ACCESSION NR: AP4034807

ASSOCIATION: none

SUBMITTED: 19Nov63	DATE ACQ: 20May64	ENCL: 00
SUB CODE: PH, LS	NO REF SOV: 007	OTHER: 004

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L 23995-66 FSS-2/EWT(l)/EEC(k)-2/EWA(d) SCTB TT/BD/RD/GW

ACC NR: AT6003859 SOURCE CODE: UR/2865/65/004/000/0248/0260

AUTHOR: Antipov, V. V.; Delone, N. L.; Parfenov, G. P.; Vysotskiy, V. G.

50
48
B7

ORG: none

TITLE: Results of biologic experiments conducted under flight conditions in the "Vostok" spaceships with participation of the astronauts A. G. Nikolayev, P. R. Popovich and V. G. Vysotskiy

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 248-260

TOPIC TAGS: experiment animal, space biologic experiment, biologic acceleration effect, radiation biologic effect, space biology, biologic mutation

ABSTRACT: The effect of motion, weightlessness and cosmic radiation on propagation, growth and development of organisms was studied in Drosophila melanogaster and Tradescantia paludosa. Male and female flies were placed into separate glass tubes 6 hours before start of flight and were fed agar agar and sugar. During flight the two sexes were put into one glass. On the next flight the progeny from eggs laid during weightlessness was taken along under the same conditions. The

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ACC NR: AT6003859

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flies emerged from the cocoons 6 days later than controls, probably due to the cooler climate in the space cabin. More females than males emerged, the weight of the test flies was lower (due probably to the high agar content of the diet) and 4 anomalies were seen in 482 flies, involving only one half of the body. No mutants were seen. It is concluded that results were normal for the 4 days' flight, but that these findings have only qualitative value. Similar arrangements were made for observing propagation of the plants during flight. Cuttings of raceme of Tradescantia clone were put into a container, to be fixated by the astronauts 6 and 9 hours respectively after the start of the two flights. Cytologic analysis showed chromosome aberration, disturbance of mitosis and growth processes, and altogether 4 types of disturbances involving the nucleus and the mechanism of mitosis. These disturbances are ascribed mainly to motion, since the radiation dose was very low (40-80 millirad). Orig. art. has: 7 figures.

SUB CODE: 06,22/ SUBM DATE: none/ ORIG REF: 006

[ADD CLUE WORD
Vostok 3 12 Vostok 4 12]

Card 2/2 pb

L 11245-66 FSS-2/EWT(1)/EWA(j)/FS(v)-3/EEO(k)-2/EWA(d)/T/EWA(h)-2 SCTB TT/DD/JK/RD,
ACC NR: AT6003860 OW SOURCE CODE: UR/2865/65/004/000/0261/0269

AUTHOR: Zhukov-Verezhnikov, N. N.; Rybakov, N. I.; Kozlov, V. A.; Sakseonov, P. P.; Dobrov, N. N.; Antipov, V. V.; Podoplelov, I. I.; Parfenov, G. P.

ORG: none

TITLE: Results of microbiological and cytological investigations conducted during the flights of "Vostok" type vehicles

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 261-269

TOPIC TAGS: bacteria, genetics, bacterial genetics, gamma irradiation, cobalt, radioisotope, microbiology, cytology, space biologic experiment, radiation biologic effect, biologic vibration effect

ABSTRACT: The biological objects used for space research are carefully selected genetic indicators. E. coli K-12 (λ), frequently chosen for these experiments, is a reliable biological dosimeter of the genetic effectiveness of spaceflight factors. When normal and cancerous human cells were exposed in the Vostok series, it was found that these experimental samples did not differ essentially from control samples kept on earth However, some tendency to intensification of phage production was observed in cultures

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of E. coli in this series (an increase by a factor of 1.2 on Vostok-2, 4.6 on Vostok-3, and 1.96 on Vostok-4). Data from repeated exposure of the same biological object indicate accumulation of the spaceflight effect, although the character of this accumulation is not clear. In a comparison of the results of Vostoks 3-6, it was not possible to establish a linear dependence of biological effect on time of exposure in space. However, factors causing a genetic effect (an increase in the phage-producing activity of a lysogenic culture) definitely operated during these flights.

The following derived values of induced phage production were calculated: ~3 for Vostoks 3 and 5 (corresponding to the inducing effect of 3.2 rad of gamma-rays), and 1.8 for Vostoks 4 and 6 (corresponding to 0.8 rad of gamma-rays). Since the doses quoted are higher than those encountered in spaceflight, the observed genetic effect must therefore be partially due to other factors (such as weightlessness, acceleration, vibration, etc.).

To study the operation of one of these factors, E. coli K-12 was subjected to vibrations of 18, 35, 75, 100, and 700 cps for 15—30 min. and, in another series of experiments, to vibration in combination with Co^{60}

L 14245-66
ACC NR: AT6003860

gamma-irradiation (dose, 100 rad; dose power, 21 rad/min). The experimental results show that vibration alone does not induce phage production but does increase the sensitivity of lysogenic bacteria to the subsequent influence of gamma-irradiation. It is suggested that vibration helps sensitize cells of a lysogenic culture to the influence of cosmic radiation, although it is also possible that the cause of genetic changes is weightlessness in combination with radiation. Orig. art. has: 1 figure and 4 tables.
[ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 009 / OTH REF: 002

FW
Card 3/3

6

ACC NR: AT6036563 SOURCE CODE: UR/0000/66/000/000/0172/0173

AUTHOR: Zhukov-Verezhnikov, N. N.; Mayskiy, I. N.; Tribulev, G. P.; Rybakov, N. I.; Podoplelov, I. I.; Dobrov, N. N.; Antipov, V. V.; Kozlov, V. A.; Saksonov, P. P.; Parfenov, G. P.; Sharyy, N. I.

ORG: none

TITLE: Some results and trends in the study of the biological effect of cosmic radiation and dynamic flight factors using microbiological and cytological models [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 172-173

TOPIC TAGS: manned space flight, space biologic experiment, tissue culture, lysogenic bacteria, cosmic radiation biologic effect, combined stress/Voskhod-1

ABSTRACT: Systems of lysogenic bacteria and single layer cultures of normal and cancer cells of man have been used on all spaceflights since the second orbital spaceship. This report presents the results of investigations performed on spaceships of the Vostok and Voskhod types. Biological experiments carried out on Vostok-3, -4, -5, and -6 indicate that phage production of lysogenic culture of E. coli K-12 increases with the duration of the flight. However, a direct linear relationship between the biological

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effect and the time of exposure in space was not established. The results obtained make it possible to assume that the biological effect in the above experiments depends on the combined effect of spaceflight factors, and specifically vibration, weightlessness, and radiation.

Ground experiments have indicated that the sensitivity of a lysogenic bacteria system to gamma irradiation (CO^{60}) increases if the bacteria were previously exposed to vibration. These results not only confirm this supposition but make a more differentiated approach to evaluation of various spaceflight factors possible. However, in order to obtain a more complete picture of the genetic and radiation hazard of such flights, it is necessary to consider data obtained with more highly organized biological objects. Consequently, the results of spaceflight experiments performed with single-layer cultures of somatic human cells are of definite interest. In the series of experiments carried out on Vostok-1, -2, and -4, it was found that viability, and such indices as the coefficient of proliferation, the percentage of dead cells, and the morphological, antigenic, and cultural properties of the tissues, did not differ substantially from controls which were kept at the cosmodrome or the laboratory.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001239220005-7"

ACC NR: AT6036563

However, when tissues were subjected to a second spaceflight (on Vostok-4, Vostok-6, and Voskhod-1), the twice-flown tissues showed a definite prolongation in the latent period of the ability to grow, as well as certain other noticeable changes. This makes it possible to surmise that spaceflight factors may have a cumulative effect on human tissue cultures. Further investigations of the biological effects of spaceflight utilizing lysogenic bacteria and tissues of various cultures are contemplated. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06, 22 / SUBM DATE: 00May66

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ANTIPOV, V.V.; DELONE, N.L.; PARFENOV, G.P.; VYSOTSKIY, V.G.

Results of biological tests during the flight on "Vostok" ships with the participation of the astronauts. Probl. kosm. biol. 4:248-260 '65. (MIRA 18:9)

ZHUKOV-VEREZHNIKOV, N.N.; RYBAKOV, N.I.; KOZLOV, V.A.; SAKSONOV, P.P.; DOBROV, N.N.; ANTIPOV, V.V.; PODOPLELOV, I.I.; PARFENOV, G.P.

