Investigation of Molecule Structure
(Fizicheskiye metody issledovaniya stroyeniya molekul)PERIODICAL: Uspekhi fizicheskikh nauk, 1958, Vol. 66, Nr 1,
pp. 131 - 139 (USSR)

ABSTRACT: On May 14 and 15, 1958 at the Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AS USSR) an extended session of the Scientific Council took place dealing with the subject: "Theory of Chemical Structure, Kinetics, and Reactivity". The session was summoned by the Otdeloniye khimicheskikh nauk AN SSSR (Department of Chemical Sciences, AS USSR). It was attended by more than 300 scientists. V.N.Kondrat'yev, Member, Academy of Sciences, USSR, gave the opening address. The following lectures were heard: A.I. Kitaygorodskiy, Professor, spoke on radiographical, electronographical, and neutronographical methods for the determination of the molecule structure. B.S. Neporent reported on electron spectroscopical methods of investigating simple and complicated molecules. E. V. Shpol'skiy made a report on the spectroscopical investigation of polyatomic organic

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Physical Methods of the Investigation of Molecule
Structure

SOV/53-66-1-7/11

molecules and M.M.Sushchinskiy on "Methods of Oscillation Spectroscopy" (historical review: Since the discovery of combination scattering 30 years ago spectra of combination scattering of more than 2000 substances have been investigated and since the discovery of infrared spectroscopy 50 years ago more than 20 000 substances have been examined by means of the infrared spectra). V.I.Dianov-Klokov reported on infrared spectra of condensed gases: An animated discussion followed the first 5 lectures. M.A.Yel'yashevich, the comrades Makarov, Zamkov and Levin, further E.V.Shpol'skiy, N.D. Sokolov, B.S. Neporent, Ya.L.Gol'dfarb and G.L.Slonimskiy participated in this discussion. A.A.Brandt held the following lecture on electrical methods of the investigation of structure, properties, and interaction of the molecules, and comrade Ivanov made a suggestion on a device for the measurement of electrical characteristics in a wide frequency and temperature range. The session on May 15 was opened by A.M.Prokhorov with a lecture on radiospectroscopy and paramagnetic electron resonance (investigation of gases at

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Physical Methods of the Investigation of Molecule
Structure

SO7/53-66-1-7/11

10^{-12} torr). Further L.A. Blyumenfel'd made an account of the application of the paramagnetic electron resonance in biology and in investigations of organic metal compounds (investigations in the laboratory of V.V. Voyevodskiy at the IKhF AN SSSR (Institut khimicheskoy fiziki AN USSR - Institute of Chemical Physics, AS USSR) and in the laboratory of Blyumenfel'd). N.D. Sokolov spoke on the work of the research group Kazan' (Kazanskiy Gosudarstvennyy universitet i Kazanskiy filial AN SSSR - Kazan' State University and Kazan' Branch, AS USSR). B.M. Kozyrev reported on the work performed by the staff of the Laboratory of Paramagnetic Electron Resonance, Sokolov on the application of the nuclear magnetic resonance for chemical investigations of molecules; N.M. Iyevskaya spoke on the same subject. V.L. Tal'roze gave an account of radio-spectroscopic devices, E.I. Fedin reviewed new methods to investigate the molecular and the crystalline structure of solids (investigations in the laboratory of Kitaygorodskiy (INEOS AN SSSR)), K.V. Vladimirskiy reported on investigations of the chemical displacements in hydrogen and fluorine as well

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Physical Methods of the Investigation of Molecule
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as in other nuclei which exhibit a magnetic moment. M. A. Yel'yanhevich reported on the development of spectroscopical methods, E.V. Shpol'skiy on the investigation of weak effects by means of methods basing upon the magnetic resonance, L.L. Dekabrun on "spin-echo" methods, Ya.G. Dorfman on magneto-chemistry, M.A. Yel'yanhevich on the contact between various branches of research, and V.L. Tal'roz. on mass spectrometrical methods for the investigation of the molecule structure. Finally V.N. Kondrat'yev, Member, Academy of Sciences, gave the concluding address.

1. Molecules--Structural analysis
2. Laboratory equipment

Card 4/4

FEDIN, E.I.

LAZAREV, Petr Petrovich, akademik [deceased]. Primalni uchastiye:
BERNSHTAYN, L.B.; FEDIN, E.I.; SHMIDT, V.V.. KITAYGORODSKIY,
A.I., prof., otv.red.; POLENOVA, T.P., tekhn.red.

