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L 28444-66 EWT(1) SCTB DD

ACC NR: AP6015411 SOURCE CODE: UR/0216/66/000/003/0346/0354

AUTHOR: Gaydamakin, N. A.; Petrukhin, V. G.; Antipov, V. V.; Saksonov, P. P.; Shashkov, V. S.

ORG: none

TITLE: Pathomorphological changes in hematopoietic organs of mice during the combined action of certain types of ionizing radiation and dynamic spaceflight factors

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 3, 1966, 346-354

TOPIC TAGS: mouse, biologic acceleration effect, biologic vibration effect, radiation biologic effect, hematopoiesis, bone marrow, radiation injury, synergy

ABSTRACT: The synergistic effect of ionizing radiation and vibration or transverse acceleration on the spleen and bone marrow was investigated in 9 series of experiments on 245 male mice. In the 1st and 2nd series experimental animals were exposed to a 1-hr vibration (70 cps) period 1 or 3 days before proton irradiation with a 830 to 875 rad dose. In the 3rd and 4th series experimental animals were exposed to the same vibration period 3 or 5 days following irradiation. In the 5th series

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ACC NR: AP6015411

experimental animals were exposed to the action of transverse acceleration applied 10 times over a 30 min period 23 hr before gamma irradiation with a 700 r dose, and in the 6th series the transverse acceleration action was applied 24 hr following irradiation. The 7th, 8th and 9th series served as controls. Animals were observed over a 60-day period to determine pathomorphological changes of the spleen and bone marrow by microscopic investigation. Study data show that the combined action of ionizing radiation and vibration or transverse acceleration markedly changes the degree and nature of pathomorphological shifts in hematopoietic organs. Exposure to vibration 3 days and particularly 1 day prior, to irradiation intensified the depletion of spleen and bone marrow and accelerated the restoration of all the hematopoietic processes. The effect of vibration applied 3 days and particularly 5 days after irradiation markedly increased destructive changes; during the recovery period necrotic foci appeared in the bone marrow and spleen, and reparative processes were prolonged. Transverse acceleration applied 24 hr prior to gamma irradiation reduced depletion of the hematopoietic organs and accelerated their reparation. Transverse acceleration applied 24 hr after irradiation did not affect radiation injuries of the hematopoietic organs. Orig. art. has: 6 figures. [06]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 020/ ATD PRESS: 5005

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

L 14292-66 EWT(m)/EPF(n)-2 GG/RD

ACC NR: AT6003876 SOURCE CODE: UR/2865/65/004/000/0430/0436

AUTHOR: Gaydamakin, N. A.; Petrukhin, V. G.; Shashkov, V. S.; Antipov, V. V.; Saksonov, P. P. 5/ 21

ORG: none

TITLE: Morphological changes in the hematopoietic organs of mice after irradiation with high-energy protons 19,44,55

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 430-436

TOPIC TAGS: proton, hematopiesis, RBE, morphology, irradiation, mouse, gamma irradiation, cobalt, radioisotope, ionizing irradiation, radiation biologic effect

ABSTRACT: Pathological changes in the morphology of the hematopoietic organs of male mice were studied after proton and gamma-irradiation. Some animals were subjected once to proton irradiation (dose, 830 rad; dose power, 400—600 rad/min), and others were irradiated from a Co^{60} source (dose, 650 r; dose power, 273 r/min). Control animals were not irradiated. The mice were killed with ether 3, 7, 15, 30, and 60 days after irradiation, and cells of the spleen, thymus gland, and bone marrow of the femur were

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L 14292-66

ACC NR: AT6003876

examined microscopically. In animals that died from radiation sickness (9—12 days after irradiation), hemorrhages in the lungs and intestine were frequently observed. Comparison of the weight coefficients of the spleen and thymus (both showing a two-phase increase) did not reveal any statistically reliable differences in the effects of the two different types of irradiation on these organs. Observation of animals and comparative study of hematopoietic organs show that changes due to irradiation with protons and gamma-rays are similar. In the first few days after irradiation, the volume of follicles in the spleen decreased, and areas of myelopoiesis disappeared from the pulp. In the thymus gland, depletion of the cortical substance of lymphocytes was observed, and in the bone marrow destruction of the reticular stroma occurred. It must be noted that changes were less severe during irradiation with protons than with gamma-rays. However, complete recovery of the spleen did not occur in either case by the 60th day after irradiation. In general, it was concluded that restorative processes in all three structures studied proceeded more slowly in the gamma-irradiated animals. Previous experiments have also shown that there are no noticeable differences in the morphological

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L 14292-66

ACC NR: AT6003876

reactions of animals to different types of ionizing radiation. The degree of affliction, however, depends on the physical nature of the form of radiation, and doses vary. Orig. art. has: 1 table. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 013 / OTH REF: 004

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

GAYDAMAKIN, N.A.; PETRUKHIN, V.S., SHASHKOV, V.S., ANTIPOV, V.V., SAKHONOV, P.P.