Summary of microbiological and cytochemical studies on "Vostok" spaceships. Probl. kosm. biol. 4:261-269 '65. (MIRA 18:9)

L 1963-66 EWT(1)/FS(v)-3 DD

ACCESSION NR: AP5021258 UR/0293/65/003/004/0643/0651
629.198.621

27
B

AUTHOR: Parfenov, G. P.

TITLE: The development of dominant lethality in fruit flies exposed to vibration, acceleration, and gamma radiation

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 4, 1965, 643-651

TOPIC TAGS: combined stress, vibration, acceleration, gamma radiation, biological effect, fruit fly, genetics

ABSTRACT: The combined and individual effects of vibration, acceleration, and gamma radiation on fruit flies were studied using Domodedovo-18 and -32 strains. The vibration tests were conducted on Domodedovo-18 flies because of their high spontaneous mutability relative to recessive lethals in the sex chromosome and dominant lethals. Domodedovo-32 flies were used for acceleration tests because of their low mutability in this respect. In each test, one thousand males were mated to the same number of virgin females 1 hr after exposure to a stress. The eggs of these females were subsequently collected and examined for lethality. For vibration tests, flies were placed in clean test tubes and for exposure to acceleration, in a biochemical cen-

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trifuge with an arm radius of 15 cm. The angular velocity was 500—5000 rpm which corresponded to 40 g and 4000 g with a 20-min exposure duration. Irradiation took place in gelatin capsules, and the dose of Co^{60} gamma rays was 500 r (325—385 r/min). The following series of tests were conducted: 1) 70 cps vibration (0.4-mm amplitude) with a 24-hr break between two 15-min exposures; 2) 1500 cps vibration with a 60-min break between two 15-min exposures; 3) 70 cps vibration for 4 hr; 4) 70 cps vibration for 2 hr followed by irradiation; 5) the same test with reversed stress order; 6) the same experiments with acceleration and irradiation. In combined stress tests, controls were exposed to individual factors under identical conditions. In addition, biological controls were used as an index. There was a 1-hr break between exposures in combined stress tests. It was found that various vibration frequencies did not injure the mature sperm of fruit flies. Egg lethality following exposure to vibration was attributed to lowered male sexual activity. Vibration with a frequency of 70 cps for 2 hr or longer caused injury during the spermatid phase resulting in zygote lethality after fertilization. Regardless of the sequence, the total effect of vibration combined with gamma radiation did not exceed the sum of each of the individual stressors. Likewise, when radiation preceded vibration, the total effect was equal to the sum of the individual effects. When the order was reversed, vibration was found to intensify the mutagenic effect of radiation. Exposure to 40 g for 20 min did not have a mutagenic effect or influence the radiation effect. A higher

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ACCESSION NR: AP5021258

magnitude of acceleration (4000 g for 20 min) did not affect the spermatids but did affect mature germ cells. The effect was analagous to that of 200—250 r of gamma rays. The mechanism of the cellular effect of 4000 g was probably nonnuclear. Radiation followed by acceleration (4000 g) had a total effect equal to the sum of the individual effects. When the order was reversed, the radiation effect was modified. The data from all of the tests are well tabulated in the original article. Orig. art. has: 7 tables. [CD]

ASSOCIATION: none

SUBMITTED: 29Dec63 ENCL: 00 SUB CODE: LS

NO REF SOV: 008 OTHER: 003 ATD PRESS: 4115

Card 3/3

PARFENOV, G. S.

"The Inhibition of a Solution of Iron and Copper in Nitric Acid." Sub 18 Jun 51, Moscow State Pedagogical Inst imeni V. I. Lenin.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

BALEZIN, S. A., PARFENOV, G. S.

Copper

Retardation of solution of copper in nitric acid. Dokl. AN SSSR, 85, No. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1952, Uncl.

PARFENOV, Grigoriy Stepanovich; BALEZINA, S.A., [illegible], red.; METEL'SKAYA, G.S., red.

[Examples and problems in physical chemistry] Sbornik primerov i zadach po fizicheskoi khimii. Moskva, Prosveshchenie, 1965. 210 p. (MIRA 18:3)

PARFENOV, G. S., BALEZIN, S. A.

Nitric Acid

Retardation of solution of copper in nitric acid. Dokl. AN SSSR 85, No. 1, 1952.

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

Parfenov, G. S.

USSR.

The inhibition of the solution of copper in nitric acid. S. A. Balezin and G. S. Parfenov (V. I. Lenin State Pedagog. Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 85, 133–6 (1952).—The rate of soln. of Cu in HNO_3 was detd. in the presence of inhibitors, and the mechanism of the inhibiting action was studied. The detns. were made gravimetrically and electrochemically. NaS, Na_2SO_4, $Na_2S_2O_3$, urea, thiourea, $KMnO_4$, $KClO_3$, and H_2O_2 served as inhibitors. The HNO_3 concn., temp. and speed of stirring were varied. The results show that soln. of Cu is insignificant in concn. less than 8*N* and then it increases rapidly with increasing concn. The rate of soln. also increases with increasing temp. but decreases with increased stirring. The addn. of inhibitors decreases the rate of soln. and this is explained by the destruction of the HNO_3 by the inhibitor.

J. Rovlar Leach

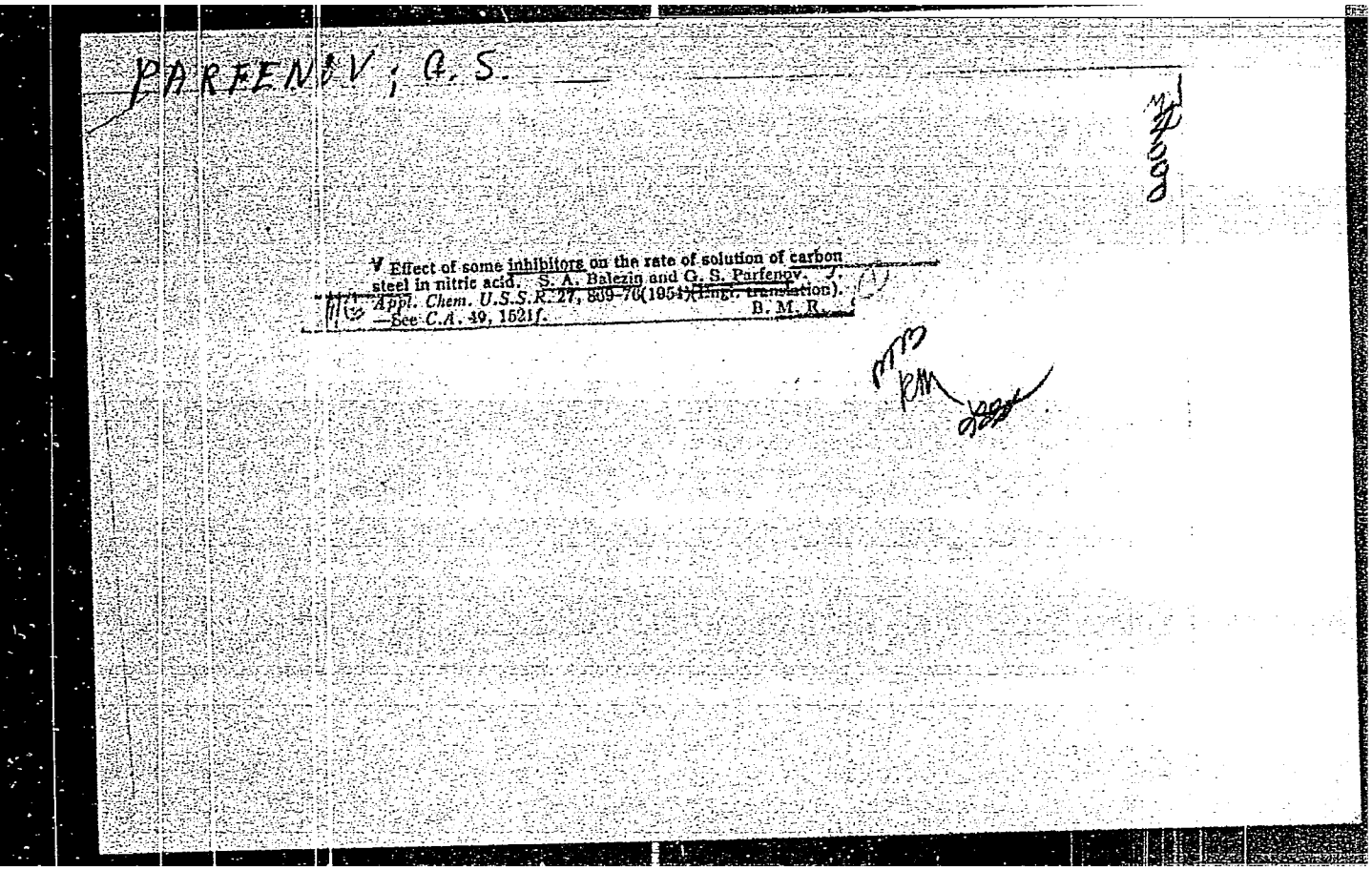
PARFENOV, V.S.