[Energy, its sources on the earth and its origin] Energiia,
ee istochniki na zemle i ee proiskhozhdenie. Moskva, Izd-vo
Akad.nauk SSSR, 1959. 274 p. (MIRA 13:2)
(force and energy)

AUTHORS: Fedin, E. I., and Konstantinov, Yu. S. SOV/120-59-2-7/50
 TITLE: Apparatus for Observing Nuclear Quadrupole Resonance
 (Apparatura dlya nablyudeniya yadernogo kvadropol'nogo rezonansa)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 2, pp 27-30 (USSR)

ABSTRACT: A sensitive quadrupole spectrometer is described; the second derivative of the signal is recorded by using a phase-sensitive system to detect the second harmonic of a small-amplitude frequency modulation (double frequency modulation is used). Eq (1) defines the interaction energies of the nuclear quadrupole moment. The system is a modification of those described by Livingston et al (Ref's 8 and 9). Eq (2) defines the voltage change in the circuit in terms of the (small) frequency deviation, etc. from which it follows that the second harmonic has an intensity given by Eq (3). Then Eq (4) gives the amplitude if the signal has the usual dispersion shape. Eq (5) gives the optimal frequency deviation (that which results in only 5% contribution deals with frequency derivative). The next section deals with frequency deviations that exceed the line width; Eqs (6a) and

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SOV/120-59-2-7/50

Apparatus for Observing Nuclear Quadrupole Resonance

(6b) then give the output. This method gives better sensitivity in detecting the line, but cannot give the line width. The circuit is that of Ref 10 (Hopkins') modified to suit Soviet valves. Fig 5 shows the signals recorded from the ^{35}Cl in 3 cc of polycrystalline sodium perchlorate at 29.9 Mc/s with scan amplitudes respectively smaller (left) and larger (right) than the line width.

Card 2/2 There are 5 figures and 12 references, of which 1 is German, 1 French, 7 are English and 3 are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR
(Institute of Elemental-organic Compounds, Ac.Sc.
USSR)

SUBMITTED: July 12, 1958

AUTHORS: Eedin, E.I. and Semin, G.K. SCV/109-4-1-17/30

TITLE: A Nuclear Quadrupole Radio-spectrometer (Yadernyy kvadrupol'nyy radiospektrometr)

PERIODICAL: Radiotekhnika i Elektronika, 1959, Vol 4, Nr 1, pp 127 - 128 (USSR)

ABSTRACT: The authors tried to devise an equipment for determining the quadrupole resonance, such that it could be constructed by using the standard available elements. It was finally found that satisfactory results could be obtained by employing a quadrupole radio-spectrometer of the type shown in the block schematic of Figure 1. In this, the investigated substance was situated in a brass container at the end of a coaxial line. The container housed the coil of the oscillator tank; a Hopkins-type oscillator-detector (Refs 1 and 2) was employed as the source of the radio-frequency energy and the detector of the nuclear signal. The variable capacitors of the tank circuit were such as to permit the coverage of a range from 25 to 37 Mc/s, while using the same coil. The anode circuit was supplied from a battery, while the heater was fed from an accumulator. In order to obtain an oscillo-

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A Nuclear Quadrupole Radio-spectrometer

graphic display of the signal, the frequency of the tank circuit was varied by means of an electrodynamic vibrating capacitor (type RV-1); this type of modulator resulted in a high resolving power of the spectrometer; this was of the order of 10^{-6} , which was better than the minimum required in the experiment. The equipment was used for many months and proved successful in operation. An oscillogram of the signal and noise for the absorption line of Cl^{35} in sodium chlorate is shown in Figure 2. The work described in this paper represents only the first stage of the investigations which are being carried out under the leadership of Professor A.I. Kitaygorodskiy in the Laboratory of X-ray Analysis of the INEOS of the Soviet Academy of Sciences. There are 2 figures and 2 English references.

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A Nuclear Quadrupole Radio-spectrometer SOV/109-4-1-17/30

ASSOCIATION: Institut elementoorganicheskikh sovedineniy AN SSSR
(Institute of Organic Elemental Compounds, AS USSR)

SUBMITTED: May 26, 1958

Card 3/3

FEDIN, E. I.

24(4)

SOV/25-59-11-14/38

AUTHORS: Kitaygorodskiy, A.I., Professor, Doctor of Physico-Mathematical Sciences, Fedin, E.I., Scientific Worker

TITLE: New Spectroscopy

PERIODICAL: Nauka i zhizn' 1959, Nr 11, p 35 - 40 (USSR)

ABSTRACT: The article deals with radiospectroscopy - a new field of science by which the finest properties of matter can be analyzed. The author describes spectral analysis, the energetic structure of molecules and why atomic spectra are mainly studied in ultra-violet and visible rays. He explains the difficulties arising when studying the spectra of complex molecules, stating that the atom itself has a rich optic spectrum which consists of several dozens of lines. On the spectrogram of the molecule, these spectra are superimposed one on the other, thus complicating the deciphering. Moreover, the spectral analysis in visible and ultra-violet rays is too rough an instrument for investi-

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New Spectroscopy

gating the closely arranged energetic levels of complex molecules. The author illustrates by an example the possibilities offered by infra-red spectroscopy which are also limited. For studying complex molecules containing not only fluorine, but also many elements which are widely used by modern chemistry, it is necessary to find new more closely-arranged energy levels. The author writes about two resonances: 1) the electronic paramagnetic resonance (EPR) and 2) the nuclear magnetic resonance (NMR). The electronic paramagnetic resonance was discovered by the Soviet physicist Ye.K. Zavoyskiy in 1944, the nuclear magnetic resonance by two American physicists in 1946. The combined application of infrared spectroscopy and nuclear magnetic resonance make it possible to fully determine the structure of a molecule. The discovery of Ye.K. Zavoyskiy made it possible to at once notice even small concentrations of molecular particles, the so-called free radicals, which is very important for