Morphological changes in the hemopoietic organs of mice following irradiation with high energy protons. Probl. kosm. biol. 4:430-436 '65. (MIRA 18:9)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

MENZEL, Donald H., red.; KAZARNOVSKIY, M.V. [translator]; TIKHOMIROV, F.A. [translator]; ARNOL'D, N.A. [translator]; PETRUKHIN, V.I. [translator]; MATSONASHVILI, B.N. [translator]; AKSENOV, S.I. [translator]; BAKANOV, S.P. [translator]; SHAPIRO, I.S., red.; ADIROVICH, E.I., red.; MEDVEDEV, Yu.T., red.; MAKHIMSON, I.G., red.; TELESNIN, N.L., red.; BELEVA, M.A., tekhn.red.

[Fundamental formulas of physics. Translated from the English] Osnovnye formuly fiziki. Moskva, Izd-vo inostr. lit-ry, 1957. 657 p. (MIRA 11:5)

(Mathematical physics)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

DUNAITSEV, A.F.; PETRUKHIN, V.I.; PROKOSHKIN, Yu.D.; RYKALIN, V.I.

Experimental evaluation of the $\pi^+ \rightarrow \pi^0 + e^+ + \nu$ decay probability. Dubna, Ob"edinennyi in-t iadernykh issl. 1961. 10 p.
(No subject heading)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

DUNAYTSEV, A. F., PETRUKHIN, V. I., Yu. D. PROKOSHKIN, and NYKALIN, V. I.

"Charge Exchange of Stopping π^- Mesons on Bound Protons Nuclei"

report presented at Intl. Conference on High Energy Physics, Geneva, 4-11 July 1962

Joint Inst. for Nuclear Research
Lab. of Nuclear Problems

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

DUNAYTSEV, A.F., PETRUKHIN, V.I., PROKOFIEV, Yu. D., RYKALIN, V.I.

"Investigation of Pion Beta Decay"

report presented at the Intl. Conference on High Energy Physics, Geneva, 4-11 July 1962

Joint Institute for Nuclear Research
Laboratory of Nuclear Problems

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

DUNAYTSEV, A.F.; PETRUKHIN, V.I.; PROKOSHKIN, Yu.D.; RYKALIN, V.I.; SARANTSEVA, V.R., tekhn. red.

[Detection of charge-exchange in stopped π^--mesons on nuclei of bound hydrogen] Obnaruzhenie perezariadki ostanovivshchiksia π^--mezonov na iadrakh sviazannogo vodoroda. Dubna, Ob"edinennyi in-t iadernykh issl., 1962. 4 p. (MIRA 15:4)

(Mesons) (Nuclear reactions) (Hydrogen)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

DUNAYTSEV, A.F.; PETRUKHIN, V.I.; PROKOSHKIN, Yu.D.; RYKALIN, V.I.; SARANTSEVA, V.R., tekhn. red.

[Testing the conservation of vector current] Proverka sokhraneniia vektornogo toka. Dubna, Ob"edenennyi in-t iadernykh issl., 1962. 6 p. (MIRA 15:4)

(Mesons--Decay)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

S/056/62/042/002/049/055
B108/B138

AUTHORS: Dunaytsev, A. F., Petrukhin, V. I., Prokoshkin, Y. D., Rykalin, V. I.

TITLE: Experimental estimate of β-decay probability of π mesons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 2, 1962, 672 - 675

TEXT: The rare decay mode $\pi^{\pm} \rightarrow \pi^{0} + e^{\pm} + \nu$ is termed β-decay of the pion. Theoretical treatment similar to the Fermi treatment of nuclear β-decay shown that the β-decay probability of a pion is only about 10^{-8} of the probability of the usual muon decay $\mu^{\pm} \rightarrow \mu^{\pm} + \nu$ (Ya. B. Zel'dovich DAN SSSR, 97, 421, 1954). One can calculate exactly the probability of that β-decay without regard to strongly interacting particles if the hypothesis of the conservation of the vector current in the theory of universal weak interaction is right:

$w(\pi^{\pm} \rightarrow \pi^{0} + e^{\pm} + \nu) = G^{2}\Delta^{5}/6\pi^{3}$ ($\hbar = c = 1$). G is the constant of weak vector interaction. Δ is the difference between the masses of charged

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S 056 62 042 [illegible]
B108 B138

Experimental estimate of β-decay

and neutral pions. Consequently this decay may be a criterion for the correctness of the theory. An experimental arrangement for the determination of the relative probability $\lambda = w(\pi^{\pm} \rightarrow \pi^{0} + e^{\pm} + \nu)/w(\pi^{\pm} \rightarrow \mu^{\pm} + \nu)$ is shown in Fig. 1. Experiments are made with positive pions. The greatest difficulty is the charge exchange of the pions on entering the scintillating material of counter 4. The probability of charge exchange, however, decreases rapidly with energy but its intensity is still higher than that of the sought β-decay by almost three orders of magnitude. One count was recorded during an operating time of about 30 hrs which corresponds to a λ of about $5 \cdot 10^{-8}$. But this one count could belong to a β-decay as well as to a charge exchange process. Estimates showed that $\lambda < 7 \cdot 10^{-8}$. Calculation of the constant G, which determines the intensity of β-decay of pions, yielded $G < [illegible] G_{\beta}$. Consequently G is essentially not greater than the constant of vector interaction $G_{\beta} = [illegible]$ [illegible] as determined from the decay $O^{14} \rightarrow N^{14*}$. D. I. Blokhintsev, V. N. Sergiyenko, V. P. Dzhelepov, A. A. Tyapkin, A. A. [illegible]