On the Mechanism of Dissolution of Copper in Nitric Acid in the Presence of Certain Inhibitors. B. A. Balezin and G. S. Parfenov (*Zhur. Prikład. Khim.*, 1953, 26, (8), 795–801 (in Russian); *J. Appl. Chem. U.S.S.R.*, 1953, 26, (8), 723–728 (in English)).—B. and P. studied the dissolution of Cu in chem. pure HNO_3 by loss-in-weight tests and detn. of cathodic and anodic polarization curves. The rate of dissolution at 20° C. increased slowly with concentration up to 3*N*, and then increased rapidly with greater concentrations. In 3*N* acid, the rate increased slowly with increasing temp. up to 30° C., then more rapidly. The rate fell sharply on agitation. The potential of Cu in HNO_3 is almost independent of the acid concentration, but addn. of even small amounts of HNO_2 reduce it by ~100 mV. Addn. (5–50 m.mole/l.) of Na_2S, Na_2SO_3, or $Na_2S_2O_3$ all inhibited the dissolution, $Na_2S_2O_3$ being most active. Urea, which decomposes HNO_2, is a good inhibitor; it strongly increases the stationary potential on cathodic polarization, but hardly affects it in anode polarization. Thiourea has a similar action on the rate of dissolution. The action of hydroxylamine is practically the same over the concentration range 0·2–100 m.mole/l., and it rapidly decomposes with violent evolution of gas. Both hydrazine sulphate and phenylhydrazine are strong inhibitors, but the latter is less stable in concentrated acid (owing to oxidation of the phenyl group), whereas above 1 m.mole/l. hydrazine sulphate inhibits the dissolution of Cu in even 8*N* acid. The addn. of hydrazine shifts the stationary potential in the negative direction, but it becomes const. at concentrations of >5 m.mole/l., when the increase in potential in cathodic polarization almost ceases and the rate of dissolution is almost unchanged. Among oxidants, $KClO_3$ is a more effective inhibitor and more stable than H_2O_2 or $KMnO_4$, and its effect on the electrode processes is the same as that of urea. The action of all inhibitors studied is to decompose HNO_2, and the reduction in dissolution rate is mainly connected with inhibition of cathode processes.

—G. V. E. T.

PARFENOV, G. S.

Effect of some inhibitors on the rate of solution of carbon steel in nitric acid. S. A. Balezin and G. S. Parfenov. *Zhur. Prikład. Khim.* 27, 930–8(1954).—The rate of corrosion k of C steel (0.18% C, 0.14% Si, 0.4% Mn, 0.027% S, 0.017% P) in HNO_3 was detd. by the loss in wt. and by the elec. potential η. As the HNO_3 concn. increases from 0.0001 to 6*N*, k rises to 7094 g./sq. m./hr.; and drops vertically to 3775 in 7*N* and finally to 52 g./sq. m./hr. in 13*N* acid; the max. of k corresponds to the max. in the specific elec. cond. of HNO_3. As the concn. rises, η decreases to a min., from −120 v. in 0.0001*N* to −540 v. in 0.001*N* and then shifts to more electropos. values to −155 v. in 6*N* and sharply to +892 in 13*N* HNO_3. At first a red-brown film and a few gas bubbles (H) cover the test plate; a sudden eruption of gas follows removing the film and exposing the bright surface. The cycle is repeated until complete passivation takes place. In 13*N* acid passivation is instant. In 1*N* HNO_3 k is a function of the temp. and the rate of stirring (20°) increases almost linearly (temp. coeff. 1.1–1.2). Of the inhibitors the most effective are: K_2CrO_4, $KMnO_4$, KI, KBr, KCl, Na_2S, Na_2SO_3, $Na_2S_2O_3$, and thiourea; the 1st 2 affect the anodic processes, the others the cathodic processes. K_2CrO_4 and $KMnO_4$, 5 and 10 millimoles/l., resp., reduce k to 0 and shift η from −317 to +625 and +1095, resp. (when not enough of these 2 salts is present to reduce k to 0 the corrosion is intense in spots); KCl, KBr, and KI shift η to −400, −475, and −480 v. Thiourea, 10 millimoles/l., practically stops corrosion in 1*N* HNO_3, and 50 millimoles/l. in 5*N*. It is postulated that the first reaction is the production of H which then reduces HNO_3 to N oxides and to N, whereas in the presence of thiourea, itself a reducing agent, free H continues to be evolved. I. Beneowitz



PARFENOV, G. S.

Effect of some inhibitors on the rate of solution of carbon steel in nitric acid. S. A. Balezin and G. S. Parfenov. *Zhur. Prikl. Khim.* 27, 869-76(1954)(Engl. translation). —See *C.A.* 49, 1521f. B. M. R.

BAIEZIN, Stepan Afanas'yevich; PARFENOV, Grigoriy Stepanovich; DUKEL'SKIY, M.P., redaktor; MAKHOVA, M.N., tekhnicheskiy redaktor

[Principles of physical and colloid chemistry] Osnovy fizicheskoi i kolloidnoi khimii. Moskva, Gos. uchebno-pedagog. izd-vo Ministerstva prosveshcheniia RSFSR, 1956. 367 p. (MLRA 9:7)
(Chemistry, Physical and theoretical)
(Colloids)

PARFENOV, G. S.

5(4) PHASE I BOOK EXPLOITATION SOV/3053

Balezin, Stepan Afanas'yevich and Grigoriy Stepanovich Parfenov.

Osnovy fizicheskoy i kolloidnoy khimii (Principles of Physical and Colloidal Chemistry) 2d ed., rev. and enl. Moscow, Uchpedgiz, 1959. 439 p. Errata slip inserted. 20,000 copies printed.

Ed.: R.N. Savel'yeva; Tech. Ed.: N.N. Makhova.

PURPOSE: This textbook on physical and colloidal chemistry is intended for students of pedagogical institutes studying natural sciences according to the recently adopted program.

COVERAGE: The book reviews fundamental principles, theories, and laws underlying various phenomena related to physical and colloidal chemistry. The growing importance of physical chemistry as an independent branch of science is emphasized and its various aspects are dealt with in part I of the book. The authors explain the theory of states of matter, review the molecular structure of gases, liquids and solids, and explain basic laws of thermodynamics, thermochemistry, photochemistry and electrochemistry. Properties

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of various solutions, electrolytes, substances serving as electrodes, adsorption, osmotic pressure, electrolysis, titration, polarization, chromotographic analysis, and the protection of metals against corrosion are also dealt with. Part II of the book is devoted to colloidal chemistry, the formation of colloid systems, optical and kinetic properties of these systems, ultramicroscopy, nephelometry, sol structure, coagulation of colloids, peptization, high molecular compounds, gelatins in biology and technology, hysteresis, syneresis, polymers, emulsions and foam. The authors express their thanks to V. Barannik, M. Goloshchapov, O. Suvorova, A. Loginov, I. Klimov, A. Tulayeva, G. Kleshcheva, and G. Kuz'mina for their useful remarks and comments which helped to prepare the present edition. There are 40 references, all Soviet.

