BOBRYNIN, Boris Nikolayevich, inzh.; CHANGLI, I.I., inzh., kand.ekonom. nauk, red.; SIROTIN, A.I., inzh., red.izd-va; SOROKINA, G.Ye., tekhn.red.

[Nonmetallic materials and their working by pressure] Nemetallicheskie materialy i ikh obrabotka davleniem. Pod red. I.I.Changli. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 94 p. (Sovetskoe mashinostroenie v 1959-1965 gg.). (MIRA 13:5)
(Plastics)

PHASE I BOOK EXPLOITATION SOV/4261

Bobrynin, Boris Nikolayevich, Engineer

Nemetallicheskiye materialy i ikh obrabotka davleniyem (Nonmetallic Materials and Their Working by Pressure) Moscow, Mashgiz, 1960. 94 p. 7,000 copies printed.

Ed.: I.I. Changli, Candidate of Economics, Engineer; Ed. of Publishing House: A.I. Sirotin, Engineer; Tech. Ed.: G.Ye. Sorokina; Managing Ed. for Literature on Heavy Machine Building (Mashgiz): S.Ya. Golovin, Engineer.

PURPOSE: The book is intended for general readers interested in the manufacture of plastics.

COVERAGE: This book presents information in a popular form on high-molecular polymeric materials, their "remarkable" properties and the possibilities of using them in all branches of the Soviet national economy. It discusses modern highly efficient methods of processing polymeric materials by means of press molding. The text is illustrated with 33 figures and 10 tables. No personalities are mentioned. There are 7 references, all Soviet.

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Nonmetallic Materials and Their Working by Pressure SOV/4261

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ABAILABLE: Library of Congress

Card 3/3 JA/rn/gmp

S/191/60/000/001/009/015
B016/B054

AUTHOR: Bobrynin, B. N.

TITLE: Development of Scientific Research Work on the Treatment of Synthetic Polymeric Materials by Means of Pressure

PERIODICAL: Plasticheskiye massy, 1960, No. 1, pp. 42-44

TEXT: The author points to the best methods of conducting scientific research work in the field of treatment of synthetic polymeric substances. He stresses that the achievements made in the field of metalworking are not necessarily applicable to synthetics. He gives the classification of metalworking processes (according to L. N. Koshkin) comprising four principal classes: I) linear, II) punctiform, III) volume, and IV) space interaction of the device (medium) with the substance to be worked. The best way of working synthetic polymeric substances are the procedures of class III) (punching, casting, drawing, molding, shaping). The working of threads, teeth, bezels, and substrates is much simpler in synthetics than in metals. Surfaces produced by pressure shaping in synthetics are per-

fect, and need no protection from aggressive media. Consequently, the respective operations require less working intensity. These advantages are counterbalanced by the missing evaluation and generalization of ample operational experience in this field. No manual on the different procedures has been published yet. The filling of this gap could much reduce the period from the production of a new polymeric substance until the output of the finished product. The author thinks the following problems particularly important: 1) elaboration of theoretical principles of pressure shaping of high-polymeric substances (molding powder, thermoplastics, anisotropic layered and fibrous synthetics, metal-synthetic compositions, etc.); 2) establishment of most efficient working methods for polymeric materials according to their physicotechnical properties in mechanized and automatized plants; 3) establishment of technological characteristics of the individual machine types for the production of workpieces by pressure shaping; organization of the production of such machines. These three working fields are further subdivided by the author. The editors of the periodical open a discussion on the problems raised by the author, and mention that they do not agree with him on all individual points. The author does not mention any research work done by him.

BOBRYNIN, B.N.

Minimum permissible dimensions of the material between the holes punched in laminated plastics. Plast.massy no.3:33-36 '60. (MIRA 13:6)

(Plastics)

S/191/60/000/005/010/020
B004/B064

AUTHOR: Bobrynin, B. N.

TITLE: Technology of Production of Printed Circuits by Means of Punching

PERIODICAL: Plasticheskiye massy, 1960, No. 5, pp. 31 - 36

TEXT: The author points to the importance of printed circuits in radio, television, and computer engineering. The plates used for such circuits consist of 1.5 - 2 mm thick laminated plastics, and contain frequently 200 - 600 holes with diameters between 0.8 and 2.5 mm. Several research institutes are developing machines for the punching of such plates; multi- or single spindle drilling machines with preset course are possible. The author points to the rapid wear of drillers, especially when drilling glass-reinforced plastics, and reports on attempts made at punching the holes. The plates should be designed such that the material supplied by the zavod "Izolit" ("Izolit" Plant) (470 x 720 mm) is used to the greatest possible extent. The experiments led to the following results: 1) The material should not be heated to avoid separation of the printed circuit

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from the base. During punching, the circuit should face the matrix, not the punch. 2) The lumen z between punch and matrix should be: when using several punches (more than 25), $z = (0.015 - 0.02)h$, (h = thickness of the material); when using punching machines with a small number of punches, $z = (0.01 - 0.015)h$; when using punching machines for the treatment of glass-reinforced plastics, $z = (0.02 - 0.025)h$. 3) Pressure should be at least 1.5 - 2.5 kg/mm^2 to allow no deformation. 4) Punches and matrices should be sharp. After having produced 2000 - 2500 plates, the matrix should be ground 0.05 - 0.08 mm. 5) Crank presses or hydraulic presses with 20 - 40 working cycles per minute should be used for punching. Hydraulic presses are preferred because of more uniform pressure. 6) If specially high precision is required, and if a large number of holes is to be punched at the same time, heating of the matrix and punches to 60 - 80°C is recommended. 7) Multi-stage punches are recommended to punch non-round openings. 8) The whole technical process consists of a) cutting of the plates, b) punching of the fitting openings, c) chemical application of the circuit, d) punching of all holes necessary to mount the circuit. Stencils with pins are used to check if all holes are punched. Optimum conditions for the punching of small holes are the following:

Technology of Production of Printed Circuits by Means of Punching

S/191/60/000/005/010/020
B004/B064

minimum diameter of round openings d = 0.4h, of square openings a = 0.4h, of rectangular ones b = 0.35h. A distance of at least 2 - 2.5 mm should be observed between the individual holes, and between them and the edge of the plate. At a 1.5 - 2 mm diameter of openings, not more than one opening is allowed per 0.4 - 0.5 cm^2 of surface. Furthermore, the force required was found to rise with decreasing hole diameter. S. N. Zhurkov is mentioned. There are 9 figures and 10 Soviet references.

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BOBRYNIN, B.N.

Use of plastics in modeling the processes of the treatment of materials by pressure. Plast.massy no.8:27-28 '60. (MIRA 13:10)
(Plastics) (Materials—Testing) (Deformations (Mechanics))

BOBRYNIN, B.N.

7

S/122/61/000/001/015/015
A161/A130

AUTHOR: None given

TITLE: Authors' abstracts of dissertations

PERIODICAL: Vestnik mashinostroyeniya, no. 1, 1961, 86 - 87

TEXT: Brief abstract of eleven dissertations are published, the two first for the degree of Doctor of Technical Sciences, and nine for the degree of Candidate of Technical Sciences. 1) N. M. Karalin, of the Moskovskiy stanko-instrumental'nyy institut imeni I. V. Stalina (Moscow Institute of Machine Tools and Instruments im. I. B. Stalin): "Machining parts with curved cross section without the use of tracers". The author has developed a method for plotting kinematic system diagrams for machine tool attachments for machining round parts with the outline traced by epicycloids and hypocycloids or their equidistants. 2) B. A. Morozov, Moskovskoye Vyssheye tekhnicheskoye uchilishche imeni N. E. Baumana (Moscow School of Higher Technical Education imeni N. E. Bauman): "Study of the work capacity of machines and equipment of metallurgical plant shops", concerning design improvement. The author has developed a method for comprehensive evaluation of the work capacity of machines. It permits the selection of

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A161/A130

Authors' abstracts of dissertations . . .

optimum designs and determining the engineering calculation data in a short time. 3) Yu. Z. Selyukov of the Moscow Institute of Machine Tools and Instruments imeni Stalin: "Investigation of the vibration resistance of a shaping machine". The author has conducted experiments and gives recommendations. 4) M. B. Paley, of the Moscow Institute of Machine Tools and Instruments im. Stalin, "Investigation of the milling machine drive". The work concerns gear and belt drive for a milling machine spindle and presents the results of theoretical and experimental studies of the rotation unevenness, and a calculation method for the flywheel inertia moment. The specific features of the belt drive are analyzed. 5) Lu Ch'ao--tseng, of the Moscow Institute of Machine Tools and Instruments im. Stalin: "Study of the adhesion and friction phenomena between flat steel surfaces (gage blocks)". The author studied the adhesion and friction forces between Johannson gage blocks in function of the oil film depth, roughness and oil properties; determined the real oil film depth after rubbing-in, the effect of load, the adhesive capacity variation with wear, and investigated the phenomenon of oil separation from inside metal (gage blocks). 6) D. D. Shevchenko of Institut mekhaniki AN USSR (Institute of Mechanics AS UkrSSR): "A study of the contact of a rough surface in the process of pressing into plastic medium". The work concerns the ap-

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A161/A130

Authors' abstracts of dissertations

proach of a hard rough surface to a smooth surface of plastic medium under pressure. 7) B. N. Bobrynin of Gor'kovskiy politekhnicheskiy institut imeni A. A. Zhdanova (Gor'kiy Polytechnic Institut imeni A. A. Zhdanov): "Study of the stamping trimming-punching process in laminar and fibrous sheet plastics" The study concerns mainly the technology of process without heating. Recommendations are given for the fabrication of parts of different types. 8) R. A. Mozniker of the Institute of Mechanics AS UkrSSR: "Vibration test installations with electromagnetic exciters", concerning the rational use of such units, their peculiarities in different operation conditions. 9) Yeh Mu-tsen of the Moscow Institute of Machine Tools and Instruments im. Stalin: "Experimental and theoretical study of the strength of broaches taking into account the concentration of internal stresses". A new method is suggested for the calculation of stress concentration 10) Vang Ch'ih-hao of the Moscow Institute of Machine Tools and Instruments im. Stalin: "Investigation of chatter in gear cutting machine". Chatter in milling straight-tooth gears is investigated, and a theoretical and empirical comparison of different milling methods is presented. The effect of the design of machine elements on chatter is analyzed. 11) Wang Tsen-ta of the Moscow Institute of Machine Tools and Instruments im. Stalin: "A study of the motion stability of