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Ya. B. Zel'dovich, S. S. Gershteyn, B. Pontekorvo, and L. I. Lapidus are thanked for help and discussions. There are 3 figures and 8 references: 4 Soviet and 4 non-Soviet. The 4 references to English-language publications read as follows: H. L. Anderson et al. Phys. Rev., 119, 2050, 1960; R. P. Feynman, M. Gell-Mann. Phys. Rev., 109, 193, 1958; E. C. G. Sudarshan, R. E. Marshak. Proc. of Padua conf., 1957; G. Impeduglia et al. Phys. Rev. Lett., 1, 249, 1958.

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

SUBMITTED: December 9, 1961

Legend to Fig. 1: M - magnetic focusing lens; 1, 2 - scintillation counters of π^+ - meson monitor (with ФЭУ-33 (FEU-33) photomultipliers), 3 - scintillation counter (with 56 AVP photomultiplier), 4 - "stopping detector" counter (FEU-33); 5, 6 - Cerenkov spectrometer (58 AVP); CH_2 - polyethylene filter for slowing down pion beam; Pb - lead shield.

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S/056/62/042/005/048/050
B108/B138

AUTHORS: Zhukov, A. F., Petrukhin, V. I., Prokoshkin, Yu. D., Rykalin, V. I.

TITLE: The probability of $\pi^+ \rightarrow \pi^0 + e^+ + \nu$ and $\pi^+ \rightarrow \gamma + e^+ + \nu$ decays

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 5, 1962, 1421-1424

TEXT: Earlier work (ZhETF, 42, 91, 1962; Nuovo Cim., 26, 1, 1962) showed that, as predicted by theory, the relative beta decay probability of the π^+-meson is shown very small ($\sim 10^{-8}$). This paper presents more results on the relative beta decay as observed by a system of scintillation counters and moderation filters. The meson beam varies with time at a period of $10 \cdot 10^{-9}$ sec. The data obtained are in agreement with theory and confirm the assumption of the conservation of the vectorial current. Exact measurements yielded the relative beta decay probability $\lambda = (1.1^{+1.0}_{-0.5}) \cdot 10^{-8}$ and the constant of the beta decay intensity $G = (1.14 \pm 0.37) G_\beta$ where

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B108/B138

$g_V = 1.40 \cdot 10^{-49}$ erg·cm^3 is the vectorial constant of nuclear beta decay (R. P. Feynman, M. Gell-Mann. Phys. Rev., 109, 193, 1958). There are 3 figures.

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

SUBMITTED: March 31, 1962 (initially)
April 13, 1962 (after revision)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

S/056/62/042/006/044/047
B104/B112

AUTHORS: Dunaytsev, A. F., Petrukhin, V. I., Prokoshkin, Yu. D., Rykalin, V. I.

TITLE: Evidence of the charge exchange of stopped π^- mesons on nuclei of bound hydrogen

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 6, 1962, 1680-1682

TEXT: The charge exchange of π^- mesons stopped in polyethylene was investigated using a device with high time resolution (A. F. Dunaytsev et al., ZhETF, 42, 632, 1962). The device allowed π^0 mesons to be recorded more efficiently than had been possible in previous investigations. A 75-Mev π^- meson beam (Fig.) passes through a set of scintillation counters and moderating filters and is stopped in a target (polyethylene, liquid hydrogen). The γ-quanta produced during the decay of π^0 mesons emitted by the stop of π^- mesons are recorded by Cherenkov spectrometers. After preliminary experiments with a target of liquid hydrogen the H target was replaced by a polyethylene target. The

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coincidence counting rate remained two orders of magnitude above the background level. When the target was taken out of the beam, the count rate dropped to 1/300. The γ-quanta recorded possessed an energy of 70 Mev. In both spectrometers, the γ-quanta were produced simultaneously. The effect observed was caused by the stop of π^- mesons. When the energy of the π^- mesons was reduced to 65 Mev, the count rate dropped to 1/15. With the use of a graphite target, the count rate reached only 1/50 of that obtained with a polyethylene target. There is 1 figure.

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

SUBMITTED: April 4, 1962

Fig. Experimental arrangement. (1)-(3) scintillation counters; (5)-(6) Cherenkov spectrometers; (7) scintillation counter in anti-coincidence connection; (8) focusing magnetic lens; (9) polyethylene filter for the moderation of π^- mesons; (M) target; (Pb) lead shield.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

PETRUKHIN, V.I.; PROKOSHKIN, Yu.D.; ZHOLOVA, N.N., tekhn.red.