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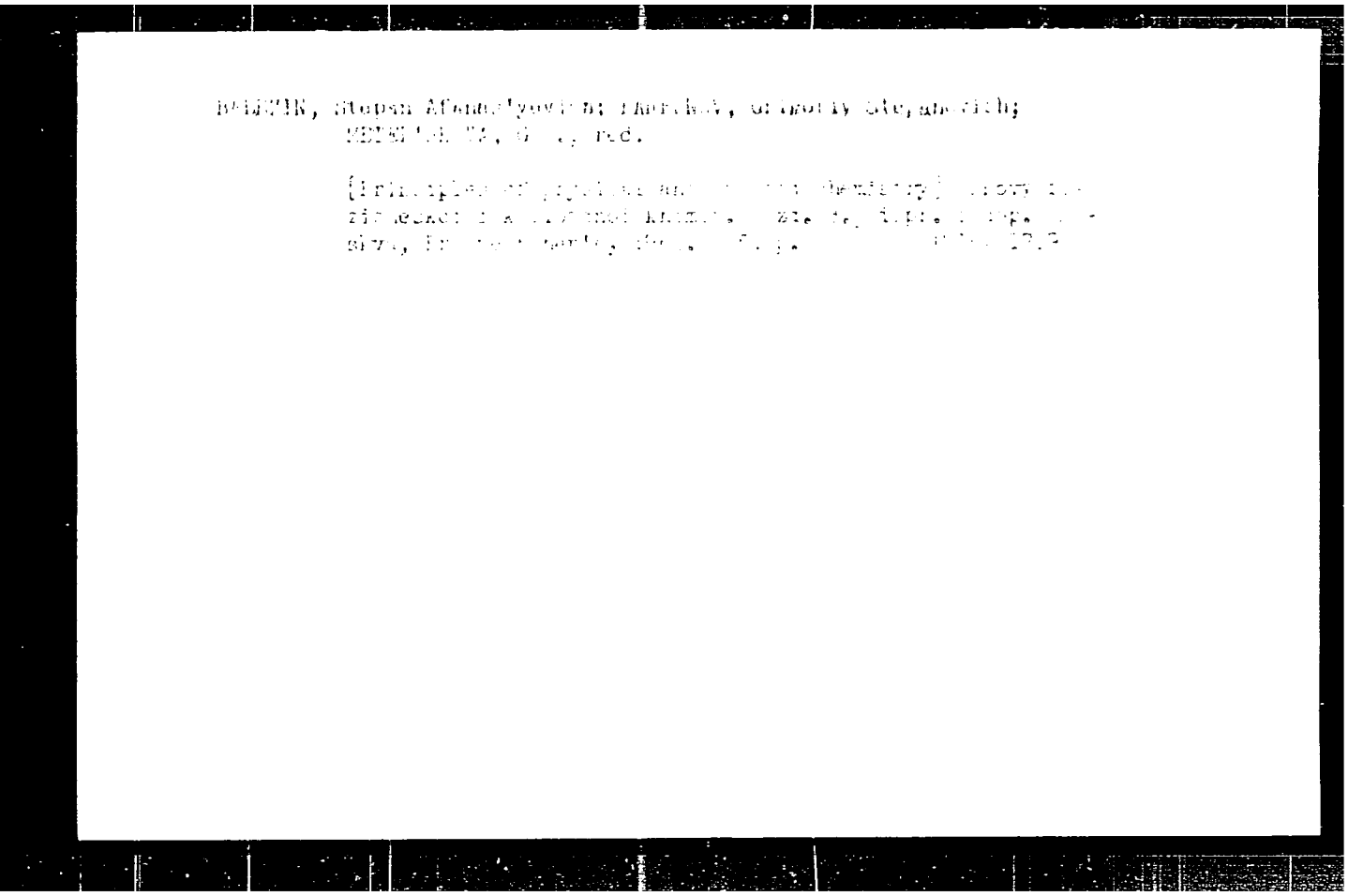
PART I. PHYSICAL CHEMISTRY

PARFENOV, Grigoriy Stepanovich; BALEZIN, S.A., prof., red.; KHOKHLOVA, N.G., red.; KOVALENKO, V.L., tekhn.red.

[Examples and problems in physical chemistry] Sbornik primerov i zadach po fizicheskoi khimii. Pod red. S.A.Balezina. Moskva, Moskva, Gos.uchebno-pedagog.izd-vo M-va prosv.RSFSR, 1960. 190 p. (MIRA 13:11)

(Chemistry, Physical and theoretical--Problems, exercises, etc.)



VASIL'YEV, M.V., prof. doktor tekh. nauk; FADDEYEV, B.V., kand.tekhn.nauk
PARFENOV, G.V., kand.tekhn.nauk

Review of the book by A.O.Spivakovskii, M.G.Potapov and A.V.Andreev "Transportation in open pit mines." Gor.zhur. no.4:79-80 Ap '64. (MIRA 17:4)

VASIL'YEV, M.V.; V'YUKHINA, A.S.; DORONENKO, Ye.P.; ZEBZIYEV, K.V., kand. tekhn. nauk; LATS, V.M.; PARFENOV, G.V.; POPOV, V.Ye.; TROITSKIY, D.P.; FADDEYEV, B.V.; TSVETAYEVA, Z.N.; ZUBRILOV, L.Ye., kand. tekhn. nauk, otv. red.; MAKAROVA, N.U., red.; PAL'MIN, M.Z., tekhn. red.

[Evaluation and the prospects of the development of the mineral resources for ferrous metallurgy in Chelyabinsk area] Otsenka i perspektivy razvitiia syr'evoi bazy chernoi metallurgii Cheliabinskogo raiona. Sverdlovsk, AN SSSR, 1964. 67 p. (MIRA 17:4)

PARFENOV, G.V.

Relationship between the properties and the volumetric correlation of rocks in a deposit and the cost of preparing the rock mass for being transported on belt conveyors. Trudy Inst.gor.dela UFAN SSSR no.4:81-86 '62.

(MIRA 16:5)

(Conveying machinery) (Rocks--Transportation)

PARFENOV, G.V.

Selection of technical methods for preparing rock masses for conveyor transportation. Trudy Inst.gor.dela UFAN SSSR no.4:87-95 '62.
(MIRA 16:5)

(Conveying machinery) (Rocks--Transportation)

ZUBRILOV, L.Ye.; PARFENOV, G.V.; BOSHNYAKOV, Ye.N.; GORONOVICH, N.V.

Discussion of A.B.Patkovskii's article "Basic trends in improving technical methods and equipment for ore dressing and planning ore-dressing plants." Gor.zhur. no.1:25-27 Ja '63. (MIRA 16:1)

1. Institut gornogo dela Ural'skogo filiala AN SSSR (for Zubrilov, Parfenov). 2. Krivorozhskiy filial Instituta gornogo dela AN UkrSSR (for Boshnyakov). 3. Nachal'nik planovogo otdela Goroblagodatskogo rudoupravleniya (for Goronovich).

(Ore dressing)

7

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E028/E185

AUTHORS: Antipov, V.V., Dayevskiy, R.M., Gazenko, O.G., Genin, A.M., Gyurdzhian, A.A., Zhukov-Verezhnikov, N.N., Zhuravlev, B.A., Karpova, L.I., Parfenov, G.P., Seryapin, A.D., Shepelev, Ye.Ya., Yazdovskiy, V.I.

TITLE: Some results of medical and biological investigations in the second and third satellites

SOURCE: Problemy kosmicheskiy biologii. v.1. Ed. by N.M.Sisakyan. Moscow, Izd-vo AN SSSR, 1962. 267-284

TEXT: The maintenance of life conditions is discussed with special reference to the second Soviet satellite. During the flight the proportion of oxygen in the air of the cabin could be maintained at 21 to 24%, whereas the relative humidity rose from 37 to 47%. The temperature ranged from 16 to 19°C. Water and food were provided together in a mixture solidified with agar, in order to facilitate automatic dispensing in conditions of weightlessness. This was carried out twice daily by command signals from Earth. Telemetric recording of the physiological parameters of the dogs Belka and Strelka during space flight showed the

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E028/E185

...ults of medical ...

...ce of tachycardia as a result of acceleration, noise and ...; there was also a rise in the respiration rate: a return ... pre-flight values occurred during the condition of ... ...ness. Movements of the animals were observed by ... cameras and also by potentiometric sensors mounted in ...ss. No abnormalities were observed in the behavior of ...ls after return to earth or during the following 3 months. ...concluded from the experiments carried out in the second ... that dogs could readily be accustomed to space flight ...ions. Genetic changes were noted in the progeny of ...mycetes, plant seeds and fruit flies after return from space ...t. The third space satellite contained two dogs (Pchelka ...chka), two guineapigs, two rats, twenty six mice, fruit flies, ... and other biological materials which were included in order ...study the effects of cosmic radiation. The results are not described.