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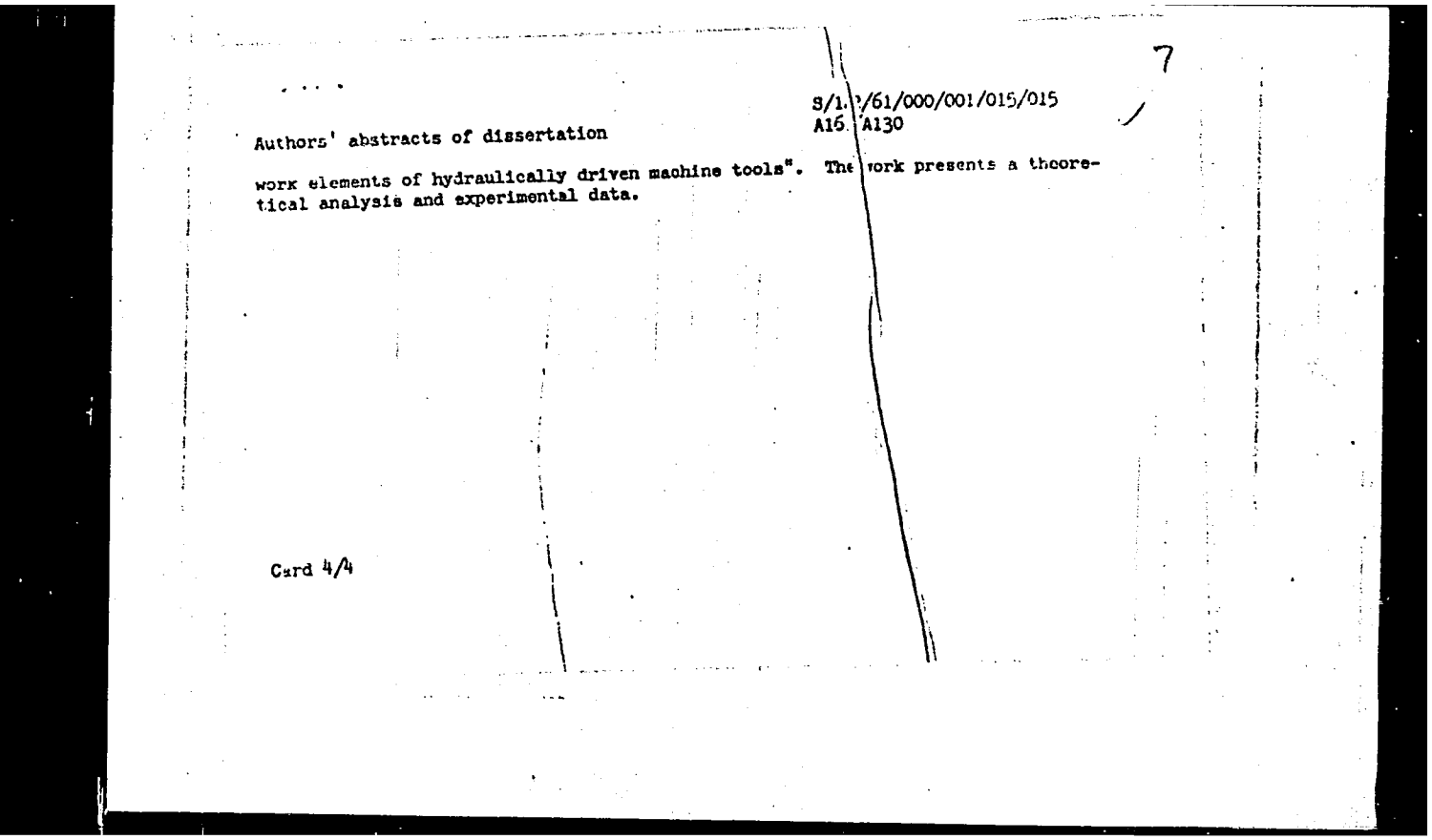

7

S/1[illegible]/61/000/001/015/015
A16[illegible] A130

Authors' abstracts of dissertation

work elements of hydraulically driven machine tools". The work presents a theoretical analysis and experimental data.

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BOBRYNIN, Boris Nikolayevich; STREL'TSOV, Konstantin Nikolayevich; ROMANOVSKIY, V.P., kand. tekhn.nauk, red.; VAYNTRAUB, D.A., kand. tekhn. nauk, red.; LEYKINA, T.L., red.izd-va; BARDINA, A.A., tekhn. red.

[Stamping of sheet plastics]Shtampovka listovykh plastmass. Pod obshchei red. V.P.Romanovskogo. Moskva, Mashgiz, 1962. 76 p. (Bibliotechka shtampovshchika, no.8) (MIRA 15:11)
(Plastics--Molding)

BOBRYNIN, Boris Nikolayevich, kand. tekhn.nauk; MESHCHERIN, V.T., doktor tekhn.nauk, prof., retsenzent; MIKHALENKO, F.P., kand. tekhn. nauk, red.; RAGAZINA, M.F., inzh., red.izd-va; SMIRNOVA, G.V., tekhn. red.

[Technology of die stamping of nonmetallic materials] Tekhnologiia shtampovki nemetallicheskikh materialov. Moskva, Mashgiz, 1962. 239 p. (MIRA 15:7)
(Nonmetallic materials) (Plastics—Molding)

MIKHALENKO, F.P.; BOBRYNIN, B.N.

Effect of dulled cutting edges on the punching-piercing operation. Izv. vys. ucheb. zav.; chern. met. 5 no.7:122-128 '62. (MIRA 15:8)

1. Gor'kovskiy politekhnicheskiy institut.
(Sheet metal working machinery)

TASTEMBEKOV, K.Zh.; BOBRYSHEV, A.

Thoughts of an agronomist of virgin lands. Zemledelie 27 no.3:21-24 Mr '65. (MIRA 19:1)

1. Glavnyy agronom sovkhoza imeni Suvorova, Pavlodarskoy oblasti (for Tastembekov).

SUKHANOV, A.F., doktor tekhn.nauk; NAZAROV, P.P., kand.tekhn.nauk; KUTUZOV, B.N., kand.tekhn.nauk; BOBRYSHEV, A.A., inzh.; MAKAREVICH, D.N., inzh.; TOKAR', M.G., inzh.

New ways of drilling holes in mines of the asbestos industry. Shakht. stroi. 7 no.4:13-15 Ap '63. (MIRA 16:3)

1. Moskovskiy institut radioelektroniki i gornoy elektromekhaniki.

BOBRYSHEV, A. T.

24-58-3-35/38

AUTHOR: Solomonov, M.

TITLE: Problems of the Construction and Exploitation of Mining Enterprises.- Scientific-Technical Conference at the Institute of Mining, Academy of Sciences USSR (Voprosy stroitel'stva i ekspluatatsii gornykh predpriyatiy. Nauchno-tekhnicheskoye soveshchaniye v Institute gornogo dela Akademii nauk SSSR)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 3, p 173 (USSR)

ABSTRACT: On November 20-21, 1957, a conference took place on the problems of the construction and exploitation dealing with the mineral deposits under complicated hydrological and geological engineering conditions. The conference was organised by the Institute of Mining together with the Central Administration of the Scientific-Technical Society; 320 delegates, nearly all representatives of the appropriate large enterprises, were present. The conferencewas opened by Academician L. D. Shevyakov. At the plenary meeting of the conference the following papers were presented: A. T. Bobryshev on "Hydrological conditions of the Yakovlev deposits of the Belgorod iron ore district of the Kursk Magnetic Anomaly (KMA) and the corresponding scheme of the lowering of the water level and

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Problems of the Construction and Exploitation of Mining Enterprises. Scientific-Technical Conference at the Institute of Mining, Academy of Sciences USSR.

draining undertakings"; M. I. Agoshkov on "Methods of opening workings and the systems of exploitation of the rich iron ores of the Belgorod district of the Kursk Magnetic Anomaly"; G. N. Man'kovskiy on "The tasks of scientific research in the field of construction and exploitation of mining enterprises of soaked deposits"; I. V. Popov on "The task of engineering geology in connection with the appraisal of conditions of opening and exploitation workings of deposits"; S. A. Krivorog on "Methods of draining of heavily water-soaked coal deposits and ways of their perfection"; H. F. Unkovskaya and M. N. Gusarov on "Mining works under conditions of water - soaked karst"; D. I. Maliovanov on "New equipment in shaft construction by special methods". Several papers were submitted in the conference sections: "On the introduction into practice of blasting timber technique in the Moscow Basin"; "On the experience of sinking main (entry) shafts under the complicated hydrological conditions of the Tula coal deposits"; "Exploitation of main shafts in the frozen quaternary coal deposits of Vorkuta"; "On the influence of soaking upon the development procedure of the polymetallic ores of Zyryanskoye deposit";

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"On the opencast workings of the Kursk Magnetic Anomaly Lebedinskoye deposit under complicated geological conditions"; "On drainage methods of opencast workings tracts of Marjevskoye and Aleksandrovskoye deposits in the Nikopol' manganese basin"; "Experience in the planning of drainage works in the opencast workings of waterlogged coal deposits" (example set by Ukrgiproshakht); "On the experience of construction and opencast workings of Bashkirya"; "Prediction methods of engineering - geological conditions in opening and development procedure in mineral bearing tracts"; (based on the experience of KMA); "On vertical drainage under the conditions of shaft waters being dropped down to the karst-layers level" (exemplified by the Cheremkha coal-bearing tract); "On the draining operation of Iletskoye and Solovinskoye deposits of rock salt"; and others. The conference emphasized the necessity of the improvement of the existing organizations of hydrological and engineering-geological works, the furthering of rock pressure lows learning, the perfecting of development operations, full-

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Problems of the Construction and Exploitation of Mining Enterprises. Scientific-Technical Conference at the Institute of Mining, Academy of Sciences USSR.

size diameter shaft drilling, rock freezing, stopping of cracked rocks and lowering of the water level. Taking the complicated innate conditions of iron ore deposits of the Kursk Magnetic Anomaly into consideration, the conference stressed the purposefulness of the scientific-exploratory works of the Lebedinskiy open pit workings - now in reconstruction - to be carried through - to fix up stable angles of slopes (dip).

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1. Mining--Conference--USSR

AMMOSOV, I.I., red.; BURTSEV, D.N., red.; GORYUNOV, S.V., red.; GUSEV, A.I., red.; KOROTKOV, G.V., red.; KOTLUKOV, V.A., red.; KUZNETSOV, I.A., red.; MIRONOV, K.V., red.; MOLCHANOV, I.I., red.; NEKIPELOV, V.Ye., red.; PONOMAREV, T.N., red.; POPOV, V.P., red.; PROKHOROV, S.P., red; SKROBOV, S.A., red.; TYZHNOV, A.V., red.; SHABAROV, N.V., red.; YAVORSKIY, V.I., red.; BOBRYSHEV, A.T., red. toma; VINOGRADOV, B.G., red. toma; VOLKOV, K.Yu., zam. red. toma; LUGOVOY, G.I., zam. red. toma; OGARKOV, V.S., red. toma; SIMONOV, A.V., red. toma; IZRAILEVA, G.A., red.izd-va; IVANOVA, A.G., tekhn. red.