[Charge exchange of stopped π^--mesons on complex nuclei] O perezariadke ostanovivshikhsia π^--mezonov na slozhnykh iadrakh. Dubna, Ob"edinennyi in-t iadernykh issledovanii, 1963. 5 p. (MIRA 17:1)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

S/120/63/000/001/043/072
E032/E314

AUTHORS: Dunaytsev, A.F., Petrukhin, V.I., Prokoshkin, Yu.D. and Rykalin, V.I.

TITLE: A detector for stopping mesons

PERIODICAL: Pribory i tekhnika eksperimenta, no. 1, 1963, 159 - 161

TEXT: The detector is illustrated schematically in Fig. 1. Its properties were investigated with a 75 MeV π^+-beam. The π-mesons pass through the scintillation counters of the beam-intensity monitor (1, 2) and are then retarded by the polythene filter 3. They come to rest in the phosphor of the last counter (5). The system incorporates fast photomultipliers (56AVP). The mesons are recorded by the fast coincidence circuit C_I, whose resolution was somewhat higher than reported previously by Dunaitzev et al (Nucl. Instrum., 1960, 8, 11) who have similar apparatus. In order to determine the optimum working conditions an assessment was made of the efficiency of recording of stopping and transmitted π^+-mesons (in the latter case the filter 3 was removed) as a function of the voltage V on each of the

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photomultipliers. Thus, the amplitude discrimination was carried out not only in the counter 5, as was done previously but also in the counter 4. In this way, the voltage region, in which the sensitivity of the detector to transmitted mesons decreases rapidly with decreasing V, while the efficiency of recording of stopping mesons was still very nearly 100%, was determined. The meson-counting rate was then found as a function of the delay Δt of the pulse from counter 5 relative to counter 4 for a number of values of V in the above region. The form of the resolution curves was found to be quite different for stopping and transmitting π^+-mesons. Hence, the selection coefficient was very sensitive to the delay Δt. Fig. 3 shows the selection coefficient K (2) and the efficiency of recording of stopping mesons ε (1) as functions of the delay time Δt. The arrow indicates the working value of the delay. As can be seen, a selection coefficient of the order of 50 may be obtained with an efficiency practically equal to 100%. This compares with K = 8 as reported by Dunaitsev et al. The detector is suitable for the selection of stopping particles in the presence of a large

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E032/E314

A detector for ....

background of transmitted particles. It has been successfully used for the effective recording of rare decay modes of stopping π^+-mesons (Dunaytsev et al - Zh.eksperim. i teor. fiz., 1962, 42, 1421; Phys. Letters, 1962, 1, 138). There are 4 figures.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute for Nuclear Research)

SUBMITTED: April 13, 1962

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

A detector for ....

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E032/E314

Fig. 1:

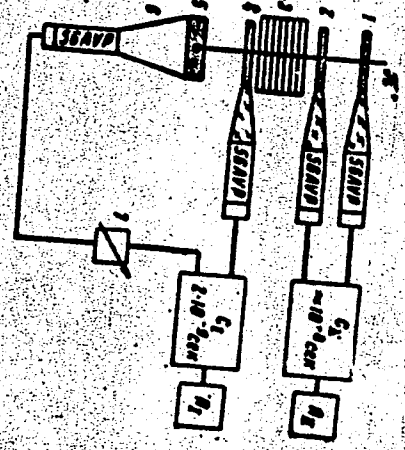

Рис. 1. Схема эксперимента. 1, 2 — счетчики монитора пучка π^+-мезонов; 3 — полиэтиленовый фильтр; 4, 5 — счетчики детектора остановок; 6 — полый световод; 7 — переменная задержка Δt; C_I, C_{II} — схемы совпадений; $П_I$, $П_{II}$ — пересчетные устройства

Fig. 3:

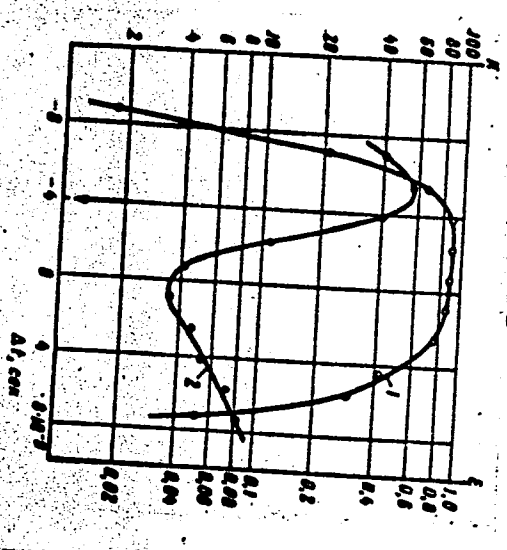

Рис. 3. Зависимость коэффициента отбора K (2) и эффективности регистрации остановок ε_s (1) от задержки Δt. Стрелкой указано рабочее положение задержки

attached hereto

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

ACCESSION NR: AP4009089 S/0056/63/045/006/1737/1742

AUTHORS: Petrukhin, V. I.; Prokoshkin, Yu. D.