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PARFENOV, G.P. (Moskva)

Space biology, a new science. Biol.v shkole no.4:78-85 Jl-Ag '62. (MIRA 15:12)

(Space biology)

PARFENOV, G.V.

Using conveyor haulage in ore pits. Trudy Gor.-geol. inst. UFAN SSSR no.57:17-22 '61. (MIRA 15:3)
(Conveying machinery) (Strip mining)

FADDEYEV, B.V., VASIL'YEV, M.V., PARFENOV, G.V., CHEKMENEV, A.M.

Use of conveyer haulage in the Second Kachkanar Mining and Ore Dressing Combine. Trudy Gor.-geol. inst. UFAN SSSR no.49:39-48 '60. (MIRA 13:8)
(Kachkanar—Mine haulage)
(Conveying machinery)

PARFENOV, G.V.

Stone hammer with a handle hole from Nizhniy Komsomol'sk in Tashkent Province. Izv.AN Uz.SSR no.6:111-112 '56. (MIRA 14:5)
(Chirchik—Stone age)

VASIL'YEV, M.V., PARFENOV, G.V., FADEYEV, Ye.A.

Use of combined truck and conveyer haulage at the Second Kashkanar Mining and Ore Dressing Combine. Trudy Gor.-geol. inst. UFAN SSSR no.49:49-60 '60. (MIRA 13:8)
(Kachkanar--Mine haulage)
(Ore dressing)

PARFENOV, G.V.

Verifying the efficiencey of short-delay blasting in burden removal benching at the Korkino opencut mine. Trudy Gor.-geol. inst.UFAN SSSR no.41:211-219 '59. (MIRA 13:5)
(Chelyabinsk Basin--Strip mining)

PARFENOV, G.V.; PUCHKOV, Ya.M.

Effect of some factors on the efficiency of blasting en masse in the pits of the Bakal Mining Administration. Trudy Gor.-geol. inst. UFAN SSSR no.34:103-106 '58. (MIRA 14:10)
(Bakal region—Strip mining)
(Blasting)

PUCHKOV, Ya.M.; PARFENOV, G.V.

Boring and blasting in the pits of the Bakal Mining Administration. Trudy Gor.-geol. inst. UFAN SSSR, no.34:107-113 '58. (MIRA 14:10)
(Bakal region--Boring)
(Blasting)

PARFENOV, I.

Control over the size of stocks is an important task of State Bank institutions. Den. i kred. 13 no. 1:48-49 Ja '55.
(MLRA 8:2)

(Kaluga Province--Bank and banking)(Kaluga Province--Industries)

KAZAKOV, Ye.I.; MALASHENKO, L.P.; TYAZHELOVA, A.A.; PARFENOV, I.A.; KARZHAVINA, N.A.

Effect of high rate heating and of the process temperature on the composition of coal tar in the thermal decomposition of Moscow Basin coal. Energotekh.ispol'.topl. no.1:131-138 '60. (MIRA13:10)

(Coal-tar products)

PARFENOV, I.A., kand.tekhn.nauk

New textbook on railroad electrification to be used in institutions of higher learning ("Electric railroads" by V.E. Rozenfel'd and others. Zhel. dor. transp. 40 no.5:93-95 My '58. (MIRA 11:6)
(Electric railroads)
(Rozenfel'd, V.E.)

PARFENOV, I.A., dotsent; SAL'NIKOV, I.S., dotsent

"Operation and maintenance of the rooling stock of electric railroads" by O.F. Gornov and others. Reviewed by I.A. Zhel.-dor.transp. 43 no.9:94-96 S '61. (MIRA 14:8)
(Electric railroads--Rolling stock)
(Gornov, O.F.)

PARFENOV, I.A.; SOKOLOVA, N.V., tekhn. red.

[Review and analysis of the practices in the utilization of heat pumps] Obzor i analiz opyta po primeneniiu teplovogo nasosa. Moskva, Vses. in-t nauchnoi i tekhn. informatsii, 1961. 78 p. (MIRA 14:9)

(Heat pumps)

SARKISOV, A.Kh., prof.; DZHILAVYAN, Kh.A., kand. vet. nauk; AKULOVA, V.P., kand. vet. nauk; PARFENOV, I.S.; D'YAKONOVA, Ye.V., mladshiy nauchnyy sotrudnik; FAYNSHTEYN, B.B., inzh.-khimik; PAVLOV, A.A.

Use of biovetin in veterinary medicine. Veterinariia 36 no.11: 64-71 N '59 (MIRA 13:3)

1. Vsesoyuznyy institut eksperimental'noy veterinarii (for Sarkisov, Dzhilavyan, Akulova, Parfenov, D'yakonova). 2. Moskovskiy khimiko-farmatsevticheskiy zavod imeni Karpova (for Faynshteyn). 3. Zaveduyushchiy eksperimental'nym tsekhom Moskovskogo khimiko-farmatsevticheskogo zavoda imeni Karpova (for Pavlov).
(Veterinary medicine) (Aureomycin)

PARFENOV, I.S.

Tetracycline preparations as therapy and prophylaxis for paratyphoid in baby pigs. Trudy VIEV 26:250-264 '62. (MIRA 16:2)

1. Laboratoriya antibiotikov Vsesoyuznogo instituta eksperimental'noy veterinarii.
(Swine—Diseases and pests) (Paratyphoid fever)
(Tetracycline)

1. LISTVIN, V. S. - PARFENOV, K. A., ENGS.
2. USSR (600)
4. Condensers (Electricity)
7. Distribution of condensers in an electric power network. Prom.energ. 9 No. 12, 1952

9. Monthly List of Russian Accessions, Library of Congress, March 1953, Unclassified.

FHR for nov 54.

BENESHEVICH, I.I., kandidat tekhnicheskikh nauk; BOGIN, N.N., kandidat tekhnicheskikh nauk; BYKOV, Ye.I., inzhener; VLASOV, I.I., kandidat tekhnicheskikh nauk; GRITSEVSKIY, M.Ye., inzhener; GRUBER, L.O., inzhener GURVICH, V.G., inzhener; DAVYDOV, V.N., inzhener; YERSHOV, I.M., kandidat tekhnicheskikh nauk; ZASORIN, S.N., kandidat tekhnicheskikh nauk; IVANOV, I.I., kandidat tekhnicheskikh nauk; KRAUKLIS, A.A., inzhener; KROPOV, L.B., inzhener; LAPIN, V.B., inzhener; LASTOVSKIY, V.P., dotsent; LATUNIN, N.I., inzhener; MARKVARDT, K.G., professor, doktor tekhnicheskikh nauk; MAKHAYLOV, M.I., professor, doktor tekhnicheskikh nauk; NIKANOROV, V.A., inzhener; OSACHKOV, K.N., inzhener; OKHOSHIN, L.I., inzhener; PARFENOV, K.A., dotsent, kandidat tekhnicheskikh nauk; PERTSOVSKIY, L.M., inzhener; POPOV, I.P., inzhener; PORSHNEV, B.G., inzhener; RATNER, M.P., inzhener; ROSSIYEVSKIY, G.I., dotsent, kandidat tekhnicheskikh nauk; RYKOV, I.I., kandidat tekhnicheskikh nauk; RYSHKOVSKIY, I.Ya., dotsent, kandidat tekhnicheskikh nauk; RYABKOV, A.Ya., professor [deceased]; TAGER, B.A., kandidat tekhnicheskikh nauk; KHAZEN, M.M., professor, doktor tekhnicheskikh nauk; CHERNYSHEV, M.A., doktor tekhnicheskikh nauk; SHIN, L.Ye., professor, doktor tekhnicheskikh nauk; YURNEV, B.N., dotsent; AKSANOV, I.Ya., dotsent, kandidat tekhnicheskikh nauk; ARKHANGEL'SKIY, A.S., inzhener; BARTENEV, P.V., professor, doktor tekhnicheskikh nauk; BERNGARD, K.A., kandidat tekhnicheskikh nauk; BOROVOY, N.Ye., dotsent, kandidat tekhnicheskikh nauk; BOGDANOV, I.A., inzhener; BOGDANOV, N.K., kandidat tekhnicheskikh nauk; VINNICHENKO, N.G., dotsent, kandidat ekonomicheskikh nauk;

(Continued on next card)

KENESHEVICH, I.I.----(continued) Card 2.