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New Spectroscopy

many chemical reactions. The method EPR was successfully employed in the laboratory of the Corresponding Member of the AS USSR V.V. Voyevodskiy of the Institut khimicheskoy fiziki (Institute of Chemical Physics) for studying reactions caused by radioactive radiation. In 1950, the YaMR was followed by the appearance of the nuclear quadrupole resonance (YaKR). The main difficulty in the study of the quadrupole resonance is the separation of very weak signals from noises. At the Laboratory of Professor A.I. Kitaygorodskiy, the work is in progress to increase the sensitivity of quadrupole spectrometers. Much experimental material has already been collected which makes it possible to compare the characteristics of chemical combination of the nucleus of chloride in hundreds of different compounds. Equal work is being done with the nuclei of bromine, iodine, nitrogen, sulfur and antimony. It must be mentioned that these interesting data have been obtained without screening with

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SOV/25-59-11-14/38

New Spectroscopy

a magnetic field, the stabilization of which creates so many difficulties in the YaMR (nuclear magnetic resonance). The second important property of the YaKR consists in the fact that its lines are narrow and legible only if the substance is in a solid state. The YaMR shows a reverse situation: its lines can be observed clearly and easily in fluids, but they expand and become dim in a solid state. A nuclear magnetic radio-spectrometer of super-high efficiency as shown in a picture is used for the investigation of chemical shifts of the proton resonance and permits in many cases to determine exactly the structure of the compound within 10 - 15 minutes. The laboratory of roentgenostructural analysis of the Institute of Elemental Organic Compounds of the AS USSR under the heading of Professor A.I. Kitaygorodskiy has created

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SOV/25-59-11-14/38

New Spectroscopy

a new scientific direction - the organic crystallo-chemistry. There are 1 photograph, 9 drawings and 1 drawing on the centerfold.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute for Elemental-Organic Compounds of the AS USSR) ✓

Card 5/5

S/058/01/000/010/055/100
A001/A101

AUTHOR: Fedin, E.I.

TITLE: Observation of nuclear quadrupole resonance in chlorine isotopes

PERIODICAL: Referativnyy zhurnal.Fizika, no.10, 1961, 166, abstract 10V375 (V
sb. "Paramagnitn. rezonans", Kazan', Kazansk. un-t, 1960, 162-164)

TEXT: The author describes the work conducted by him in the laboratory of the Institute of Element-Organic Compounds, AS USSR, on constructing an installation for observations of nuclear quadrupole resonance in chlorine. The last version of the installation has a regenerative and a superregenerative sensors. Signals are registered by means of a synchronous detector. The second derivative of the signal is registered. A signal from 5 cm³ of polycrystalline para-dichlorobenzene can be recorded with such a signal-to-noise ratio which assures detection, at extended search, ~25 times more than weak absorption.

N. Pomerantsev

[Abstracter's note: Complete translation]

Card 1/1

FEDIN, E. I.

Nuclear quadrupole resonance spectrum of 1,2,3-trichlorobenzene.
Zhur. strukt. khim. 1 no.1:124:My-Je '60. (MIRA 13:8)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Benzene--Spectra) (Nuclear magnetic resonance)

SEMIN, G.K.; FEDIN, E.I.

Applications of nuclear quadrupole resonance to crystallochemical investigations. Zhur.struk.khim. 1 no.2:252-267 JI-Ag '60.

(MIRA 13:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Crystals--Spectra)

68605

5-4500(B)

AUTHORS:

Kitaygorodskiy, A. I., Fedin, E. I.

S/020/60/130/05/014/061

B013/B014

TITLE:

Variation in the Intensity of Nuclear Quadrupole Resonance in
a Molecular Crystal Irradiated by Fast Electrons

PERIODICAL:

Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 5, pp 1005-1007
(USSR)

ABSTRACT:

The author of the paper under review made use of nuclear quadrupole resonance for indicating radiation damages of polycrystalline samples of n-dichlorobenzene which were exposed to different doses of 750-keV electron radiation. Resonance was determined by means of a frequency-modulated quadrupole radio-spectrometer with synchronous detection and signal recording by means of a recording millivoltmeter. The quadrupole resonance line was recorded several times for each sample (cf Fig 2). These lines have a "saturation region" when the increase in the irradiation dose no longer influences the intensity of the quadrupole resonance signal. This region corresponds to an unexpectedly low diminution of the signal intensity compared to the signal intensity of the nonirradiated sample ($A/A_0 = 0.75$). A considerable decrease of the signal ($A/A_0 = 0.3$) was achieved

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Variation in the Intensity of Nuclear Quadrupole Resonance in a Molecular Crystal Irradiated by Fast Electrons S/020/60/130/05/014/061 B013/B014

for a sample which had been cooled insufficiently during irradiation. Thus, fusion centers developed. In this case, the quadrupole resonance frequency remained unchanged. This fact and earlier obtained results are easily explained by the assumption that the chemical transformation occurring under the action of γ - and β -radiation can proceed inversely only at the crystal sites where the packing density is lower than in a perfect lattice. At sites of normal packing the position of molecule fragments obtained by the disruption of the chemical bond remains strictly fixed, and the bond is immediately re-established. After the molecules in the thin surface layer of the blocks, at the crack boundaries, etc have been destroyed, a further increase of the radiation dose has no effect on the intensity of the quadrupole resonance signal. When the sample is heated, λ/λ_0 decreases because the number of insufficiently packed and completely free molecules increases the fusion centers.