TITLE: Measurement of the mass difference of charged and neutral pions

SOURCE: Zhurnal eksper. i teoret. fiziki, v. 45, no. 6, 1963, 1737-1742

TOPIC TAGS: pion, charged pion, neutral pion, pion mass difference, neutral pion decay, negative pion capture, capture by protons, pion capture by protons, gamma ray angular correlation

ABSTRACT: In view of the importance of employing different methods and reducing the experimental error, a method is developed for measuring the pion mass difference by determining the angular correlation of the gamma rays from the decay of neutral pions produced upon capture of negative pions by protons. The accuracy of this method is

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ACCESSION NR: AP4009089

claimed to be almost as good as that obtained by Hillman et al (Nuovo Cim. v. 14, 887, 1959) and Haddock et al (Phys. Rev. Lett. v. 3, 478, 1959). A value 4.59 ± 0.03 MeV/c^2 is obtained for the pion mass difference, in good agreement with the results by others. The method is free of systematic errors associated with the determination of the angular resolution and geometric corrections. "In conclusion, we take the opportunity to thank A. F. Dunaytsev and V. I. Ry*kalin for help with the work, I. V. Puzy*nin for performing the laborious computations, and A. A. Tyapkin for a discussion of the results." Orig. art. has: 5 figures, 7 formulas, and 1 table.

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 01Jun63 DATE ACQ: 02Feb64 ENCL: 01

SUB CODE: PH NO REF SOV: 001 OTHER: 006

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

ACCESSION NR: AP4033099 S/0120/64/000/002/0022/0023

AUTHOR: Petrukhin, V. I.; Prokoshkin, Yu. D.; Soroko, V. M.

TITLE: Foam-polystyrene liquid-hydrogen target

SOURCE: Pribory* i tekhnika eksperimenta, no. 2, 1964, 22-23

TOPIC TAGS: nuclear target, liquid hydrogen target, foam polystyrene target

ABSTRACT: A new two-chamber foam-polystyrene liquid-hydrogen-filled target is described (see Fig. 1 of the Enclosure). The liquid hydrogen is stored in a tank(3) surrounded by a liquid-nitrogen screen(5). The tank is connected with the targets (1) and (2); one of them can be placed into a beam of particles. The targets and the tank are surrounded by foam-polystyrene jackets which are cooled by the ambient evaporating hydrogen. The 13-liter nitrogen jacket(4) is made from stainless steel. Provision is made for the rapid

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ACCESSION NR: AP4033099

removal of the hydrogen from the targets (1) and (2). The hydrogen capacity is 33 liters; cooling nitrogen consumption is 6 lit/hr; time of hold of the hydrogen (ortho plus para in 3:1 ratio) is 30 hr. "We take this opportunity to thank V. Vlasov and V. N. Dmitriyevskaya for their help in preparing and testing the target." Orig. art. has: 1 figure.

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Nuclear Research Institute)

SUBMITTED: 21May 63 DATE ACQ: 11May64 ENCL: 01

SUB CODE: NP NO REF SOV: 000 OTHER: 002

ATD PRESS: 3043

Card 2/3

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ACCESSION NR: AP4033099

ENCLOSURE: 01

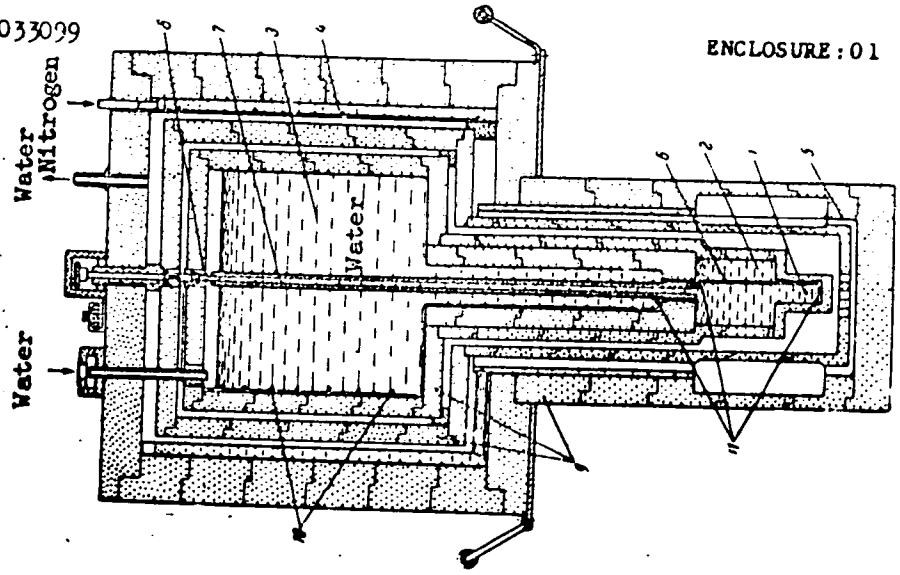

Fig. 1. New design of a foam-polystyrene liquid-hydrogen target

Card 3/3

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

ACCESSION NR: AP4042373 S/0056/64/047/001/0084/0091

AUTHORS: Dunaytsev, A. F.; Petrukin, V. I.; Prokoshkin, Yu. D.; Ry*kalin, V. I.