VASIL'YEV, V.P.; GONCHAROV, N.G., inzhener; DERIBAS, A.T., inzhener; DOBROSEL'SKIY, K.M., dotsent, kandidat tekhnicheskikh nauk; DLUGACH, B.A., kandidat tekhnicheskikh nauk; YEFIMOV, G.P., kandidat tekhnicheskikh nauk; ZEMBLINOV, S.V., professor, doktor tekhnicheskikh nauk; ZABELLO, M.L., kandidat tekhnicheskikh nauk; IL'IN, K.P., kandidat tekhnicheskikh nauk; KARETNIKOV, A.D., kandidat tekhnicheskikh nauk; KAPLUN, F.Sh., inzhener; KANSHIN, M.D.; KOCHNEV, P.P., professor, doktor tekhnicheskikh nauk; KOGAN, L.A., kandidat tekhnicheskikh nauk; KUGHURIN, S.F., inzhener; LEVASHOV, A.D., inzhener; MAKSIMOVICH, B.M., dotsent, kandidat tekhnicheskikh nauk; MARTYNOV, M.S., inzhener; MEDAL', O.M., inzhener; NIKITIN, V.D., professor, kandidat tekhnicheskikh nauk; PADNYA, V.A., inzhener; PANTELEYEV, P.I., kandidat tekhnicheskikh nauk; PETROV, A.P., professor, doktor tekhnicheskikh nauk; POVOROZHENKO, V.V., professor, doktor tekhnicheskikh nauk; PISTAREV, I.I., dotsent, kandidat tekhnicheskikh nauk; SERGEYEV, Ye.S., kandidat tekhnicheskikh nauk; SIMONOV, K.S., kandidat tekhnicheskikh nauk; SIMANOVSKIY, M.A., inzhener; SUYAZOV, I.G., inzhener; TAIDAYEV, F.Ya., inzhener; TIKHONOV, K.K., kandidat tekhnicheskikh nauk; USHAKOV, N.Ya., inzhenr; USPENSKIY, V.K., inzhener; FEL'DMAN, E.D., kandidat tekhnicheskikh nauk; FERAPONTOV, G.V., inzhener; KHOKHLOV, L.P., inzhenr; CHERNOMORDIK, G.I., professor, doktor tekhnicheskikh nauk; SHAMAYEV, N.F., inzhener; SHAFIRKIN, B.I., inzhener; YAKUSHIN, S.I., inzhener; GRANOVSKIY, P.G., redaktor; TISHCHENKO, A.I., redaktor; ISAYEV, I.P., dotsent, kandidat tekhnicheskikh nauk, redaktor; KLIMOV, V.F., dotsent kandidat tekhnicheskikh

(Continued on next card)

BERESHEVICH, I.I.--- (continued) Card 3.
nauk, redaktor; MARKOV, N.V., inzhener, redaktor; KALININ, V.K., inzhener, redaktor; STEPANOV, V.N., professor, redaktor; SIDOROV, N.I., inzhener, redaktor; GERONIMUS, B.Ye., kandidat tekhnicheskikh nauk, redaktor; ROBEL', R.I., otvetstvennyy redaktor

[Technical reference manual for railroad engineers] Tekhnicheskii spravochnik zheleznodorozhnika. Moskva, Gos. transp.zhel-dor. izd-vo. Vol.10. [Electric power supply for railroads] Energosnabzhenie zheleznykh dorog. Otv.red. toma K.G.Markvardt. 1956. 1080 p. Vol.13. [Operation of railroads] Ekspluatatsiia zheleznykh dorog. Otv. red. toma R.I.Robel'. 1956. 739 p. (MLRA 10:2)

1. Chlen-korrespondent Akademii nauk SSSR (for Petrov)
(Electric railroads) (Railroads--Management)

MUCHNIK, Abram Iakovlevich; PARFENOV, Konstantin Alekseyevich; Prinimal uchastiye: PTUSHKIN, A.T., kand.tekhn.nauk.; SOKOLOV, A.Ya., prof., retsenzent; GLEBOV, I.A., dotsent, retsenzent; YASTREBOV, P.P., dotsent, retsenzent; KHMEL'NITSKAYA, A.Z., red.; DOBUZHINSKAYA, L.V., tekhn.red.

[Electrical equipment of food industry enterprises] Elektrooborudovanie pishchevykh predpriiatii. Moskva, Pishcheprom-izdat, 1958. 437 p. (MIRA 12:8)
(Food industry--Electric equipment)

MUCHNIK, A.Ya.; PARFENOV, K.A.

Use of electromechanical analogies in studying the transient thermal processes taking place in an electric bread-baking stove. Izv. vys. ucheb. zav.; pishch. tekh. no. 2:125-132 '58. (MIRA 11:10)

1. Moskovskiy tekhnologicheskiy institut pishchevoy promyshlennosti, Kafedra elektrotekhniki.
(Stoves, Electric--Electromechanical analogies)

IVANOV, B.A.; PARFENOV, K.A.; MALIN, B.A.

Electrical wireless turbotachometer operating in the frequency range below 1 hz. Mash. i neft. obor. no.8:27-30 '65. (MIRA 18:9)

1. Groznenskiy filial Vsesoyuznogo nauchno-issledovatel'skogo i proyektno-konstruktorskogo instituta kompleksnoy avtomatizatsii neftyanoy i gazovoy promyshlennosti.

SOKOLOV, Aleksandr Yakovlevich, doktor tekhn. nauk, prof.; ZHISLIN, Ya.M., kand. tekhn. nauk; KOTLYAR, L.I., kand. tekhn. nauk; GINZBURG, M.Ye., kand. tekhn. nauk; FURER, G.L.; PARFENOV, K.A., kand. tekhn. nauk; RYZHOVA, L.P., inzh., red. izd-va; MODEL', B.I., tekhn. red.

[Machines for processing grain] Mashiny dlia pererabotki zerna. Moskva, Mashgiz, 1963. 346 p. (MIRA 16:6)

1. Glavnyy instruktor zavoda im. F.E.Dzerzhinskogo (for Furer).

(Grain--Handling machinery)

MUCHNIK, Abram Yakovlevich; PARFENOV, Konstantin Alekseyevich; KLYUCHEV, V.I., dots., retsenzent; MENSHCHIKOV, I.I., dots., retsenzent; KHMEL'NITSKAYA, A.Z., red.; PECHENKINA, O.P., tekhn. red.

[Electrical equipment of food industry enterprises] Elektrooborudovanie pishchevykh predpriiatii. Izd.2., perer. Moskva, Pishchepromizdat, 1963. 407 p. (MIRA 17:3)

1. Kafedra elektrooborudovaniya promyshlennykh predpriyatiy Moskovskogo energeticheskogo instituta (for Klyuchev). 2. Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti (for Menshchikov).

MUCHNIK, Abram Yakovlevich; PARFENOV, Konstantin Alekseyevich; DREVS, Georgiy Vecheslavovich; KHRUSTALEVA, N.I., red.; GARINA, T.D., tekhn. red.

[General electric engineering and electric equipment] Obshchaia elektrotekhnika i elektrooborudovanie. Moskva, Gos. izd-vo "Vysshaia shkola," 1961. 405 p. (MIRA 14:9)
(Electric engineering) (Electric apparatus and appliances)

CHEGOLYA, A.S.; PARFENOV, L.A.

Lamp galvanometer for electrochemical measurements. Zav.lab. 29 no.8:1013 '63. (MIRA 16:9)

1. Saratovskiy gosudarstvennyy universitet.
(Galvanometer) (Electrochemical analysis)

L 5331-66 EWT(1)/EWT(m)/ETC/EWG(m)/T/EWP(t)/EWP(b)/EWA(m)-2 IJP(c)
RDW/JD/GG

ACCESSION NR: AP5021099 UR/0056/65/049/002/0406/0409

AUTHOR: Lushchikov, V. I.; Neganov, B. S.; Parfenov, L. B.; Taran, Yu. V.