[Geology of coal and combustible shale deposits in the U.S.S.R.]Geologiia mestorozhdenii uglia i goriuchikh slantsev SSSR. Glav.red.I.I.Ammosov i dr. Moskva, Gosgeoltekhizdat. Vol.2. [Moscow Basin and other coal deposits in central and eastern provinces of the European part of the U.S.S.R.]Podmoskovnyi bassein i drugie mestorozhdeniia uglia tsentral'nykh i vostochnykh oblastei Evropeiskoi chasti RSFSR. 1962. 569 p. maps. (MIRA 15:9)

1. Russia (1923- U.S.S.R.)Ministerstvo geologii i okhrany nedr.

(Coal geology)

USSR/Cultivated Plants. Potatoes. Vegetables. Melons. M

Abs Jour: Ref Zhur-Biol., No 5, 1958. 20311.

Author : ~~F.I. Bobryshev,~~ Ye. Alferova, A. Goloshchapova, V. Semenova.
Inst : Stavropol' Agricultural Institute
Title : The Effect of Side Dressing on Potato Productivity. (Vliyaniye podkormki na urozhaynost' kartofelya).

Orig Pub: Sb. nauchno-issled. rabot stud. Stavropol'sk. s.-kh. in-t, 1956, vyp. 4, 47-48.

Abstract: At the test site of the Stavropol' Agricultural Institute the boost in the potato harvest through the application of NPK in side dressing during various periods did not exceed 10%; the yield was somewhat increased by the supplemental feeding of N during budding.

Card : 1/1

BOBRYSHEV, F.I., Cand Agr Sci — (diss) "Effect of fertilizers upon the yield and seed qualities of potatoes in the central zone of Stavropol'." Stavropol', 1959. 20 pp (Min of Agr RSFSR. Stavropol' Agr Inst). 130 copies (KL,39-59, 106)

65

BORRYSHEV, G.I.

Use of small turbodrills in Hungary. Neft. khoz. 38 no.6: 33-35 Je '60. (MIRA 13:7)
(Hungary--Turbodrills)

TAT'YANIN, I.G.; GEZA, Surovi (Vengriya); BOBRYSHEV, G.I.

Industrial testing of the TS4M-5" sectional turbodrill at depths up to 2000 meters in Hungary. Neft. khoz. 38 no.10:52-55 O '60. (Hungary—Turbodrills—Testing) (MIRA 13:9)

BOBRISEV. G.I. [Bobryshev, G.I.] furomernok

Possibilities for the operational uses of the "VBMPE-4 1/2 " type rotary boring tool based on the principle of the mammoth pump and the local circultaion in the bottom of the hole. Bany lap 93 no. 10:716-718 O '60.

1. Koolajipari Troszt, Budapest.

BOBRYSHEV, N.K., inzhener.

The industry needs high-quality coal. Standartizatsiia no.1:56-60 Ja-F '54. (MLRA 7:2)

1. Upravleniye po standartizatsii. (Coal mines and mining)

BOBRYSHEV, N.K.

AUTHOR: Bobryshev, N.K., Engineer, 28-6-16/40

TITLE: Coke for Non-Ferrous Metallurgy (Koks dlya tsvetnoy metallurgii)

PERIODICAL: Standartizatsiya, 1957, # 6, p 49 (USSR)

ABSTRACT: Information is given on two new coke standards: ГОСТ s 8203-56 for shaft furnaces and 8204-56 for tube furnaces. Both standards came into effect in 1957.

The new requirements concerning the size of coke, permissible percentage of coke grit, permissible percentage of contamination and humidity, are listed. The Scientific Research Institute of Non-Ferrous Metallurgy (Nauchno-issledovatel'skiy institut tsvetnoy metallurgii) and plants are further investigating the possibilities of using small fractions of 5 to 10 mm for tube furnaces and of 25 to 40 mm for shaft furnaces.

ASSOCIATION: Committee of Standards, Measures and Measuring Devices (Komitet standartov, mer i izmeritel'nykh priborov)

AVAILABLE: Library of Congress

Card 1/1 1. Industry-USSR 2. Coke-Standards

BOBRYSHEV, P.; KUZNETSOV, A.

Vilnius. Stroitel' 2 no.8:5-7 Ag '56. (MLRA 9:12)
(Vilnius--Building)

S/181/62/004/008/002/041
B125/B104

24.7000

AUTHORS: Moskalenko, S. A., and Bobrysheva, A. I.

TITLE: Selection rules and energy spectrum of electrons. Consideration of external fields and directional deformations

PERIODICAL: Fizika tverdogo tela, v. 4, no. 8, 1962, 1994-2004

TEXT: From the exciton function, a linear combination of many-electron functions, the following selection rules are obtained for the exciton absorption without the participation of phonons in binary crystals having the point space symmetry group G, when the extrema of the bands lie at the point $\vec{k} = 0$: When light polarized along the ξ-axis is incident along the ξ-axis, the allowed transition will lead to such levels to which at the point $\vec{k}$ correspond certain irreducible representations. These are contained in representations formed over the following bases:
$S_e = \{\nabla_\xi , \eta_\eta \nabla_\xi\}$ in the dipole case, $S^{(+)}_{\vec{k}e} = \{[r_\xi \nabla_\xi + r_\xi \nabla_\xi] , \eta [r_\xi \nabla_\xi + r_\xi \nabla_\xi]\}$ in the quadrupole case, and $S^{(-)}_{\vec{k}e} = \{[r_\xi \nabla_\xi - r_\xi \nabla_\xi] , \eta [r_\xi \nabla_\xi - r_\xi \nabla_\xi]\}$ in the

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magneto-dipole case. In all these cases $g \in G$. $\Gamma_{\vec{k}\,\mathrm{exc}} = \Gamma_{\vec{k}f}$ is the selection rule with respect to the group of the wave vector: Under the action of light with the polarization e_f the allowed transitions lead from the ground state to exciton states with a representation over the base $\{\nabla_f, g\nabla_f\}$ of the group of the wave vector $\vec{Q}_{\vec{k}}$ equivalent to $\Gamma_{\vec{k}f}$. These selection rules indicate that the transition probability depends on the wave vector. In the presence of external constant fields and directional deformations, the levels of a cubic crystal are split up as a result of the change in the crystal symmetry. The splitting of the exciton levels and the selection rules for the split components are the principal factors characterizing the change in the exciton spectrum at given external conditions. The selection rules describe the exciton absorption in free crystals with the symmetries D_{4h}, D_4, C_{4h}, D_{3d}, D_3, S_6; D_{2h}, D_2, C_{2h} even if the crystal is not subject to any external forces. There are 11 tables.

ASSOCIATION: Institut fiziki i matematiki AN MSSR, Kishinev (Institute of Physics and Mathematics AS MSSR, Kishinev)

SUBMITTED: January 4, 1962

MOSKALENKO, S.A.; BOBRYSHEVA, A.I.

Rules of selection and energy spectrum of excitons. Part 2: Effect of external fields and directional strains on cubic crystals. Izv. AN Mold SSR no.5:60-70 '62. (MIRA 18:3)

L 13026-63 EWT(1)/BDS AFFTC/ASD/ESD-3 IJP(C)/GG

ACCESSION NR: AP3000628 S/0181/63/005/005/1444/1453 64 58

AUTHOR: Moskalenko, S. A.; Khadzhi, P. I.; Bobry*sheva, A. I.; Lelyakov, A. V. 21

TITLE: Optical-hydrodynamical phenomena in the exciton-photon system

SOURCE: Fizika tverdogo tela, v. 5, no. 5, 1963, 1444-1453

TOPIC TAGS: exciton, phonon, Bose-Einstein condensation, Hamiltonian, exciton dispersion, phase transition, mean free path

ABSTRACT: The authors have studied the interaction of phonons with weakly bound excitons and have analyzed the various laws of exciton dispersion. They have also investigated that particular case when, in the system of excitons and phonons (acoustical or optical), thermodynamic equilibrium between excitons is established before equilibrium between excitons and phonons. Here the interaction of phonons with condensing excitons does not lead to normal scattering but changes the nature of the whole energy spectrum of the system. The necessary conditions for this are such that the mean free path during interexciton collisions must be considerably smaller than during exciton scattering at acoustical and optical phonons or at impurities. The interexciton relaxation time must naturally be less than the

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L 13026-63

ACCESSION NR: AP3000628

life of the excitons. Computations according to different laws of exciton dispersion lead to qualitatively new results, but this matter is not resolved. "In conclusion, we express our deep thanks to V. L. Bonch-Bruyevich, S. I. Pekar, E. I. Rashba, K. B. Tolpy*go, and S. V. Tyablikov for discussing the paper and making comments." Orig. art. has: 1 figure and 35 formulas.

ASSOCIATION: Institut fiziki i matematiki AN MSSR, Kishinev (Institute of Physics and Mathematics, Academy of Sciences, MSSR)

SUBMITTED: 06Sep62 DATE ACQ: 11Jun63 ENCL: 00

SUB CODE: 00 NO REF SOV: 010 OTHER: 005

Card 2/2

L 32209-65 EWT(1)/EWT(m)/T/EWP(t)/EWP(b) LJP(c) JD/JS

ACCESSION NR: AT5005410 S/0000/64/[illegible]

AUTHOR: Bobrysheva, A. I.

TITLE: Energy spectrum of excitons in crystals with zone extrema at the Brillouin zone boundary

SOURCE: Nauchnaya konferentsiya molodykh uchenykh Mo[illegible]. Yestestvenno-tekhnicheskiye nauki (Natural and technical sciences). Kishinev, Gosidat Kartya Moldovenyaske, 1964, 7-9

TOPIC TAGS: exciton, exciton energy spectrum, Bri[illegible]

ABSTRACT: In addition to the case when the extrema [illegible] at the point $\vec{k} = 0$ of the Br[illegible] the two-particle exciton model. The calculations [illegible] 108, 6, 1384, 1957) matrix elements for the light-induced transitions from the ground state into the exciton state. At point R, in addition to the $k = 0$ type

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L 32209-65

ACCESSION NR: AT5005410

local splitting, one also finds "orientation" splitting [illegible] two components. At point results are presented in the form of two tables. Orig. art. has: 3 formulas and 2 tables.

ASSOCIATION: None

SUBMITTED: 07Feb64 ENCL: 00

SUB CODE: [illegible] OTHER: [illegible]

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EWT(1)/T IJP(c)

ACC NR: AP6030970 SOURCE CODE: UR/0181/66/008/009/2730/2734

63
B

AUTHOR: Bobrysheva, A. I.; Moskalenko, S. A.