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Variation in the Intensity of Nuclear Quadrupole Resonance in a Molecular Crystal Irradiated by Fast Electrons S/O20/60/130/05/014/061 B013/B014

(A_0 - A)/A = N_1/N holds. N_1 denotes the number of molecules at loosely packed sites, and N is the number of normally packed molecules. Reasonable values are obtained by estimating the block sizes (as, e.g., 4.10^4 molecules per block). Cavities, cracks, etc. are a little more than 4% of the crystal volume. This is in close agreement with data obtained from X-ray structural analyses. A carefully bred single-crystal sample with a fairly perfect lattice must have a considerably higher stability against ionizing gamma- and beta-radiation than has a polycrystalline sample. It is suggested to verify this problem by the same method. The authors thank B. L. Tsetlin, A. P. Bayev, and P. Ya. Glazunov for their assistance in the irradiation of samples. There are 2 figures and 4 references, 1 of which is Soviet.

ASSOCIATION: Institut elementorganicheskikh sovedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences of the USSR)

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68665

Variation in the Intensity of Nuclear Quadrupole
Resonance in a Molecular Crystal Irradiated by
Fast Electrons

S/020/60/130/05/014/061
B013/B014

PRESENTED: October 6, 1959, by I. V. Obreimov, Academician

SUBMITTED: October 2, 1959

4

Card 4/4

FEDIN, E. I.

Cand Phys-Math Sci - (diss) "Study of molecular crystals by the nuclear quadripole resonance method." Moscow, 1961. 12 pp; (Inst of Chemical Physics of the Academy of Sciences USSR); 200 copies; free; bibliography at end of text (15 entries); (KL, 5-61 sup, 174)

FEDIN, E.I.; KITAYGORODSKIY, A.I.

Investigation of solid solutions of certain organic compounds by
the nuclear quadrupole resonance method. Kristallografiia 6 no.
3:406-412 My-Je '61. (MIRA 14:8)

1. Institut elementoorganicheskikh soedineniy AN SSSR.
(Nuclear magnetic resonance and relaxation)
(Solid solutions) (Organic compounds)

KITAYGORODSKIY, A.I., prof.; FEDIN, E.I.

Molecular radio signals. Priroda 50 no.11:44-52 N '61.
(MIRA 14:10)

1. Institut elementroorganicheskikh soyedineniy AN SSSR (Moskva).
(Microwave spectroscopy) (Molecular spectra)

FEDIN, E.I.; PETROVSKIY, P.V.; REVENKO, O.M.; YUR'YEV, Yu.K.

Nuclear magnetic resonance spectra of homologs of thiophane and pentamethylene sulfide. Neftekhimia 2 no.3:270-274 My-Je '62. (MIRA 15:8)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i Moskovskiy gosudarstvennyy universitet.
(Thiophene--Spectra) (Thiopyran--Spectra)

TSVENKIN, D.Ya.; FEDIN, E.I.

Second moment of the nuclear magnetic resonance line in a sample
with an axial texture. Zhur.strukt.khim. 3 no.1:101-102 Ja-F '62.
(MIRA 15:3)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Nuclear magnetic resonance and relaxation)

39982

S/181/62/004/008/027/041
B108/B102

24.7000

AUTHORS: Waugh, J. S., and Fedin, E. I.

TITLE: Determination of the barriers of delayed rotation in solids

PERIODICAL: Fizika tverdogo tela, v. 4, no. 8, 1962, 2233 - 2237

TEXT: The potential barrier V_0 delaying the rotation (reorientation) of molecules or ions is calculated approximately. The frequency of reorientation is usually assumed as $\omega_c = \omega_0 \exp(-V_0/kT_c)$. The experimental part can be considerably reduced if the temperature dependence of the nuclear magnetic resonance line width is employed in the theory, for $\omega_0 \approx \Delta$ at T_c (Δ - "excess" line width). Therefore, $\Delta \approx n\sqrt{V_0/2T_c} \exp(-V_0/kT_c)$, from which V_0 can be determined. One has only to determine the temperature T_c at which the lines start to contract, and the amount by which the line width changes. The results obtained in this way agree well with those of other methods. In particular, the relation V_0 (kcal/mole) $\approx 37T_c$ ($^{\circ}\text{K}$) can

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Determination of the barriers ...

S/181/62/004/008/027/041
B108/B102

be used with an accuracy of about 10%. There is 1 table.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR Moskva
(Institute of Elemental Organic Compounds AS USSR Moscow) *f*

SUBMITTED: April 11, 1962

Card 2/2

KITAYGORODSKIY, Aleksandr Isaakovich; FEDIN, Erlen Il'ich; SHUSTOVA,
I.B., red.; RAKITIN, I.T., tekhn. red.