TITLE: Dynamic polarization of protons in a rotating lanthanum-magnesium nitrate crystal

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 2, 1965, 406-409

TOPIC TAGS: proton polarization, lanthanum compound, spin relaxation

ABSTRACT: A new method of polarizing nuclei in anisotropic crystals is proposed, consisting of rotating the crystals in a stationary magnetic field and a weak radio frequency field. The method is based on the theoretical predictions of A. Abragam (Cryogenics v. 3, 42, 1963) and C. D. Jeffries (Cryogenics v. 3, 41, 1963), wherein the spin temperature is rapidly decreased via spin-spin relaxation accompanied by rapid cooling of the system. The authors verified this method with single crystal $(La, Ce)_2Mg_3(NO_3)_{12}\cdot 24H_2O$, and obtained an appreciable increase in polarization. The experiments were made in fields from 2 to 6 kOe at saturation frequencies from 60 to 170 Mc with the crystal rotating uniformly at 30--600 rpm. The experiments were made at 1.3K. Amplification coefficients up to ~70 were obtained. The ampli-

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ACCESSION NR: AP5021099

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fication coefficient increased with decreasing cerium concentration and with increasing spin. Only positive polarization was obtained. Advantages of the method are much less stringent magnetic-field uniformity and stability tolerances, and the use of radio frequencies in the meter range instead of ultrahigh frequencies. Orig. art. has: 3 figures and 2 formulas.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 03Mar65 44,55

ENCL: 00 SUB CODE: NP, SS

NR REF SOV: 000 OTHER: 004

Card 2/2 Md

SOV/56-34-3-46/55

AUTHORS: Neganov, B. S., Parfenov, L. B.

TITLE: The Investigation of the Reaction $\pi^+ + d \rightarrow 2p$ in the Range of Energies of the Positive Pions From 174 to 307 MeV (Issledovaniye reaktsii $\pi^+ + d \rightarrow 2p$ v oblasti energii π^+-mezonov ot 174 do 307 MeV)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol. 34, Nr 3, pp. 767 - 769 (USSR)

ABSTRACT: The authors investigated by means of the method of conjugated telescopes (which consisted of scintillation-counters) the reaction $\pi^+ + d \rightarrow 2p$ with the pion energies 174; 200; 227; 262; 307 MeV. The beam of positive pions was produced by irradiation of an hydrogen-containing target with a proton-beam of the synchrocyclotron of the United Institute for Nuclear Research (Ob"yedinennyy institut yadernykh issledovaniy). The yield of the above-mentioned reaction was determined from the difference of the counting-velocities of the twofold coincidences at the targets consisting of D_2O

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The Investigation of the Reaction $\pi^+ + d \rightarrow 2p$ in the Range of Energies of the Positive Pions From 174 to 307 MeV

and H_2O. The results obtained by the measurements of the differential cross sections for 4 angles in the center-of-gravity system are summarized in a table. The angular distributions of the protons can be represented in the form $A + \cos^2\theta$; the coefficients belonging to this, determined by the method of the smallest squares, are written down. The total cross sections for the reaction $p + p \rightarrow d + \pi^+$ were calculated on the basis of the principle of detailed equilibrium and in the case of proton-energies amount to 633; 690; 743; 812 and 903 MeV 3.05 ± 0.23; 2.50 ± 0.18; 1.93 ± 0.14; $1,33 \pm 0,12$; 0.80 ± 0.08 millibar. The dependence of the total cross section of the reaction $p + p \rightarrow d + \pi^+$ on the energy of the pions in the center-of-gravity system is demonstrated in a diagram. The data obtained here confirm the conclusions by Mesheryakov and Neganov (Reference 1) on the resonance-like character of the afore-mentioned reaction. The maximum of the excitation function is at $E_n = 135$ MeV. These results agree with the theory by Mandel'shtam (Birmingham, private communication, 1957). The angular distribution changes obviously on account of the increase of the relative influence of the transitions:

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The Investigation of the Reaction $\pi^+ + d \rightarrow 2p$ in the Range of Energies of the Positive Pions From 174 to 307 MeV

$^3P_{1,2} \rightarrow {}^3S_1$ and $^3F_{2,3} \rightarrow {}^3S_1$, with the energies exceeding resonance-energy. These transitions lead to the production of mesons in d-state. This assumption can be verified by polarization tests, viz. by a more extensive analysis and more accurate determination of the angular distribution with an energy of the pion of 230 MeV in the laboratory system. Then a term proportional to $\cos^4 \theta$ appears. This, from the point of the resonance-model of the production of pions with the nucleon-nucleon-collisions, signifies that the p-state of the system (which occurs prior to the irradiation of the meson in d-state) begins to play a part. The amplitude of the transition $^1S_0 \rightarrow {}^3S_1$ must be small in this case.

There are 1 figure, 1 table, and 7 references, 1 of which is Soviet.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (United Institute for Nuclear Research)

PARFENOV, L.B.

Polarized fluxes and polarized targets. Atom. energ. 16 no. 5: 462-463 My '64. (MIRA 17:5)

DRAGICHESKU, P. [Draghicescu, P.]; DRAGICHESKU, M. [Draghicescu, M.]; LUSHIKOV, V.I.; NEGANOV, B.S.; PARFENOV, L.B.; TARAN, Yu.B.

[Dynamic polarization of protons in lanthanum-magnesium nitrate crystals containing neodymium] Dinamicheskaia poliarizatsiia protonov v kristalle lantan-magnievogo nitrata s primes'iu neodima. Dubna, Ob"edinennyi in-t iadernykh issl. 1964. 16 p. (MIRA 17:5)

L 64956-65 EWT(1)/EWT(m)/T/EWP(t)/EWP(b) IJP(c) JD/GG

ACCESSION NR: AT5009474 Z/0000/64/000/000/0266/0268

AUTHORS: Luschykov, V. I.; Neganov, B. S.; Parfenov, L. B.; Taran, I. V.

TITLE: The dynamic polarization of protons in a rotating crystal of lanthanum-magnesium nitrate

SOURCE: Conference on Low Temperature Physics and Techniques. 3d, Prague, 1963. Physics and techniques of low temperatures; proceedings of the conference. Prague, Publ. House of the Czechosl. Academy of Sciences, 1964, 266-268

TOPIC TAGS: cryogenics, proton polarization, lanthanum compound, nuclear spin

ABSTRACT: The dynamic polarization method first described by Abragam (Cryogenics 3 (1963), 42) and C. D. Jeffries (Cryogenics 3 (1963), 41) was used in the experiments, which were performed in

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ACCESSION NR: AT5009474

fields from 2 to 5 kOe at saturation frequencies from 60 to 170 Mc, and for uniform rotation of the crystal in the range of 30 to 550 rpm. The experiments were carried out at ~1.3K. The results showed that the polarization increases when the cerium content decreases from 2 to 0.2%. The temperature dependence of the amplification coefficient of the polarization is similar to that observed for the simple effect-solide. The amplification coefficient increases rapidly as the speed of the crystal rises from 30 to 100 rpm, and then decreases slowly. The polarization amplification coefficient obtained in individual experiments reached 70 for an irradiation time of 30--40 min. Higher values are expected to be obtainable by a more suitable choice of parameters. A disadvantage of the method is the need for precise adjustment of the crystal and the elimination of vibration during rotation in the magnetic field. An advantage of the method is relatively low demand for homogeneity and stability of the magnetic field and the use of meter waves instead of very high frequencies. Orig. art. has: 3 figures.

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L 64956-65

ACCESSION NR: AT5009474

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) 44,55

SUBMITTED: 000064 ENCL: 00 SUB CODE: GP

NR REF SOV: 000 OTHER: 004

Card 3/3

LUSHCHIKOV, V.I.; NEGANOV, B.S.; PARFENOV, L.B.; TARAN, Yu.V.

Dynamic polarization of protons in rotating crystals of lanthanum magnesium nitrate. Zhur. eksp. i teor. fiz. 49 no.2:406-409 Ag '65. (MIRA 18:9)

1. Ob"yedinennyy institut yadernykh issledovaniy.

85705

S/056/60/038/006/048/049/XX
B006/B070

24.6900 (1138, 1191, 1559)

AUTHORS: Neganov, B. S., Parfenov, L. B., Tyapkin, A. A.