ORG: Institute of Applied Physics, AN MSSR, Kishenev (Institut prikladnoy fiziki AN MSSR)

TITLE: The angular dependence of probabilities of three-photon absorption

SOURCE: Fizika tverdogo tela, v. 8, no. 9, 1966, 2730-2734

TOPIC TAGS: nonlinear optics, three photon absorption, ABSORPTION COEFFICIENT, PHOTON, CONDUCTION BAND, VALENCE BAND, BRILLOUIN ZONE

ABSTRACT: The dependence of the absorption coefficient on the direction of polarization vectors of three photons taking part in a transition was considered under the assumption that the valence band maximum and the conduction band minimum occur in the Brillouin zone at a point $\vec{k} = 0$ where the transition takes place. General formulas were obtained for the angular dependence of the coefficient of three-photon absorption for an arbitrary orientation of polarization vectors and for the special case of three identically polarized photons at equal frequencies. Although the derived expressions are more unwieldy than those obtained for the case of two-photon absorption, they can be used for band-to-band and exciton transitions and in the local centers. Orig. art. has: 6 formulas. [YK]

SUB CODE: 20/ SUBM DATE: 30Mar66/ ORIG REF: 003/ OTH REF: 007/ ATD PRESS: 5078

Card 1/1

ACC NR: AP7004997 SOURCE CODE: UR/0048/66/030/009/1539/1541

AUTHOR: Bobrysheva,A.I.; Moskalenko,S.A.

ORG: none

TITLE: On two-photon stimulated luminescence in intrinsic semiconductors and dielectrics. Transitions from an exciton state. /Report, Fourteenth All-Union Conference on Luminescence (Crystal Phosphors) held at Riga, 16-23 Sept. 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no.9, 1966, 1539-1541

TOPIC TAGS: luminescence, semiconductor crystal, dielectric crystal, nonlinear effect, laser, exciton, mathematic physics

ABSTRACT: For a cubic crystal under pressure and for the 32 point groups, the authors have calculated the angular dependences of the emission and absorption coefficients associated with exciton transitions due to the A^2 interaction term and the angular dependences of transitions due to the A·p interaction term, and have discussed the features of the two-photon emission that arise from the fact that excitons are bosons. In the present paper they present and briefly discuss some of their results. If the temperature is so low that the excitons are degenerate (form an Einstein-Bose condensate), there can be emitted only two oppositely directed photons of the same energy. This circumstance is favorable for the realization of a two-photon laser based on degenerate excitons. The emission of photons of one frequency can be stimulated by

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ACC NR: AP7004997

an intense beam of photons of another frequency. As an example, the authors present the angular dependences of the emission coefficient for O_h symmetry. When the cubic crystal is subjected to uniaxial compression there appear in the expressions for the angular dependences coefficients that must be determined experimentally. The authors are presently engaged in calculating the corresponding transition probabilities due to the A^2 and A·p interaction terms. These data are required for design of the two-photon laser proposed by A.M.Prokhorov and A.S.Selivanenko (Avt. avid.No.872303 ot 24 XII 1963 g.) and by P.P.Sorokin and N.Braslau (IBM J. research and develop., 8,177 (1964)). Orig. art. has: 8 formulas.

SUB CODE: 20 SUBM DATE: none ORIG REF: 004 OTH REF: 004

Card 2/2

L 00868-67 T IJP(c) GG

ACC NR: AP6024352 SOURCE CODE: GE/0030/66/016/001/0337/0348

47
B

AUTHOR: Bobrysheva, A. I.

ORG: Institute of Applied Physics, Academy of Sciences of the Moldavian SSR, Kishinev

TITLE: The interaction of two excitons in a crystal

SOURCE: Physica status solidi, v. 16, no. 1, 1966, 337-348

TOPIC TAGS: exciton, semiconductor theory, phonon

ABSTRACT: The energy of the exciton-exciton interaction is calculated as a function of the distance between their centers of mass for the atomic model of a semiconductor. Computed numerical results are presented for various values of the parameters of the atomic functions, relative-motion functions, and the electron-hole effective mass ratio. The binding energy of two excitons is obtained by the Green function method assuming that the exciton-exciton interaction is less than the interaction of the excitons with optical and acoustic phonons. The role of the direct exciton-exciton interaction and indirect interaction via optical or acoustic phonons in the formation of a biexciton is studied. Results are given for calculations of the cross section for elastic scattering between two excitons by means of the Born approximation. Author is indebted to S. A. Moskalenko for proposing the treatment of this problem and for helpful discussions. Orig. art. has: 3 figures, 1 table, and 29 formulas.

SUB CODE: 20/ SUBM DATE: 10Mar66/ ORIG REF: 003/ OTH REF: 010

Card 1/1 LS

BOBRYSHEVA, A.M.; OKNINA, Ye.Z.

Transformation of reserve substances in flower buds of the black currant during the annual cycle. Fiziol. rast. 7 no. 5:591-594 '60. (MIRA 13:10)

1. K.A. Timiriazev Institute of Plant Physiology, U.S.S.R., Academy of Sciences, Moscow.
(Currants) (Plants--Frost resistance)

BOBRYSHEVA, A.M.

Development of flower buds in Ribes nigrum L. in fall and winter. Bot. zhur 46 no.3:377-386 Mr '61. (MIRA 14:3)

1. Institut fiziologii rasteniy imeni K.A.Timiryazeva AN SSSR, Moskva.

(Moscow—Currants) (Buds) (Dormancy in plants)

CHERNOBAY, A.V.; SHEPELEVA, A.I.; ZUBKOVA, V.S.; Prinimali uchastiye: DELYATITSKAYA, R.Ya., KATMISSKAYA, E.V.; BOBRYSHEVA, A.M.

Spectrophotometric study of N-vinylcarbazole and methyl methacrylate copolymers. Vysokom. soed. 7 no.6:1080-1084 Je '65. (MIRA 18:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov, stsintillyatsionnykh materialov i osobo chistykh khimicheskikh veshchestv.

AMANTAYEV, Ye., kand. sel'skokhoz. nauk; BOBRYSHEVA, G., aspirantka

Fertilizers and the root system of corn. Zemledelie 26 no.7:77-78 Jl '64. (MIRA 18:7)

1. Kazakhskiy nauchno-issledovatel'skiy institut zemledeliya.

BOBRYSHEVA, G., red.

[Convective heat transfer] Konvektivnyi teplo-obmen. Kiev, Naukova dumka, 1965. 202 p.

1. Akademiya nauk URSR, Kiev.

BOBRYSHEVA, L.G., red.

[Increase of accuracy and automation of measuring systems] Povyshenie tochnosti i avtomatizatsiia izmeritel'nykh sistem. Kiev, Naukova dumka, 1965. 203 p. (MIRA 19:1)

1. Akademiya nauk URSR, Kiev.

24018
S/076/61/035/005/001/008
B101/B218

11.1120

AUTHORS: Pankratov, A. V. and Bobrysheva, L. A. (Moscow)

TITLE: The problem of the mechanism of decomposition of liquid ozone

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 5, 1961, 969-973

TEXT: The study of the decomposition of ozone is of great importance for the problem of energy transfer in chemical kinetics. The authors studied the photochemical decomposition of liquid ozone. In their experiments, they prevented the decomposing ozone molecules from coming in contact with the wall of the vessel. The apparatus is schematically shown in Fig. 1. The gaseous mixture of O_2 and O_3 was conducted from the ozonizers into the photochemical cell 1 which was cooled by liquid oxygen. The mixture condensed in 1 was evacuated by a fore pump until a pressure of 0.06 mm Hg was attained, according to the vapor pressure of 100 % ozone at -183°C. Pressure was measured by an ЛТ-2 (LT-2) tube. After vacuum had been attained, the light source, a ПРК-2 (PRK-2) mercury lamp, was switched on and the ozone layer (5-10 mm) in cell 1 was exposed through a light filter (λ = 3130 Å, determined by an СФ-4 (SF-4) spectrophotometer). The intensity

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The problem of the mechanism of...

of the inciding light was measured by a photoconductive cell of the type ФС-К2 (FS-K2) which was inserted into 1. The oxygen liberated from O_3 due to the action of light passed over to the gaseous phase. Its pressure was measured by means of a "post-hole" glass pressure gauge. The following results were obtained: 1) The pressure of O_2 increased in proportion to the time of exposure. 2) After switching off the light, the pressure of O_2 remained constant for 3 hr. 3) The reaction rate did not depend on the quantity of ozone. Table 2 lists the experimental results: quantum yield 8 and reaction rate v at -183°C. If, however, cell 1 was filled with quartz rods, the results given in Table 3 were obtained:

I, quanta/mole·sec	v, mole O_3/sec	γ
6.55	13.0	2.0
4.86	9.7	2.0
4.30	7.9	1.8
1.35	1.5	1.1
1.20	1.5	1.3
1.02	1.5	1.5
0.74	1.5	2.0

The problem of the mechanism of...

number of packing	reaction rate mole O_3/sec	quantum yield	
		minimum	maximum
1	6.52	4.8	17.5
2	2.24	3.5	12.6
3	2.40	4.6	16.7
4	1.86	4.9	17.9

While the experiments listed in Table 2 resulted in a quantum yield of < 2, the latter was > 2 in the presence of a packing. Since the light inciding upon ozone could not be measured in the latter case, the authors give a minimum and a maximum value. For constant exposure, the temperature dependence of the quantum yield (without packing) was found to be

t, °C	γ
-183	1.8
-155	2.8
-145	7.9
-140	19.6

Two reaction mechanisms result therefrom: a temperature-independent mechanism below -160°C, and a temperature-dependent mechanism above -160°C. The activation energy was calculated to be 4200 cal/mole. The following reactions are written down: $O_3 + h\nu = O_2^* + O$ (1); $O + O_3 = 2O_2^*$ (2); $O + O + O_3 = O_2 + O_3$ (2'); $O + O_3 + \text{solid} = 2O_2^* + \text{solid}$ (2");

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The problem of the mechanism of...

$O + O_2 + O_3 = O_3 + O_3$ (3); $O_2^* + O_3 = O + O_2 + O_2$ (4); $O_2^* + O_3 = O_2 + O_3$ (5); $O_2^* + O_2 = O_2 + O_2$ (6). Summing up: 1) For temperatures below -160°C, the rate of reaction 2' outweighs that of reaction 2. The homogeneous decomposition of O_3 is determined by the reactions 1, 2', 3, 4, 5, and 6. Above -160°C, reaction 2 predominates, and the quantum yield depends on temperature. In the presence of a packing, reaction 2" predominates (catalytic reaction between O, O_3, and the wall). The following kinetic equations are derived: $-d[O_3]/dt = I[1 + k_4/(k_4 + k_5)] \pm (\sqrt{2}/2)(k_3[O_2][O_3]^{1/2}/k^{1/2})[1+k_4/(k_4 + k_5)]^{1/2}\sqrt{I}$ (7), and for the case $[O_2] = 0$ one has $-d[O_3]/dt = I[1 + 1/(k_5/k_4 + 1)] = k_1 I$ (8). It is noted that these equations have only a qualitative character. There are 4 figures, 4 tables, and 6 references: 2 Soviet-bloc and 4 non-Soviet-bloc. The reference to the English-language publication reads as follows: A. Jenkins, F. Di-Paolo, J. Chem. Phys., 25, 296, 1956.