[Atomic structure and the properties of solids] Atomnoe
stroenie i svoistva tverdykh tel. Moskva, Izd-vo "Znanie,"
1963. 47 p. (Narodnyi universitet kul'tury: Estestvenno-
nauchnyi fakul'tet, no.6) (MIRA 16:9)
(Matter--Constitution) (Solids)

LYUBIMOV, A.N.; VARENİK, A.F.; FEDIN, E.I.

Nuclear magnetic resonance spectrometer of high resolution of
the central automation laboratory. Zhur.strukt.khim. 4 no.6:
919-923 N-D '63. (MIRA 17:4)

1. Tsentral'naya laboratoriya avtomatiki, Institut elementoorga-
nicheskikh soyedineniy AN SSSR.

NESMEYANOV, A.N., akademik; KOCHETKOVA, N.S.; PETROVSKIY, P.V.; FEDIN, E.I.

Pentaethanodiferrocena. Dokl. AN SSSR 152 no.4:875-878 O '63.
(MIRA 16:11)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

L 17838-65 EWT(L)/EEC(t) Feb IJP(c)/SSD(a)/AEDC(b) S/0030/64/000/011/0010/0013
ACCESSION NR: AF5000259

AUTHORS: Pavlov, B. N.; Safin, I. A.; Semin, G. K.; Fedin, E. I.; Shtern, D. Ya.

TITLE: Pulse method for investigating nuclear quadrupole resonance

SOURCE: AN SSSR. Vestnik, no. 11, 1964, 40-43

TOPIC TAGS: nuclear quadrupole resonance, spectrometer

ABSTRACT: The advantages of pulse methods for investigating nuclear quadrupole resonance (NQR) over steady-state methods are discussed. Steady-state methods can be used successfully only for samples with very perfect crystal structure. In these cases the equivalent Q of the line $Q_{eq} = \frac{\nu}{\Delta\nu}$, where ν is the NQR frequency and $\Delta\nu$ is the line width. Broadening of the NQR line, caused by imperfections in the crystal structure which is often unrenewable, leads not only to a decrease in the signal amplitude but also to a decrease in sensitivity. The latter is especially noticeable in the case of weak signals. Pulse methods, however, are not affected by these imperfections. As a result, steady-state methods are not applicable in these cases. However, the sensitivity of a pulse spectrometer is also affected by

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ACCESSION NR: AP5000259

constant with line width, since the initial amplitude of the nuclear induction signal and the maximum amplitude of the quadrupole spin echo signal are proportional to the integral NQR signal intensity and are only slightly dependent on the line width. It has been shown that the gain in sensitivity of the pulse method over the steady-state method is

$$4\pi \sqrt{\frac{T_1}{T_2^*} \frac{\Delta\nu_{ss}}{\Delta\nu_p} \frac{F_{ss}}{F_p}}$$

where T_1 is the spin-lattice relaxation time, T_2^* is the parameter of the NQR line width, $\Delta\nu_{ss}$ is the pass band of the steady-state spectrometer amplifier, $\Delta\nu_p$ is the pass band of the pulse spectrometer receiver, and F_{ss} and F_p are the respective receiver noise factors. As an example of the gain in sensitivity, the quadrupole echo signal from the As^{75} nuclei in As_2S_3 is shown. This signal is unobserved when using the steady-state method. Several examples are also given of frequency measurements and resolution using the pulse method which are better than those obtained by using the steady-state spectrometer. The gain in sensitivity is calculated from the above equations and is diagram.

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L 17838-65
ACCESSION NR: AP5000259

2

ASSOCIATION: Institut radioelektroniki, Kazanskiy fiziko-tekhnicheskiy institut
Radioelectronics Institute, Kazan Institute of Physics and Technology; Institut
fiziki i tekhnicheskoye sovetleniya, Akademiya nauk SSSR (Institute for
Physics and Technical Sciences, Academy of Sciences USSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: NP, SS

NO REF SOV: 000

OTHER: 000

Card 3/3

SETKINA, V.N.; GINZBURG, A.G.; FEDIN, E.I.; KURCHANOV, D.N.

Hydrogen isotope exchange in hexa-substituted benzenes. Dokl. AN SSSR
158 no.3:671-674 S '64. (MIRA 17:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. 2. Chlen-
korrespondent AN SSSR (for Kursanov).

PAVLOV, B N.; SAFIN, I.A.; SEMIN, G.K.; FEDIN, E.I.; SHTERN, D.Ya.

Pulse method of nuclear quadrupole resonance study. Vest. AN
SSSR 34 no.11:40-43 N '64. (MIRA 17:12)

1. Kazanskiy fiziko-tekhnicheskiy institut i Institut elemento-
organicheskikh soyedineniy AN SSSR.

BRAYYER, L.; PETROVSKIY, P.V.; FEDIN, E.I.

Dimensionality units in high-resolution spin-Hamiltonian nuclear magnetic resonance. Zhur. struk. khim. 6 no.3:456-457 My-Je '65.