TITLE: Pion beta decay

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 1, 1964, 84-91

TOPIC TAGS: pion, beta decay, Cerenkov counter, nucleon, positron

ABSTRACT: Continuing earlier investigations (Intern. Conf. on Fundamental Aspects of Weak Interactions, Brookhaven, USA, 1963) the authors registered 43 cases of pion beta decay with the aid of Cerenkov spectrometers. The relative probability of this decay was found to be $\lambda = (1.1 \pm 0.2 \times 10^{-8})$, which confirms the hypothesis of vector current conservation. The installation used for the measurement was described elsewhere (PTE, no. 1, 159, 1963) and consisted of four Cerenkov total-absorption spectrometers. The experi-

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

ACCESSION NR: AP4042373

ments were made with the synchrocyclotron of the laboratory of nuclear problems OIYaI at the end of 1962. The experimental setup and the adjustment of the apparatus are described. The measurements lasted 500 hours and involved the passage of 4×10^{10} pions. The apparatus was recalibrated by means of pulsed light sources every two hours. The values obtained for the constants G and Gβ, which characterized the beta decay of the pion and the nucleon, were found to be approximately the same, $G = (1.03 \pm 0.11)$ Gβ, which is also in agreement with the data obtained at CERN (P. Depommier et al., Phys. Lett. v. 5, 61, 1963). The energy spectrum of the positrons produced in pion beta decay agrees with that calculated on the basis of the vector-current conservation hypothesis. "In conclusion we thank G. P. Zorin, V. I. Orekhov, A. V. Revenko, N. N. Khovanskiy, V. A. Cherny*kh, L. N. Andrianova and her co-workers, N. B. Yedovina, N. M. Kovalev, and K. A. Baycher and his co-workers for help in producing the apparatus and with the investigation. We are grateful to Kim Ge Fa, E. V. Nyagu, Z. F. Prokoshkina, and M. Sgonova for

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

ACCESSION NR: AP4042373

scanning and processing the photographs." Orig. art. has: 8 figures and 3 formulas.

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 14Feb64 ENCL: 02

SUB CODE: NP NR REF SOV: 008 OTHER: 010

3/5

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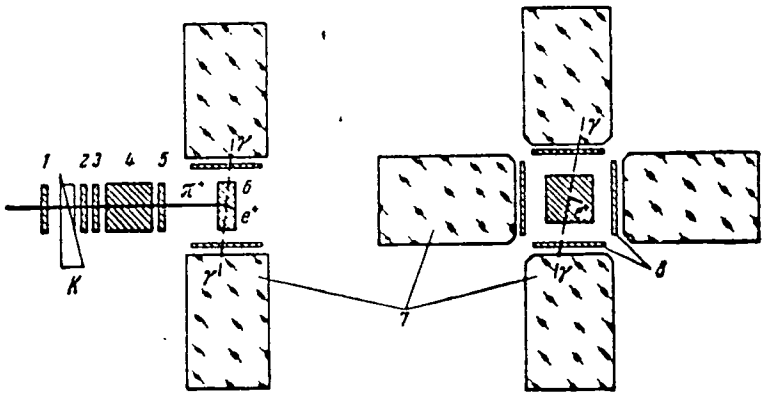
"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

ACCESSION NR: AP4042373

ENCLOSURE: 01



Experimental setup. 1 - 6) scintillation counters, 7)Cerenkov total absorption spectrometers, 8) anticoincidence scintillation counters, K - decelerating filter,

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

L 26933-65 EWT(m) DIAAP
ACCESSION NR: AP5004193 S/0020/65/160/001/0071/0072

AUTHORS: Petrukhin, V. I.; Prokoshkin, Yu. D.

TITLE: On Pi-mesic atom processes in hydrogen-containing substances

SOURCE: AN SSSR. Doklady, v. 160, no. 1, 1965, 71-72

TOPIC TAGS: pion, mesic atom, pion transfer, hydrogen containing substance

ABSTRACT: The purpose of the investigation was to determine the mechanism of the transfer of pions from hydrogen atoms to heavier atoms in hydrogen-containing substances such as styrene. The experimental set-up was described earlier (ZhETF v. 42, 1680, 1962; preprint E-1471, Dubna, 1963; Nuovo Cim. v. 28, 99, 1963). The negative pions passed through scintillation counters, were slowed down, and stopped in the target. The resultant gamma quanta were registered

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

L 26933-65
ACCESSION NR: AP5004193

by Cerenkov total-absorption spectrometers. Various gases and solutions were used as the targets. The results have shown that a probability of capture of pions by nuclei of bound hydrogen does not depend on the density of the material employed (ethane). Similar results were obtained also with solutions. It follows therefore that the transfer of pions in hydrogen-containing substances is a process which occurs with large intensity only when the distances between the hydrogen atoms and the heavy atoms are small. It is also concluded that the mechanism is more complicated than assumed previously by Panofsky et al (Phys. Rev. v. 78, 825, 1950). It is to be expected, in particular, that the intensity of the transfer depends essentially on the molecular structure of the substance. This report was presented by B. M. Pontecorvo. Orig. art. has: 1 figure, 1 formula, and 1 table.