SUBMITTED: December 10, 1958

Card 4/5

24018
S/076/61/035/005/001/008
B101/B218

The problem of the mechanism of...

Fig. 1: Schematic representation of the test apparatus. Legend: 1) photochemical cell; 2), 3) vacuum taps; 4) mercury lamp; 5) "post-hole" glass pressure gauge; 6) condenser; 7) light filter; 8) Dewar vessel; 9) metallic Dewar vessel, 15 l capacity; 10) water tap; 11) cylinder with O_2; 12) mercury pressure gauge; 13) thermal ozone decomposer; 14) trap with KI for ozone analysis; 15) protective wall; a) from ozonizers; b) to vacuum pump; c) output.

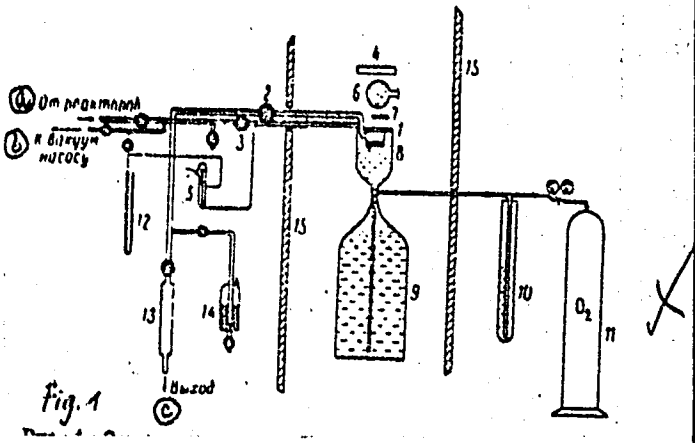

Fig. 1

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L 23572-66 EWT(m)/T DJ

ACC NR: AP6002599 (A) SOURCE CODE: UR/0286/65/000/023/0094/0094

AUTHORS: Bobryshev, O. V.; Madzhugin, L. Ye.

ORG: none

TITLE: Duct for transporting (principally pneumatic) devices. Class 81, No. 176822

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 94

TOPIC TAGS: pipeline [redacted], pneumatic device, hydraulic equipment

ABSTRACT: This Author Certificate presents a duct for transporting (principally pneumatic) devices. The duct includes a fixed and a movable fitting which are interconnected with rings placed in a plane inclined to the axes of the fittings (see Fig. 1). To provide the motion of the movable fitting in the plane of the fitting axes, the fittings are coupled with rings using additional fittings which are rotatable or counterrotatable and are interconnected with arms. The arms are rigidly fastened to each of the fittings respectively and are swivel-coupled together. The axis of the swivel is in the plane of rotation of the rings. The drive of the additional fittings is accomplished with hydraulic cylinders fastened

Card 1/2 UDC: 621.867.85

L 23572-66
ACC NR: AP6002599

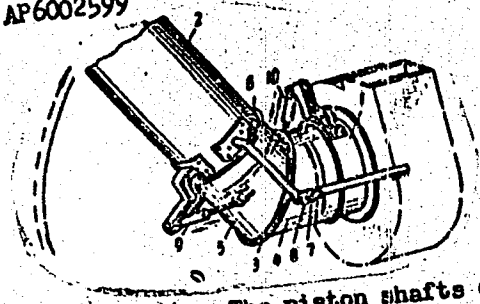

Fig. 1. 1 - fixed fitting; 2 - movable fitting; 3 - rings; 4 and 5 - additional fittings; 6 and 7 - arms; 8 - swivel; 9 and 10 - hydraulic cylinders.

to the main fittings. The piston shafts of the hydraulic cylinders are connected to the additional fittings. Orig. art. has: 1 diagram.

SUB CODE: 13/ SUBM DATE: 12Aug63

Card 2/2 PB

BOBRZANSKI, B.

"A Report Relating to Studies on the Dynamics of Properties of Soils in the Experimental Stations at Kutno-Golebiew." p. 138, (ROCZNIKI NAUK ROLNICZYCH. SERIA A-ROSLINNA, Vol. 66, no. 3, 1953, Warsaw, Poland).

SO: Monthly List of East European Accession, Lib of Congress, Vol 2, no 10, Oct. 1953, Uncl.

BOBSHEVSKA, D.

"Rukovodstvo za labortorni uprazhneniia po agrokhimiia. Sofiia, Zemizdat, 1955. p. 124 (Universiteska litoratura) (Laboratory manual on agricultural chemistry; a university textbook)

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4, April 1958

LITVINOVA, Ye.V.; BOBUKOV, Ye.V.

Using the method of selection from the production for the isolation of the active strains of brewer's yeast. Trudy TSentr.nauch.-issl. inst.piv.,bezalk. i vin.prom. no.9:43-45 '62. (MIRA 16:10)

MIRCHINK, M.F.; BOBUKH, V.A.; KRYLOV, N.A.; LETAVIN, A.I.

New data on the geology of the Karpinskogo Range and adjacent areas. Dokl. AN SSSR 154 no.6:1340-1343 F '64. (MIRA 17:2)

1. Institut geologii i razrabotki goryuchikh iskopayemykh i Volgo-Donskoye geologicheskoye upravleniye. 2. Chlen-korrespondent AN SSSR (for Mirchink).

MATSKEVICH, M.M.; BOBUKH, V.A.

Stratigraphic cross section of the Jurrasic sediments of the Kerpinskiy swell. Neftegaz. geol. i geofiz. no.4:22-27 '64. (MIRA 17:6)

1. Grozneneskiy neftyanoy nauchno-issledovatel'skiy institut.

BOBUKH, V.A.; FEDOROV, D.L.

New gas condensate fields on the southern slope of Karpinsk swell. Gaz. prom. 9 no.12:4-7 '64. (MIRA 18:3)

BOBUKH, V.A.

Oil and gas potentials of the Kalmyk A.S.S.R., Astrakhan and Rostov Provinces. Trudy NIIneftegaza no.13:187-196 '65. (MIRA 18:9)

24649

Z/043/61/000/009/001/001
D215/D303

15.8130

AUTHORS: Mistrík J., and Bobula S.

TITLE: Contribution to the study on kinetics of furfuryl-alcoholic resin formation

PERIODICAL: Chemické zvesti, no. 9, 1961, 625-630

TEXT: The article describes tests performed to determine the catalytic influence of hydrochloric, sulfuric, oxalic, and phosphoric acid on the polycondensation of furfuryl alcohol. The main reaction, taking place at homopolycondensation of furfuryl alcohol, is intermolecular dehydration with the hydroxyl group and alpha-hydrogen reacting as functional groups. The product of this reaction is 2-hydroxylmethyl-5-furfurylfurane (III) which, in turn, reacts with other furfuryl-alcohol molecules during the formation of a liquid, linear polycondensate (IV). By-reactions, taking place at more advanced polycondensation stages, lead to the formation of difurfuryl ether (I), di-2-furfuryl methane (II) and formaldehyde. In the presence of protons, levulinic acid originates by water addition to

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Contribution to the study...

furfuryl alcohol. Tests, in which the catalytic influence of the above acids was studied, were conducted in a region where products type III, eventually also I and II, occurred. The tests produced the following results: The catalytic effect decreases in the order hydrochloric-sulfuric-oxalic-phosphoric acid and depends on the dissociation degree of the respective acid. This catalytic effect of protons can be explained by proton addition to the free electron pair on the oxygen atom of the furfuryl-alcoholic OH group. The originating oxonium cation disintegrates into water and a carbonium ion which reacts with another furfuryl-alcohol molecule in the alpha-position and yields a product of the type III. It was found that strong mineral acids are not suitable catalysts, since rapid polycondensation occurs already at concentrations of $1 \cdot 10^{-3}$ to $2 \cdot 10^{-3}$ gramequival. acid/100 ml furfuryl alcohol. Monomer furfuryl alcohol can, therefore, only be stored in the absence of free-acid traces. Kinetic measurings of furfuryl-alcohol polycondensation are complicated, since several reactions occur simultaneously and subsequently. During catalyzation with oxalic acid, it could be determined

Contribution to the study...

that condensation depending on time features a reaction of the first order. Prevailing polycondensation products are those of type III and IV, the yield of product type II is negligible. Both the originating formaldehyde and the levulinic acid have no influence on reaction kinetics. The reaction temperature has a great influence on the polycondensation rate which increased 1.8 times when the temperature rose from 80 to 90°C, and 1.6 times when the temperature rose from 90 to 100°C. An efficient temperature control is, therefore, a must in polycondensation reactions. The activation energy for the oxalic-acid catalyzed polycondensation, calculated by the logarithmic form of the Arrhenius equation is $E = 13.62 \pm 0.88$ kcal/mol. This value is the arithmetic mean for 80, 90, and 100°C; constants of the Arrhenius equation $\log k = B - \frac{A}{T}$ are $B = 5.097$ and $A = 2977$. The authors thank Professor, Doctor J. Gašperník for his valuable contributions. There are 4 figures, 1 table, and 6 references: 1 Soviet-bloc and 5 non-Soviet bloc. The references to the English-language publications read as follows:

Card 3/4

24649

Z/043/61/000/009/001/001
D215/D303

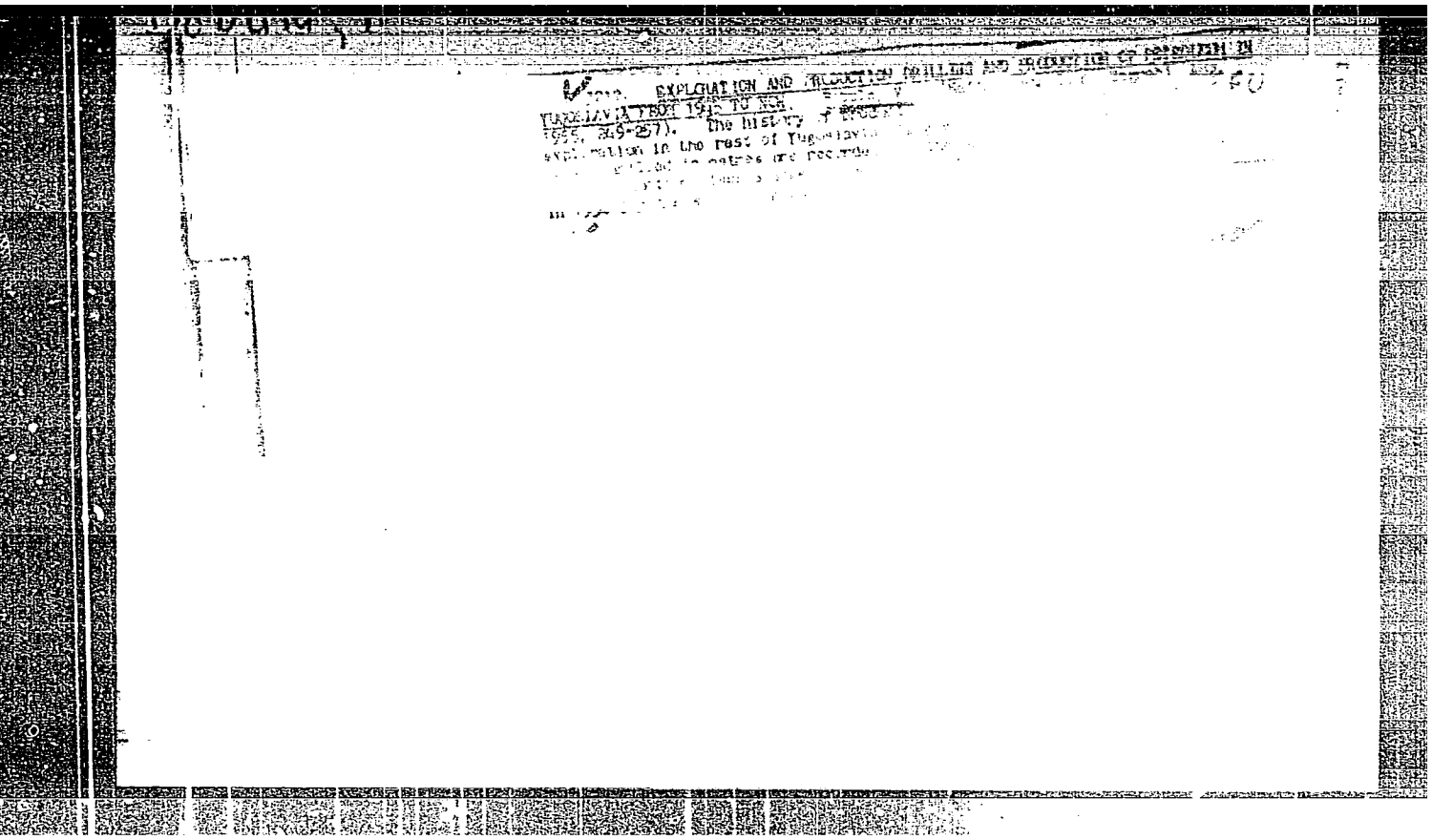
Contribution to the study...

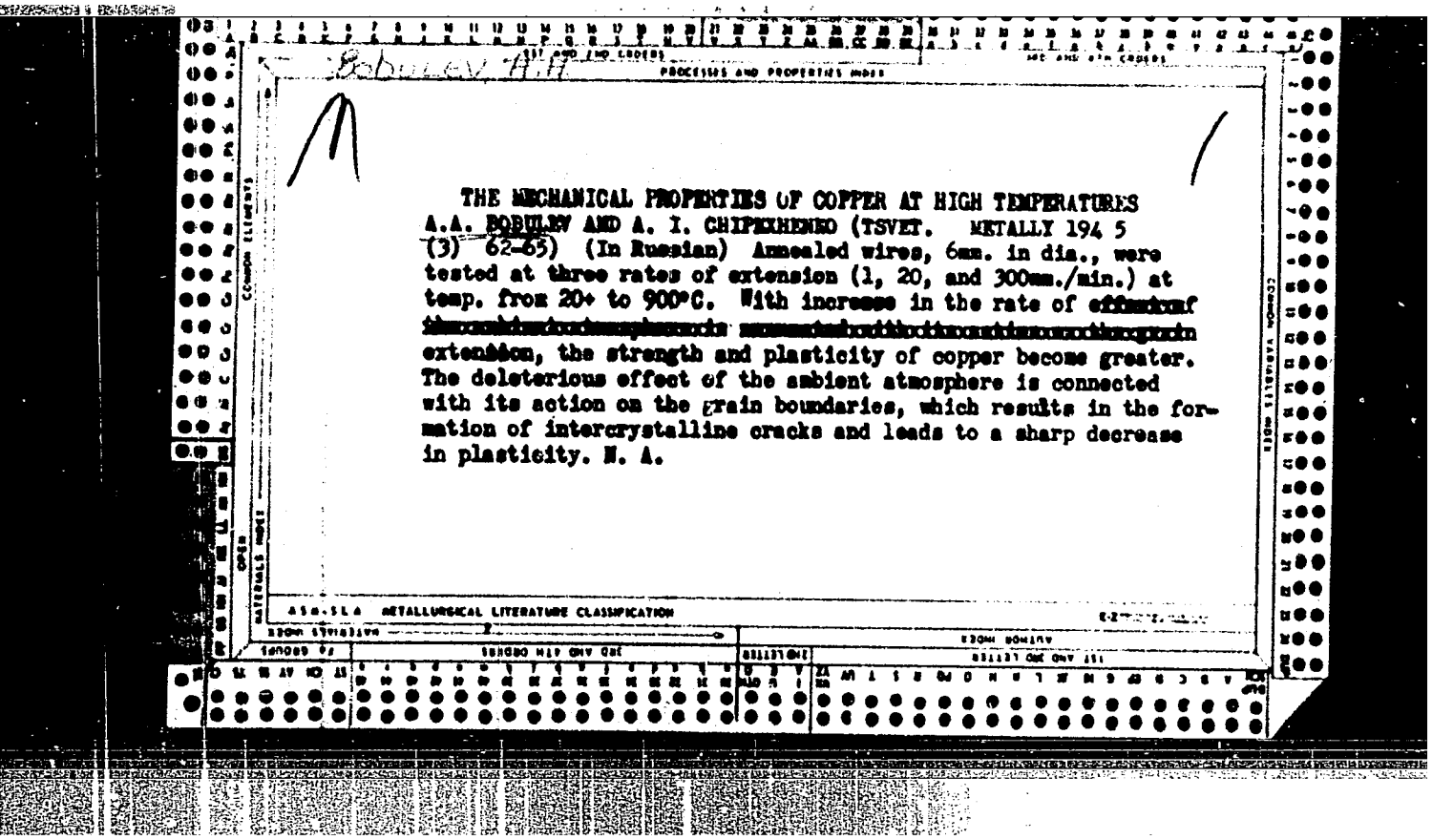
A. P. Dunlop, F. N. Peters: Ind. Eng. Chem. 34, 814 (1942); D. R. Stull: Ind. Eng. Chem. 39, 522 (1947); Y. Hachihama, T. Shono: Technology reports of the Osaka University 4, No 133, 413 (1954).

ASSOCIATION: Výskumný ústav pre petrochemiu v Novákoch (Research Institute for Petrochemistry in Nováky); Katedra organickej technológie Slovenskej školy technickej v Bratislave (Department of Organic Technology at the Slovak Institute of Technology in Bratislava).

SUBMITTED: October 17, 1960

Card 4/4





THE MECHANICAL PROPERTIES OF COPPER AT HIGH TEMPERATURES

A.A. BOBULEV AND A. I. CHIPEKHENKO (TSVET. METALLY 194 5 (3) 62-65) (In Russian) Annealed wires, 6mm. in dia., were tested at three rates of extension (1, 20, and 300mm./min.) at temp. from 20° to 900°C. With increase in the rate of extension, the strength and plasticity of copper become greater. The deleterious effect of the ambient atmosphere is connected with its action on the grain boundaries, which results in the formation of intercrystalline cracks and leads to a sharp decrease in plasticity. N. A.

SHERISHORINA, S.I., professor, zaveduyushchaya; DAVIDSON, S.B., dotsent, zaveduyushchiy kafedroy; MERINA, A.Ye., assistent; BOBUNOVA, V.A., vrach; SHAMSHINA, M.F., vrach; GAVRILOVA, T.P., vrach.

Certain data on the treatment of chronic dysentery in children with methylene blue and phthalazole. Pediatriia no.3:24-26 My-Je '53. (MLRA 6:8)

1. Kafedra mikrobiologii Saratovskogo meditsinskogo instituta (for Sherishorina and Merina). 2. Fakul'tetskaya pediatriya Saratovskogo meditsinskogo instituta (for Davidson, Bobunova, Shamshina and Gavrilova). 3. Dom rebenka No.2 (for Bobunova, Shamshina and Gavrilova). (Dysentery)

BOBUSHKIN, A.N.

Industrial production of wear-resistant self-sharpening cultivator shares. Biul. tekh.-ekon. inform. no. 4:75 '61. (MIRA 14:5)
(Cultivators)

BOBUSLAVSKIY, B.L., prof.

Automatic multiple-purpose lathe lines. Vest.mash. 40 no.12:44-52 D '60. (MIRA 13:12)
(Machinery, Automatic)

L 33406-66 EWT(m)

ACC NR: AP6015316 (A, N) SOURCE CODE: UR/0057/66/036/005/0931/0936

49
48

AUTHOR: Bobykin, B.V.; Babenkov, M.I.

B

ORG: none

19

TITLE: A Svartholm-Siegbahn type beta spectrometer with adjustable angular separation between source and detector

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 5, 1966, 931-936

TOPIC TAGS: beta spectroscopy, beta spectrometer, magnetic analyzer, magnetic field, nonlinear effect

ABSTRACT: The authors discuss the performance of a double focusing magnetic beta spectrometer with iron pole pieces in which the approximately $\pi\sqrt{2}$ angular separation between the source and the detector was made adjustable to compensate for the deviation of the magnetic field from the ideal distribution and the variation of field distribution with field strength due to the nonlinear magnetic properties of the pole pieces. The instrument was a modified version of a spectrometer that has been described elsewhere by B.V.Bobykin and K.M.Novik (Izv. AN SSSR, ser. fiz. 21, 1556, 1957). The radius of the electron-optical axis was 24.3 cm, and the position on this axis of the detector, consisting of two Geiger-Müller counters in coincidence, could be varied through an angle of about 10^{o} by means of a micrometer screw working through

Card 1/2 UDC: 539.107

L 33406-66

ACC NR: AP6015316 /

a Wilson vacuum joint. The instrument was operated with the detector at the position of best radial focus, the consequent deterioration of vertical focusing being compensated by lengthening the entrance slit to the detector. The optimum position of the detector for each magnetic field strength (electron energy) was determined by repeatedly measuring the width of a conversion line in the corresponding energy region with the detector in different positions. The optimum angle decreased by about 4° as the $H\rho$ value was increased from 700 to 1100 Oe cm and remained nearly constant with further increase of $H\rho$ to 3500 Oe cm. The optimum angle also depended appreciably on the magnetic history of the pole pieces, but the relation between optimum angle and electron energy was adequately reproducible when the pole pieces were suitably prepared between measurements. The measured full width at half-maximum of the 74.9 keV conversion line from 1 x 20 mm $Eu^{152, 154}$ source was 0.15 % when the 1.2 x 20 mm entrance slit to the detector was at the optimum position. Shifting the detector position by 3° to either side of the optimum position increased the measured half-width to 0.17 %. Relative intensities of conversion lines were correctly measured even when the position of the detector was as much as $8-10^{\circ}$ from the optimum position. The authors thank Academician of the AN Kaz. SSR Professor V.M.Kel'man for valuable advice and discussion of the results. Orig. art. has: 4 formulas and 4 figures.