Determination of the transfer number in high-resolution nuclear magnetic resonance spectra. Ibid. 454-456

(MIRA 18:8)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

L 61226-45 EAP(a)/EAP(m)/EAP(b)/EAP(t) IJP(c) UR/0020/65/163/003/0659/0662
ACCESSION NR: AP5019432

59
49
3

AUTHOR: Mesmeyanov, A. N. (Academician); Fedin, E. I.; Petrovskiy, P. I.;
Dubovitskiy, V. A.; Nogina, O. V.; Lazareva, N. A.

... of the nuclear magnetic resonance method for studying the nature of
titanium-cyclopentadienyl bonding in the cyclopentadienyl derivatives of titanium

SOURCE: AN SSSR. Doklady, v. 163, no. 3, 1963, 659-662

TOPIC TAGS: ferrocene, titanium, cyclopentadiene, nuclear magnetic resonance

ABSTRACT: The effect of chlorine atoms in compounds of a general formula $C_5H_5TiCl_n$ (where $n = 0, 1, 2, 3$) on the nature of the Ti-cyclopentadienyl bond was studied by high resolution NMR technique. The NMR spectra were taken with a spectrometer at 40 mc with proton resonance stabilization. Tetramethylsilane was used as a reference compound. The chemical shift of the cyclopentadienyl protons in the compounds studied was $1 \cdot 10^{-8}$. Ability of cyclopentadienyl to form a complex with Fe^{2+} (reaction with Fe^{2+}) correlates with the proton chemical shift in high resolution NMR spectra. The greater the electron density on the cyclopentadienyl ring, the easier is the formation of a complex with Fe^{2+} .

Card 1/2

64126-65

ACCESSION NR: AP5019432

Items attached to this reference
are as follows:
1. The report of the...

CONFIDENTIAL

Card 2/2

ANDRIANOV, K.A., akademik; FEDIN, E.I.; KOTRELEV, G.V.; GOREMAYA, I.V.

High-resolution proton magnetic resonance of organocyclosilazanes.
Dokl. AN SSSR 163 no.4:877-879 Ag '65.

(MIRA 18:8)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

NESMEYANOV, A.N., akademik; KRITSKAYA, I.I.; FEDIN, E.I.

Synthesis and properties of π -allylcarbonyl complexes of iron.
Dokl. AN SSSR 164 no.5:1058-1061 0 '65. (MIRA 18:10)

1. Institut elementorganicheskikh soedineniy AN SSSR.

PETROVSKAYA, L.I.; BURLACHENKO, G.S.; FEDIN, E.I.; BAUKOV, Yu.I.;
LUTSENKO, I.F.

Proton magnetic resonance of esters of metalated (Si, Ge, Sn)
acetic acid and O-silyl-O-alkylketene acetals. Zhur.strukt.khim.
6 no.5:781-783 S-0 '65. (MIRA 18:12)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i
Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
Submitted April 29, 1965.

BABARE, L.V.; PETROVSKIY, P.V.; FEDIN, E.I.

Determination of the structure of organosilicon derivatives of ferrocene by the nuclear magnetic resonance method. Zhur. strukt.khim. 6 no.5:783-785 8-0 '65.

(MIRA 18:12)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. Submitted April 14, 1965.

SEMYREV, I.K.; DOMNER, A.D.; BARSKAYA, A.B.; KHUMBOVA, L.M.; BRAYSER, I.;
PETROVSKIY, P.V.; FEDIN, E.I.

Program of computing nuclear magnetic resonance spectra of high
resolution in the case of strong spin-spin interaction. Zhur.
strukt. khim. 6 no. 4:625-632 J1-Ag '65 (MIRA 19:1)

1. Nauchno-issledovatel'skiy institut raznoy promyshlennosti
i Institut elementarnykh organicheskikh soyedineniy AN SSSR. Submitted
April 14, 1965

L 05173-67 EWT(m) EWP(+)

SOURCE CODE: UR/0062/66/000/006/1031/1038

ACC NR: AP7000726

KNUNYANIS, I. L., CHEBURKOV, Yu. A., BARGAMOVA, M. D., VEDIN, E. I., PETROVSKIY,
P. V., Institute of Heteroorganic Compounds, Academy of Sciences USSR (Institut
elementoorganicheskikh Soedineniy AN SSSR)

"Perfluorodimethylketene, Communication 7. Structure of the Dimer"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (News of the Academy
of Sciences USSR, Chemical Series), No 6, 1966, pp 1031-1038

Abstract: Perfluorodimethylketene, in contrast to other known ketenes, forms a
linear dimer under the action of triethylamine. The dimer was also produced by
two other methods: 1) the reaction of an equimolar mixture of hexafluoroisobuty-
ryl chloride and ethylamine; 2) by the action of triethylamine or cesium fluo-
ride on perfluoromethacrylyl fluoride. In the latter case the reaction mixture
was treated with methanol, yielding the methanolysis product of the dimer and
also the known methyl ester of hexafluoroisobutyric acid and the methyl ester
of alpha-trifluoromethyl-beta, beta-difluoro-beta-methoxypropionic acid. The
structure of the dimer of perfluorodimethylketene as the bis-fluoride of per-
fluoro-(alpha, alpha, gamma-trimethylglutaconic) acid was confirmed by its re-
actions and infrared spectrum. The reaction mechanism proposed for the dimeri-
zation includes isomerization of the ketene to the more stable perfluoromethacry-
lyl fluoride. A new reaction was discovered: linear dimerization of functional de-
rivatives of perfluoromethacrylic and difluoromethylenemalononic acids. Orig. art.