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

Card 2/3

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L 26933-65
ACCESSION NR: AP5004193

SUBMITTED: 18Jul64 ENCL: 00 SUB CODE: NP

NR REF SOV: 002 OTHER: 001

Card 3/3

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

L 11887-66 EWT(m) DIAAP

ACC NR: AP5028021 SOURCE CODE: UR/0386/65/002/008/0387/0391

AUTHOR: Kut'in, V. M.; Petrukhin, V. I.; Prokoshkin, Yu. D.

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

TITLE: Search for $\pi^0 \to 3\gamma$ decay [Reported at the June Session of the Nuclear Physics Division, Academy of Sciences, SSSR] 1965

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 8, 1965, 387-391

TOPIC TAGS: pion, parity principle, strong nuclear interaction, Gamma quantum

ABSTRACT: The authors investigated the decay of a neutral pion into three γ quanta ($\pi^0 \to 3\gamma$), interest in which has recently increased in connection with the observed $2K_2^0 \to 2\pi$ decay, which violates CP invariance. To register this decay, they used the apparatus previously employed in a study of the rare processes of pion decay and capture (ZhETF v. 47, 84, 1964; Nuovo Cimento v. 28, 99, 1963). The experiments were performed with the OIYaI synchrocyclotron. The π^- mesons with initial energy 70 Mev passed through a series of scintillation counters and decelerating filters and were stopped in a liquid-nitrogen target, where the charge exchange $\pi^- + p \to \pi^0 + n$ took place. The γ quanta produced in the decay were registered with three Cerenkov total-absorption spectrometers placed around the target and connected in a nonasecond coincidence circuit. Scintillation counters, connected for anticoincidence and preventing registration of charged particles from the target by the spectrometers,

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L 11887-66

ACC NR: AP5028021

were placed between the target and the spectrometers. The pulses from all the counters and spectrometers were photographed on the screen of a 5-beam high-speed oscilloscope, making possible multidimensional time and pulse-height analysis of the registered events. The results yielded an estimate of 2.2×10^{-6} at the 1/e confidence level for the upper limit of the branching ratio of the decay of a neutral pion into three γ quanta. At the 90% confidence level, the limit is $< 5 \times 10^{-6}$. If it is assumed that a second neutral meson, having the same mass as the π^0 meson, exists but is capable, unlike the other, of decaying into three γ quanta, then the data yield the following maximum estimates for the relative probability of production and decay of such a meson: 6×10^{-6} at an average lifetime $\tau_{3\gamma} < 10^{-10}$ sec, 1.3×10^{-5} ($\tau_{3\gamma} < 5 \times 10^{-10}$ sec), 2×10^{-5} ($\tau_{3\gamma} < 10^{-9}$ sec), and 1.5×10^{-4} ($\tau_{3\gamma} < 10^{-7}$ sec). Authors thank L. I. Lapidus, L. B. Okun', I. Ya. Pomeranchuk, and B. Pontecorvo for useful discussions. Orig. art. has: 2 formulas and 2 tables.

SUB CODE: 20/ SUBM DATE: 01Sep65/ ORIG REF: 004/ OTH REF: 004

HW

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

L 56656-65 EWT(1)/EEC(m)/EEC(k)-2/EWA(h) Po-4/Pq-4/Pg-4/Peb/Pi-4/Pl-4

ACCESSION NR: AP5011881 UR/0120/65/000/002/0114/0118
539.1.075:621.317.75

38
B

AUTHOR: Dunaytsev, A. F.; Petrukhin, V. I.; Prokoshkin, Yu. D.; Rykalin, V. I.

TITLE: High-speed five-beam oscillograph 25

SOURCE: Pribory i tekhnika eksperimenta, no. 2, 1965, 114-118

TOPIC TAGS: cathode ray oscillograph, high speed oscillograph, five beam oscillograph

ABSTRACT: The development is reported of a 5-beam oscillograph with a sensitivity of 60 mv/cm and a rise time of its 150-Mc-passband vertical-deflection amplifiers of 4 nsec. The oscillograph was developed in 1962 and was intended for studying beta decay of π^+-meson. The nonlinearity of sweep is 2—4%; sweep speeds: 5, 10, 20, 50, 100, 200 nsec/cm; sweep delay behind the starting pulse, 70 nsec; when the signal is applied directly to the vertical plates, the rise time is

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L 56656-65

ACCESSION NR: AP5011881

2 nsec and the sensitivity, 30 v/cm. About 500,000 photo pictures were taken with this oscillograph; processing of these pictures has shown that the intervals between pulses can be measured with an error of 2×10^{-10} sec and heights, with an error of 3%. "The authors wish to thank G. P. Zorin, A. V. Revenko, and N. N. Khovanskiy for their help in the development and operation of the oscillograph, L. N. Andrianova and her co-workers for the development of the electron-beam tube with an aluminized screen, and N. B. Yedovina for selecting the conditions of film development." Orig. art. has: 7 figures.