SUB CODE: 20/ SUBM DATE: 22May65/ ORIG REF: 005/ OTH REF: 002

Card 2/2 JS

BOBYKIN, B.V.; KEL'MAN, V.M.; MEDNIKOVA, L.S.

Deflecting properties and dispersion of an electrostatic prismatic spectrometer. Izv. AN SSSR.Ser.fiz. 29 no.5:808-814 My '65. (MIRA 18:5)

1. Institut yadernoy fiziki AN KazSSR.

GEDYK, P.K.; GOKUN, V.B. kandidat tekhnicheskikh nauk, redaktor; BOBYA-KIN, N.S., inzhener, redaktor; DUGINA, N.A., tekhnicheskiy redaktor.

[Standardization in a machine-building plant] Normalizatsiia na mashinostroitel'nom zavode. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit.lit-ry, 1955. 186 p. (MLRA 8:8)
(Machinery industry)

BOBYCHINA, A. P.

D'yachenko, P. Ye., i Bobychina, A. P.

"Effect of the Microgeometry of Cutters on the Purity of a Machined Surface." "Examination of the Purity of the Surface of Cutting Instruments." Symposium, Surface Purity of Cutting Instruments, Central Bureau of Technical Information, 1949.

BOBYCHINA, L. YA

Organizatsiya Pochtovoy svyazi SSSR (The organization of USSR'S mail communication) Moskva, Svyaz'Izdat, 1950.
247. Illus, Tables, Diagrs.

Deals with the significance of mail communication in USSR. Its enterprise, the means of mail transportation, the organizational structure, the characteristic of working processes in enterprises of mail communication, etc.

BOBYK, ALEKSANDER

MJL(ED)
IJP(c)

Distr: 4E2c(m)/4E3a(w) 2 cys

Surface-tension measurements of mercury and of Wood's alloy by the bubble method. Aleksander Bobyk (Univ. Łódź, Poland). *Przemysł Chem.* 39, 425–7 (1960).—The surface tension of Hg and of Wood's alloy on the boundary with air was measured by the bubble method in glass capillaries. The mean values obtained (dynes/cm.) were, resp., 350.5 at 21°, and 383.0 at 100°. The estd. error was ±1.2%. For capillaries with an inside radius $r < 0.75$ mm. for Hg, and $r < 0.40$ mm. for Wood's alloy the surface tension depends on the magnitude of the inside radius. Not the outside but the inside radius of the capillary should be introduced into the formula for calcg. the surface tension of glass/liquid-metal/air systems. J. Gallus-Olender

BOBYK, Aleksander

Bubble method measurements of the surface energy of mercury and Wood's alloy. Przem chem 39 no.7:423-437 Jl '60.

1. Katedra Chemii Fizycznej, Uniwersytet, Lodz

ACCESSION NR: AP4040766 S/0021/64/000/006/0703/0706

AUTHOR: Skorobogat'ko, V. Ya., Boby*k, O. I. (Bobik, O. I.)

TITLE: New criteria for the uniqueness of the solution of the first boundary value problem for an equation of the elliptical type as applied to a system of equations for a nuclear reactor

SOURCE: AN UkrRSR. Dopovidi, no. 6, 1964, 703-706

TOPIC TAGS: Unique solution, nuclear reactor, radioactive material container, nuclear material containment, neutron diffusion, nuclear reactor theory, nuclear reactor safety, elliptical equation, boundary value problem

ABSTRACT: New criteria for the solubility of the first boundary value problem for an elliptical equation of the type

$$\sum_{i,j=1}^{m} a_{ij}(x)\frac{\partial^2 u}{\partial x_i \partial x_j} + \sum_{i=1}^{m} b_i(x)\frac{\partial u}{\partial x_i} + c(x)u = 0, \quad x = (x_1, \ldots, x_m) \qquad (1)$$

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ACCESSION NR: AP4040766

are considered. Two theorems are proved. It is stated that the diffusion of neutrons in a nuclear reactor is described in the single-group (lumped) approximation by equation 1. The theorems yield values for subcritical dimensions of reactors, such that chain reactions will not occur. Thus, the results may be used in designing vessels of arbitrary shape for safe storage of radioactive substances. Orig. art. contains 2 numbered equations.

ASSOCIATION: Insty*tut matematy*ky* AN UkrSSR (Institute of Mathematics AN UkrSSR)

SUBMITTED: 08Jun63 ENCL: 00

SUB CODE: MP, MA NO REF SOV: 002 OTHER: 000

Card 2/2

BOBYKIN, B. V.; KEL'MAN, V. M.; MEDNIKOVA, L. S. 2

"Dispersion Properties of a Prismatic Electrostatic Beta Spectrometer."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

FTI (Physico Technical Inst)

USSR/Nuclear Physics - Modeling Motion of Particles May 52

"Modeling the Motion of Charged Particles in a Two-Dimensional Electric Field Taking Into Account the Volumetric Charge," B. V. Bobykin, V. M. Kelmsn, D. L. Kaminskiy

"Zhur Tekh Fiz" Vol XXII, No 5, pp 736-743

In order to find trajectories of charged particles in a plane free of space charge, the trajectories are considered to be those of balls rolling on a rubber membrane. (cf. P. Klynen, Philips Tech

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Rev, 2,231, 1937; V. K. Zvorykin et al. "Proceedings of IRE" 27,558, 1939). Author modifies this method for the case of space charge. Received 14 Feb 52.

222765

BOBYKIN, B. V.

Bobykin, B. V.

AUTHORS: Bobykin, B.V., Novik, K.M. 48-12-2/15

TITLE: An Investigation of the Spectrum of Electrons of Inner Conversion of the Long-Lived Eu^{152}- and Eu^{154}-Isotopes (Issledovaniye spektra elektronov vnutrenney konversii dolgozhivushchikh izotopov Eu^{152} i Eu^{154}).

PERIODICAL: Izvestiya AN SSSR, Seriya Fizicheskaya, 1957, Vol. 21, Nr 12, pp. 1556-1572 (USSR)

ABSTRACT: The results of the present paper show that some earlier published data on the decay-characteristics of Eu^{152} and Eu^{154} require a completion and precise determination. The spectrum of inner conversion of a mixture of the long-lived isotopes Eu^{152} and Eu^{154} was investigated in the β-spectrometer with double focusing. The electromagnet was analogous to that in reference 8. The spectroscope was tuned up for the work within the range of electron-energies with the densest distribution of conversion-lines - 100 to 700 keV. The monoenergetic electrons of the F-line of ThB were used for tuning. The character of the instrument-line in dependence on the angular distance source-detector was investigated at a solid angle of 0,002.4π. An angle of 258° proved to be the optimal one. It was found that

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An Investigation of the Spectrum of Electrons of Inner Conversion of the Long-Lived Eu^{152}- and Eu^{154}-Isotopes. 48-12-2/15

the radius of the electron-optical axis is no critical one. The electron-lines noticed in the decay of the long-lived Eu^{152}- and Eu^{154}-isotopes are here given in diagrams. For determining the energies in the γ-transitions only the K-conversion-lines were used here. The relative intensities of the conversion-lines are given in a table. The investigation of the spectrum was done in two stages. During the first stage at an age of the source of 2 years the fundamental measurements were made. These made it possible to identify the larger part of the conversion-lines. After 28o days control-measurements were made for determining the belonging of the doubtful lines to the long-lived isotopes. Thus it was found that the conversion-lines Nr 5 (21,15 keV), Nr 11 (48,90 keV), Nr 14 (54,66 keV), Nr 21 (95,25 keV) and Nr 24 (1o1,4 keV) possess a decrease in intensity of more than 5o % as compared to the intensities of the Eu^{152}, ^{154}-line. The same speed of intensity-modification gives rise to the idea that the above-mentioned lines belong to the decay of one and the same isotope (whose half-decay period amounts to about 23o days). This fact that the lines Nr 14, 21, and 24 convert in Europium (Z=63) indicates that the γ-transitions accompany the decay of Gd^{153} with an energy of 69,7 keV, 97,4 keV, and 1o3,2 keV.

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Eu^{153} (N=90) is the product of this decay and belongs to the type of deformed nuclei. The transition-energy and the relative intensities of the conversion-lines are not in contradiction to the results published in reference 12. Some doubts exist regarding the belonging of the lines Nr 12 (51,59 keV) and Nr 13 (52,09 keV) to $Eu^{152, 154}$, as a great uncertainty exists concerning the evaluation of the intensity of these lines. Some interesting cases where the K-lines of some γ-transitions almost or very accurately coincide were observed. Thus in: 244,66 (Z=62) and 248,04 keV (Z=64), 689,1 (Z=62) and 692,5 keV (Z=64), 868,5 (Z=62) and 873,7 keV (Z=64), 72o,2 (Z=62) and 723,6 keV (Z=64). The intensity (72o keV) of the γ-transition proved highly superelevated in comparison with its position, determined long ago, in the scheme of the Sm^{152}-levels. The results of the last investigations show that the line Nr 46 (629 keV) cannot be classed with the short-lived activity. Conversion-lines belonging to the γ-transition 1272,6 keV (Z=62) or 1276,0 (Z=64) are represented by the lines Nr 7o and 71. Some data on the relative intensities of the conversion-lines can be used for finding the experimental relations of the conversion-coefficients,

An Investigation of the Spectrum of Electrons of Inner Conversion of the Long-Lived Eu^{152}- and Eu^{154}-Isotopes. 48-12-2/15

as well as for a comparison of those with the theoretical relations. Such a comparison is here given in a table. The absolute values of the K-conversion coefficients are given in another table. Their values were obtained on the basis of the data of this work on the relative intensities of the K-lines and the data on the relative intensities of the γ-rays from reference 5. It is further shown here that in the case of the given quantum-characteristics of the original states of Eu^{152} and Sm^{152} it is to be expected that the K-capture-branch in the original position of Sm^{152} is very weak or absent (cf. also Gd^{152} and Gd^{154}). In such a case the ratio of the sum of the intensities in the transitions with an energy of 121,77 and 1086,6 keV to the intensity of the transition 344,32 keV is equal to the ratio of the (K+L)-capture-branches to the β-decay. V.M.Kel'man assisted in the work. There are 7 figures, 3 tables, and 20 references, 5 of which are Slavic.