has: 1 figure, 9 formulas and 2 tables. [JPRS: 37,023]

TOPIC TAGS: fluorinated organic compound, isomerization

SUB CODE: 07 / SUBM DATE: 07Dec65 / ORIG REF: 013 / OTH REF: 002
Card 1/1 vmb / BDC: 542.91 + 541.452 + 546.16

0923 1891

L 3528-66 EWT(m)/EWT(j) RM
ACC NR: AP5026835

SOURCE CODE: UR/0020/66/166/002/0349/0352

AUTHOR: Andrianov, K.A. (Academician); Fedin, E.I.; Lavygin, I.A.; Gorskaya, N.V.; Lavrukhin, B.D.

ORG: Institute of Organoelemental Compounds, AN SSSR (Institut elementn organicheskikh soyedineniy AN SSSR)

TITLE: Reaction of 8-hydroxyquinoline tributoxytitanium with triethyl hydroxysilane

SOURCE: AN SSSR. Doklady, v. 166, no. 2, 1966, 349-352

TOPIC TAGS: spectrometer, reaction mechanism, titanium compound, silane, esterification; chemical stability

ABSTRACT: A nuclear magnetic resonance spectrometer was used for studying the mechanism of the reaction between 8-hydroxyquinoline tributoxytitanium and triethyl hydroxysilane. Spectra are given for various reagent concentrations. The first event in the reaction is apparently coordination of the oxygen in the hydroxyl radical of the triethyl hydroxysilane with a titanium atom which results in transesterification by the mechanism of bimolecular nucleophilic substitution. Substitution of a single butoxyl group probably results in such an unstable molecule that disproportionation takes place with the formation of stable compounds having tetravalent and hexacoordinate saturated titanium atoms. The experimental procedure is described.

Orig. art. has: 1 figure and 1 table. JPRS: 36, 4557
SUB CODE: 07 / SUBM DATE: 21Jul65 / ORIG REF: 002

UDC: 546.824

Card 1/1 *ldh*

091 2245

ACC NR: AP7003534

SOURCE CODE: UR/0386/67/005/001/0016/0017

AUTHOR: Fedin, E. I.; Gorskaya, N. V.

ORG: Institute of Organoelemental Compounds, Academy of Sciences SSSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: Irreversibility of transition of NMR signals through a weak field in some molecular crystals

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pi's'ma v redaktsiyu. Prilozheniye, v. 5, no. 1, 1967, 16-17

TOPIC TAGS: nuclear magnetic resonance, naphthalene, anthracene, spin relaxation, spin system, spin lattice relaxation

ABSTRACT: The authors performed an experiment with naphthalene single crystals, similar to the experiment of R. V. Pound (Phys. Rev. v. 81, 156, 1951), wherein the sample was demagnetized in a weak (terrestrial) field. Unlike the earlier results, which showed reversibility of the transition through a weak field and demonstrated the existence of a spin temperature in LiF crystals, in naphthalene the transition through the weak field turned out to be irreversible for the NMR signal: a time $t \approx 1$ sec turned out to be sufficient for total disorientation of the nuclear spins in these crystals; subsequent establishment of the equilibrium magnetization and a corresponding growth of the NMR signal occurred, as in the initial magnetization, with a time constant $\tau \sim 10^3$ sec. Neither variation of the intensity of the rf field

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ACC NR: AP7003534

over a wide range, nor defects in the crystal lattice, have any influence on this effect. The behavior of the NMR signal in anthracene and biphenyl was similar. Control experiments with molecular crystals and polymers whose molecules contain no closed electron delocalization loops or have additional intramolecular degrees of freedom (paradichlorobenzene, hexamethylbenzene, oxyacetate of beryllium, paraffin, polyethylene, etc.) disclosed full reversibility of the transition of the NMR signal through a weak field. This irreversibility is qualitatively treated as an indication that in the tested naphthalene, biphenyl, and anthracene, energy is effectively pumped out from the nuclear-spin system into the lattice when $H < H_{loc}$. A theoretical and experimental study of this effect is being continued. The authors thank A. I. Kitaygorodskiy for continuous interest, A. P. Amiton, B. A. Kvasov, N. O. Okulevich, and N. I. Okhlobystin for help with the measurements, and R. M. Myasnikov and L. A. Fedorov for supplying the samples.

SUB CODE: 20/ SUBM DATE: 01Oct66 OTH REF: 003

Co.d 2/2

DAVYDOV, A.S., polkovnik; KORSHUNOV, V.N., polkovnik; KOZLOV, N.D., podpolkovnik; LUKANIN, Ye.A., polkovnik; NESIN, A.A., polkovnik; POZMOCOV, A.S., polkovnik; PUTINTSEV, A.I., podpolkovnik; SIDORENKOV, P.I., polkovnik; SYTOV, L.G., polkovnik; FEDIN, G.R., polkovnik; CHEREDNICHENKO, V.T., polkovnik; CHERNYSHEV, F.I., kontr-admiral zapasa; SHATURNYY, A.N., polkovnik; ROMANOV, I.M., red.