TITLE: Measurement of the Relative Nuclear Activity of Pions in the Vicinity of the Point of Production

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 6, pp. 1917 - 1918

TEXT: Irish research workers (Ref.1) discovered an anomalously large scattering cross section on pions produced in $K_{\pi 2}$ decays. The value was two or three times that of the geometrical cross section. It was assumed by them that either the pions produced by K-decay were different from the ordinary ones, or the nuclear activity was anomalously large in the region of pion production. These assumptions are discussed in the introduction of the present paper, followed by a brief report of the experimental measurements. The nuclear activities of mesons were compared at distances of 2-4, 10-20, 21-23, and 105-115 cm from the point of production, the mesons being emitted at 90° by 660-Mev protons incident on carbon nuclei. The measurements

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B006/B070

Measurement of the Relative Nuclear Activity of Pions in the Vicinity of the Point of Production

were made by means of two telescopes each consisting of three scintillation counters. The relative change in the counting rate in the two telescopes caused by brass filters of a thickness of 17 g/cm^2 was measured. The filters were placed either in front of the first counters or behind the second in the telescope. In this manner, the nuclear absorption of mesons whose energy changed from 100 to 70 Mev in passing through the filter was determined; (this energy interval corresponds to the meson energies from $K_{\pi 2}$ decay). Only an insignificant lowering of the nuclear activity could be observed in the experiments, and was probably due to errors in measurement. There is 1 non-Soviet reference.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: April 19, 1960

Card 2/2

33161
S/120/61/000/006/035/041
E194/E485

24.5600

AUTHORS: Goncharov, I.N., Gromova, I.I., Neganov, B.S., Parfenov, L.B.

TITLE: An electromagnet with super conducting winding

PERIODICAL: Pribory i tekhnika eksperimenta, no.6, 1961, 142-143

TEXT: The magnet described was required to control the "thermal keys" in a cyclic refrigerator equipment used to produce extremely low temperatures by the adiabatic demagnetization of a paramagnetic salt. The coil was made of lead, which has a critical field of about 500 oersteds at a temperature of 4.2°K and 800 oersteds at 1.5°K, the critical current for the wire of section 0.5 x 1.5 mm was not less than 10 A at 4.2°K. The turns were insulated with capacitor paper treated with adhesive grade БФ-2 (BF-2). For convenience of accommodating the "thermal key" between the poles, the magnet was made cylindrical, the pole diameter was 8 mm and the pole tip diameter 14 mm, the gap length was 3.2 mm. For example, with 700 turns the field strength at which super-conductivity broke down to give a p.d. of 0.05 mV was 2800 oersteds at 1.5°K with a critical current of 1.2 A. As the

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L 16907-63 EPR/EWT(l)/EWP(q)/EWT(m)/BDS/EPF(n)-2 AFFTC/ASD/IJP(C)/SSD
Pu-4/Ps-4 WW/JD/JG

ACCESSION NR: AP3005305 S/0056/63/045/002/0394/0396

AUTHOR: Neganov, B. S.; Parfenov, L. B.; Lushchikov, V. I.; Taran, Yu. V.

TITLE: Dynamic proton polarization at 0.5°K

SOURCE: Zhur. eksper. i teoret. fiz., v. 45, no. 2, 1963, 394-396

TOPIC TAGS: dynamic proton polarization, proton spin lattice relaxation, electron proton resonance, lanthanum double nitrate, cerium impurity

ABSTRACT: Results are reported of preliminary experiments on dynamic proton polarization (DPP) in crystals of $La_2Mg_3(NO_3)_{12}.24H_2O$ with paramagnetic cerium concentration of 0.8% (relative to the lanthanum) at approximately 0.5°K; the experiments were intended to increase the polarization and check the dependence of the proton polarization amplification coefficient on the external magnetic field at fixed electron proton resonance (EPR) frequency, the dependence of the amplification coefficient on the microwave power used to saturate the EPR, and the temperature dependence of the proton spin-lattice relaxation time. The maximum positive value of the amplification coefficient was 129 ± 10, corresponding in a field of 3500 Oe to a proton polarization 8 ± 0.5%. It was found that 1mW of microwave power

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ACCESSION NR: AP3005305

was sufficient to obtain the maximum amplification coefficient (with resonator Q of approximately 1000). The proton spin-lattice relaxation has a time dependence in the form $T_{1n}^{-1} \sim T^{1.65 \pm 0.15}$ with $T_{1n} = 920 \pm 80$ sec at $T = 0.32 \pm 0.03^{\circ}K$. It is therefore concluded that at temperatures below $1^{\circ}K$ no reduction occurs in the amplification coefficient when the temperature of the sample is substantially decreased. The use of higher magnetic fields should yield proton polarizations near 100%. "In conclusion, the authors take this opportunity to thank Prof. F. L. Shapiro for his great interest and attention to this work."

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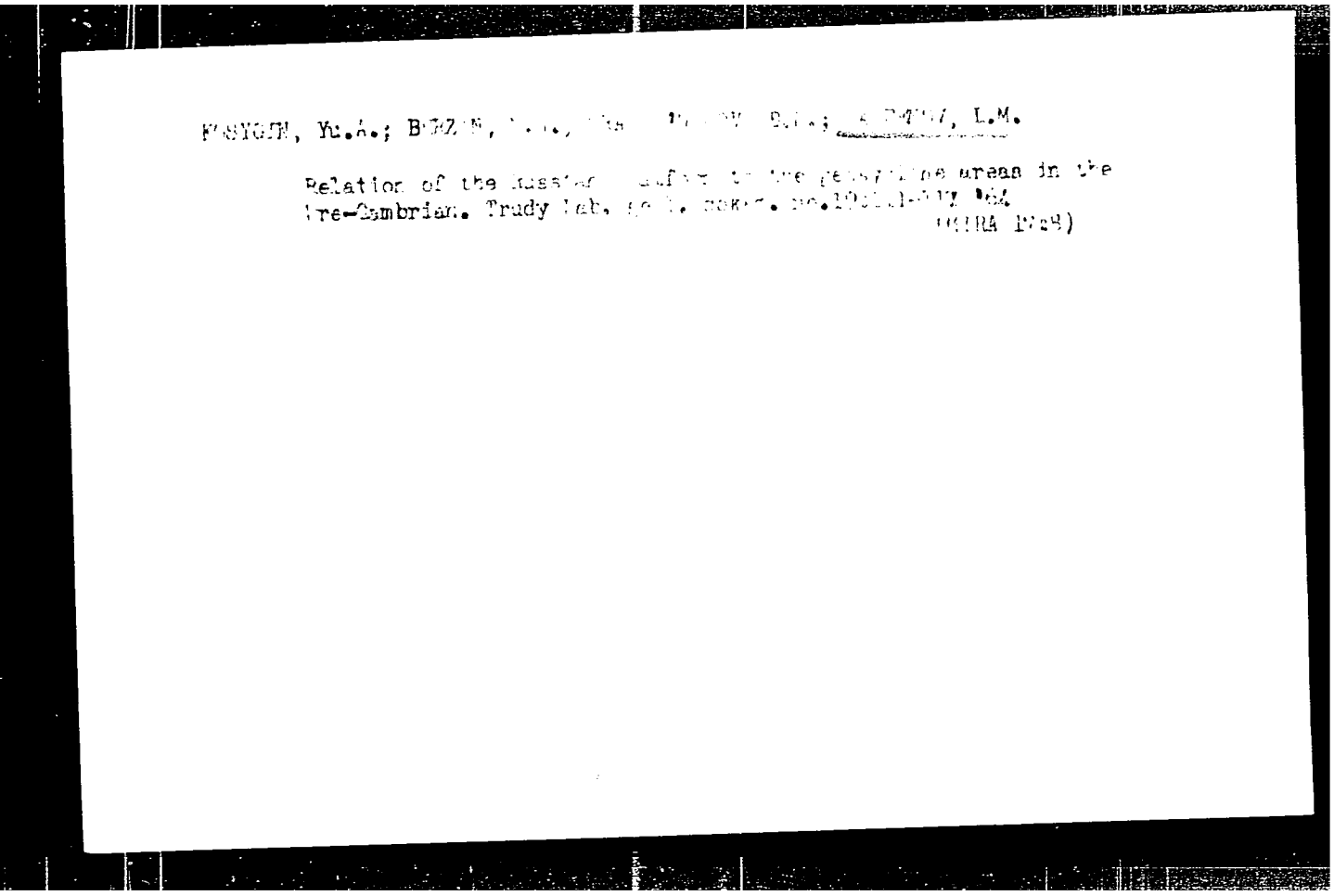

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