ASSOCIATION: Physical-Technical Institute AN USSR Leningrad (Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR)

AVAILABLE: Library of Congress

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BOBYKIN, B.V.

20-2-18/62

AUTHORS: Bobykin, B.V., Novik, K.M.

TITLE: The Identification of the Internal Conversion Spectrum of the Long-Lived Isotopes Eu^{152} and Eu^{154} (Identifikatsiya spektra vnutrennyey konversii dolgozhivushchikh izotopov Eu^{152} i Eu^{154})

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 115, Nr 2, pp. 263 - 266 (USSR)

ABSTRACT: Reference is made to some relevant preliminary works. The authors made their investigations with a β-spectrometer with double focusing. The properties of this spectrometer are enumerated. The β-sources were produced by electrolysis of europium chloride which was dissolved in ethyl alcohol. From 1 milligram of the initial radioactive substance about 50 sources of different thickness and different dimensions were produced. The spectrum of the internal conversion of Eu^{152}, 154 was taken on two years old sources. This permits the exact determination of the element in which the γ-transition takes place. 73 lines of the internal conversion and 13 of Ozhe's electron lines were observed. The identified γ-transitions are summarized in a table. By an additional series of measurements

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The Identification of the Internal Conversion Spectrum of the Long-Lived Isotopes Eu^{152} and Eu^{154} 20-2-18/62

after 280 days the modification of the intensity of some lines could be determined whose belonging to $Eu^{152, 154}$ is doubtful. These lines are individually shortly shown here. Some interesting conversion lines are illustrated by a diagram. The exact values of the energies of the transitions determined in this work are a good confirmation of the decay scheme of the long-lived Eu^{152} published in 1956 (Nuclear Sci.Abstr., 1956, Vol. 10, Nr 12B, p. 254). There are 2 figures, 1 table, 13 references, 2 of which are Slavic.

ASSOCIATION: Physico-Technical Institute AN USSR (Fiziko-tekhnicheskiy institut Akademii nauk SSSR)

PRESENTED: March 1, 1957, by A.A. Lebedev, Academician

SUBMITTED: February 27, 1957

AVAILABLE: Library of Congress

Card 2/2

BOBYKIN, B.V., Cand Phys Math Sci -- (diss) "Study of γ-radiation of long-living isotopes Eu^{152} and Eu^{154} ~~from~~ orbital electrons of ~~inner~~ internal conversion." Len, 1958, 21 pp (Acad Sci USSR. Len Phys Tech Inst) 100 copies. Bibliography: pp 20-21 (18 titles) (KL, 27-58, 101)

γ = gamma

USSR / Human and Animal Morphology (Normal and Pathological). S
Muscles.

Abs Jour : Ref Zhur - Biologiya, No 1, 1959, No. 2983

Author : Bobykin, S. S.
Inst : Arkhangelsk Medical Institute
Title : Data on the Anatomy of the Abdominal Wall

Orig Pub : Sb. tr. Arkhang. med. in-t, 1957, vyp 17, 116-120

Abstract : Studies on variations of the relationship of lines of transition of abdominal muscles into their aponeuroses were conducted on 30 cadavers of men and women. It was established that the segment of the anterior abdominal wall devoid of a muscular layer is very limited. It is located near the external margin of the rectus muscle and is most pronounced 2-5 cm below the umbilicus. The line of transition of the broad abdominal muscles into the aponeurosis lacks constant shape and location.

Card 1/1

BOBYL', V.G., Cand Phys Math Sci -- (diss) "Photoconductivity of liquid systems (of liquid ion semi-conductors)." Dnepropetrovsk, 1958, 15 pp. (Min of Higher Education UkSSR. Dnepropetrovsk Engineering ~~Building~~ Construction Inst. Chair of Physics) 100 copies (KL, 39-58, 106)

BOBIL', V. G.

Kopylov, Yu. A. and Bobyl', V. G. [Dnepropetrovskiy inzhenerno-stroitel'-nyy institut (Dnepropetrovsk Institute of Engineering)] Ionic Conductivity of Liquids and Crystals

Bobyl', V.G. and Yu.A. Kopylov. [Dnepropetrovskiy inzhenerno-stroitel'nyy institut (Dnepropetrovsk Institute of Civil Engineering)] The Photoconductivity of Several Organic Solutions

(The Physics of Dielectrics; Transactions of the All-Union Conference on the Physics of Dielectrics) Moscow, Izd-vo AN SSSR, 1958. 245 p. 3,000 copies printed.

This volume publishes reports presented at the All-Union Conference on the Physics of Dielectrics, held in Dnepropetrovsk in August 1956 sponsored by the "Physics of Dielectrics" Laboratory of the Fizicheskiy institut imeni Lebedeva AN SSSR (Physics Institute imeni Lebedev of the AS USSR), and the Electrophysics Department of the Dnepropetrovskiy gosudarstvennyy universitet (Dnepropetrovsk State University).

Bobyl', V.G.

82144
SOV/81-59-6-18632

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 6, p 75 (USSR)

24.2110

AUTHORS: Kopylov, Yu.A., Bobyl', V.G.

TITLE: The Ionic Electric Conductivity of Liquids and Crystals

PERIODICAL: V sb.: Fiz. dielektrikov. Moscow, AS USSR, 1958, pp 70-75

ABSTRACT: The dependence of the electric conductivity σ of solutions and ion crystals on various parameters (temperature T, concentration of the solution, etc) was calculated. The dissociation degree α of the molecules of the dissolved substance (concentration of the charge carriers in ionic semiconductors) is calculated on the basis of assumptions concerning the dependence of the rates of recombination and generation of free charge carriers on the number of filled or free places in the crystal lattice or in the solution. The conclusions of the theory concerning the dependence of σ on α and T, as well as the dependence of the time of relaxation of the dissociation processes on the dissociation energy agree qualitatively with the experimental data.

Card 1/1

Yu. Pleskov

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5.4600

SOV/58-59-7-15684

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 7, p 146 (USSR)

AUTHORS: Bobyl', V.G., Kopylov, Yu.A.

TITLE: The Photoconductivity of Some Organic Solutions

PERIODICAL: V sb.: Fiz. dielektrikov. Moscow, AS USSR, 1958, pp 96 - 98

ABSTRACT: The authors studied the variation in electrical conductivity of solutions of chloroform and bromoform under the action of ultraviolet radiation. For substances that only possess singly charged ions the authors derive theoretical time dependences of the conductivity when radiation is switched on and off. It is demonstrated that the theoretical and experimental curves coincide. This is considered a proof of the ionic character of photoconductivity in organic solutions. The authors point out the possibility of determining the energy of dissociation of some substances from the curves of the drop in electrical conductivity after the discontinuation of irradiation. (Dnepropetr. inzh.-stroit. in-t, Dnepropetrovsk, USSR).

Card 1/1

A.A. Mostovskiy

Vsesoyuznaya konferentsiya po fizike dielektrikov. 2d 1958

Fizika dielektrikov, trudy vtoroy vsesoyuznoy konferentsii (Physics of Dielectrics. Transactions of the 2d All-Union Conference on the Physics of Dielectrics) Moscow, Izd-vo AN SSSR, 1960. 532 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Fizicheskiy institut imeni P.N. Lebedeva.

Ed. of Publishing House: Ye.L. Starokadomskaya; Tech. Ed.: I.N. Dorokhina; Editorial Board: (Resp. Ed.) G.I. Skanavi, Doctor of Physics and Mathematics (Deceased), and K.V. Filippova, Candidate of Physics and Mathematics.

PURPOSE: This collection of reports is intended for scientists investigating the physics of dielectrics.

COVERAGE: The Second All-Union Conference on the Physics of Dielectrics held in Moscow at the Fizicheskiy institut imeni P.N. Lebedeva (Physics Institute imeni P.N. Lebedev) in November 1958 was attended by representatives of the principal scientific centers of the USSR and of several other countries. This collection contains most of the reports presented at the conference and summaries of the discussions which followed. The reports in this collection deal with dielectric properties, losses, and polarization, and with specific inductive capacitance of various crystals, chemical compounds, and ceramics. Photoelectrets, ferroelectric crystals, and various radiation and irradiation effects on dielectrics are investigated. The volume contains a list of other papers presented at the conference dealing with polarization, losses, and breakdowns of dielectrics, which were published in the journal Izvestiya AN SSSR, seriya fizicheskaya, No. 1 and 2, 1960. No personalities are mentioned. References accompany each report.

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S/058/61/000/009/030/050
A001/A101

AUTHORS: Kolomoytsev, F.I., Mitskevich, P.K., Bobyl', V.G., Yakunin, A.Ya.

TITLE: Comparison of some properties of solid and liquid dielectrics subjected to irradiation

PERIODICAL: Referativnyy zhurnal. Fizika, no. 9, 1961, 201, abstract 9E157 (V sb. "Fizika dielektrikov", Moscow, AN SSSR, 1960, 510 - 517)

TEXT: Experimental dependences of electric conductivity σ on irradiation of solid dielectrics (I) (mica, quartz, polyethylene, polystyrene, polytetrafluoroethylene, polymethyl methacrylate, etc) were compared with those of liquid dielectrics (II) (chloroform, bromoform-ether, bromoform-anisole, iodoform-ether, chlorophenol, bromobenzene, etc). It was found that increase of σ during irradiation and decrease at discontinuation of irradiation was caused by fixing charge carriers on metastable levels with their subsequent thermal liberation. Additional $\Delta\sigma$ (at irradiation) depends on the nature and intensity of irradiation and on the purity of the dielectric. After discontinuation of irradiation $\Delta\sigma$ decreases with time proportional to $t^{-\alpha}$ (liberation of charge carriers from metastable levels). $\Delta\sigma$ is proportional to field strength up to fields with 10^4 v/cm

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Comparison of some properties of solid and liquid ... 30412 S/058/61/000/009/030/050 A001/A101

(the law holds at changes of temperature T and intensity of irradiation). For II, $\Delta\sigma$ is higher by 10^2 - 10^3 times than for I. $\Delta\sigma \simeq \varepsilon^{\gamma}$ (ε is intensity of irradiation; $0.5 \leq \gamma \leq 1$). It is shown that $\lg \Delta\sigma \sim 1/T$.

V. K.

[Abstracter's note: Complete translation]

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