[Methodological materials for political instruction] Metodicheskie materialy k politicheskim zaniatiyam. Moskva, Voenizdat, 1965. 240 p. (MIRA 18:7)

1. Russia (1923- U.S.S.R.) Glavnoye politicheskoye upravleniye Sovetskoy Armii i Voenno-Morskogo Flota. Upravleniye propagandy i agitatsii.

MOSKALEV, A.N., kand. tekhn. nauk; FILATOV, N.V., kand. tekhn. nauk;
POPOV, V.M., inzh.; FEDIN, I.A., inzh.

Machines for jet piercing with a ring system of cooling.
Gor. zhur. no.5:45-46 My '64. (MIRA 17:6)

MOSKALEV, A.N., dotsent; FILATOV, N.V., dotsent; POPOV, V.M., inzh.; FEDIN, I.A.,
Inzh.

Efficiency of jet + rches in the jet piercing of rock. *Izv.vys.ucheb.*
zav.;gcr.zhur. 7 no.9:68-72 '64. (MIRA 18:1)

1. Sibirskiy metallurgicheskiy institut imeni S. Ordzhonikidze. Re-
komendovana kafedroy gornykh mashin i rudnichnogo transporta.

L 57831-65 ENP(k)/EWA(c)/EWT(m)/ENP(b)/T/ENP(v)/ENP(t) Pf-4 JD/EM
ACCESSION NR: AP5012645

UR/0135/65/000/000/0035/0034

AUTHOR: Moiskalev, A. N. (Candidate of technical sciences); Filatov, N. V. (Candidate of technical sciences); Popov, V. M. (Engineer); Fedin, I. A. (Engineer)

TITLE: Burning openings in 200-400 mm thick metal with a rocket-type torch

SOURCE: Svarochnoye proizvodstvo, no. 5, 1965, 34

TOPIC TAGS: flame cutting, cutting torch, cast iron torch cutting

ABSTRACT: Results are given of tests on burning openings in metal (cast iron shafts, molds, etc) with thicknesses of 200 to 400 mm with a kerosene-oxygen flame. The construction and operation of the rocket type torch and the results of the tests on burning openings with a diameter of 300-400 mm are listed at a rate of 1-15 mm/hr. The penetration is 25 to 50% less than in oxygen torch cutting. Openings can be made in shafts with a diameter of 300-400 mm and in cast iron molds with thicknesses of 200-400 mm with the torch maintained in one position only. Test results are given in table.

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L 57831-65

ACCESSION NR: AFS012645

2

ASSOCIATION: Filial instituta mekhaniki AN UkrSSR (Affiliate of the Institute of
Mechanics, UkrSSR); Sibirskiy metallurgicheskiy institut (Siberian Metallurgical
Institute)

SUBMITTED: 00

ENCL: 00

SUB CODE: MM

NO REF SOV: 001

CTHER: 000

177
Card 2/2

MOSKALEV, A.N., kand. tekhn. nauk; FILATOV, N.V., kand. tekhn. nauk; POPOV,
V.M., inzh.; FEDIN, I.A., inzh.; BURLO, Ye.A., inzh.

Cast iron cutting without flux. Lit. proizv. no.9:22-23 S '65.
(MIRA 18:10)

MOSKALEV, A.N., kand. tekhn. nauk; FILATOV, N.V., kand. tekhn. nauk;
FEDIN, I.A., inzh.; POPOV, V.M., inzh.; BURLO, Ye.A., inzh.

Tests in cutting high-alloyed steels without flux. Svar.
proizv. no.9:26-27 S '65. (MIRA 18:9)

1. Dnepropetrovskiy filial im. AN UkrSSR (for Moskalev).
2. Sibirskiy metallurgicheskiy institut (for all except Moskalev).

KURICHIK, S.S.; FEDIN, I.M.

Physicochemical study of the interaction of anisil isochloro-
cyanate with alkyl and benzylamines. Zhur. fiz. Khim. 39
no.9:2293-2296 S 165. (MI:Q 15:10)

1. L'vovskiy gosudarstvennyy meditsinskiy institut.

NIKOLAYEV, A.F., kand. tekhn. nauk; RUKAVISHNIKOV, S.V., kand. tekhn. nauk;
MEDIN, I.V., inzh.

Reducing gear with power take-off for DT-54A tractors. Stroi.
i dor. mash. 6 no. 9:23-24 S '61. (MIRA 14:10)
(Tractors--Engines)

NIKOLAYEV, A.F., kand.tekhn.nauk; RUKAVINSHNIKOV, S.V., kand.tekhn.nauk;
FEDIN, F.V., inzh.

The FTK-GPI-38 cutting trencher. Stroil. i dor. mash. 7 no.7:5-8 J1
'62. (MIRA 15:7)

(Excavating machinery)