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

SUBMITTED: 11Mar64 ENCL: 00 SUB CODE: EC

NO REF SOV: 002 OTHER: 004

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

LISHTVAN, I.I.; MAMTEIS, A.M.; PETRUKHIN, V.P.

Studying the acidity of peat-bog soils. Pochvovedenie no.5:[illegible] My '65. (MIRA 18:6)

1. Kalininskiy torfyanoy institut.

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PETR[illegible], V.Y.; [illegible], [illegible].

Ad[illegible] '65.

. Sub[illegible]

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

L 27242-66 EWP(k)/EWT(d)/EWT(m)/EWP(h)/ETC(m)-6/EWP(1)/EWP(w)/EWP(v) LJP(c)
ACC NR: AP6009898 EM/WW SOURCE CODE: UR/0413/66/000/004/0089/0090

AUTHOR: Petrukhin, Ye. V.

ORG: none

37
B

TITLE: Device for testing parts for vibration stability. Class 42, No. 179047

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 89-90

TOPIC TAGS: vibration test, test equipment, electric vibrator

ABSTRACT: This Author Certificate presents a device for testing parts for vibration stability. The device contains an electrodynamic vibrator with a magnetization coil and a pulling coil, a current rectifier, a driver audio oscillator, and a Schmitt trigger. The trigger serves to convert sinusoidal current pulses into rectangular pulses. To switch the current going to the pulling coil from the rectifier with a frequency equal to the excitation frequency, the device has a transistor controlled by the rectangular signal. The transistor is connected in series in the pulling coil circuit of the electrodynamic vibrator (see Fig. 1).

Card 1/2

UDC: 620.178.3.05

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

L 27242-66
ACC NR: AP6009898

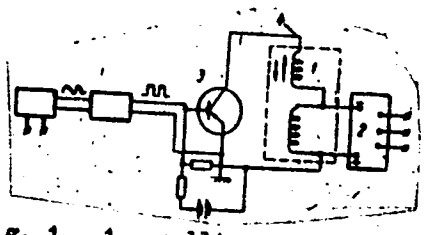

Fig. 1. 1 - pulling coil; 2 - rectifier; 3 - transistor; 4 - electrodynamic vibrator.

Orig. art. has: 1 diagram.

SUB CODE: 14, 09/ SUBM DATE: 12Apr63

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

PETRUKHIN, Yu.M.; PEREL'MAN, D.I.

Regulator of the oil level in compressor crankcases. Khol.tekh. 42 no.2:58-60 Mr-Ap '65. (MIRA 18:5)

1. Moskovskiy remontno-montazhnyy kombinat.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

KAPLAN, L.G., inzh., PETRUKHIN, Yu.M., inzh.

Some characteristics of the repair of rotary compressors. Kholod. tekhn. 40 no.6:48-52 N-D '63 (MIRA 17:1)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

KAPLAN, L.G., inzh.; PETRUKHIN, Yu.M., inzh.

Repair of the heat exchangers of small refrigerating machines. Khol. tekh. 40 no.3:54-57 My-Je '63. (MIRA 16:9)
(Refrigeration and refrigerating machinery—Maintenance and repair)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

KAPLAN, Leonid Gdal'yevich; PETRUKHIN, Yuriy Mikhaylovich;
NIKOLAYEVA, N.G., red.

[Repair of small freon refrigerating machines] Remont malykh freonovykh kholodil'nykh mashin. Moskva, Ekonomika, 1964. 103 p. (MIRA 17:5)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

ACC NR: AP7007622 SOURCE CODE: UR/0386/67/005/003/0077/0078

AUTHOR: Kurnosov, V. D.; Pleshkov, A. A.; Petrukhina, G. S.; Rivlin, L. A.; Trukhan, V. G.; Tsvetkov, V. V.

ORG: none

TITLE: Emission of a short single pulse by an injection semiconductor laser

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 5, no. 3, 1967, 77-78

TOPIC TAGS: gallium arsenide, laser r and d, laser emission, semiconductor laser, junction diode, laser modulation

ABSTRACT: This is a continuation of earlier work (Pis'ma ZHETF v. 4, [illegible], 1966) on spike production in a self-modulated GaAs laser, the results of which implied the feasibility of observing very short single light pulses from such a laser when excited by a much longer injection pulse. This possibility was tested in the present investigation using a GaAs diode with diffusion pn junction and a resonator produced by cleavage. An injection pulse of duration ~2 nsec was produced with a ferrite surge line. Streak photographs of the laser output, obtained with high-resolution equipment, showed distinctly that individual light pulses were produced, of approximate duration 2×10^{-10} sec, or about one-tenth the injection duration. Even shorter pulses could be obtained by varying the parameters and duration of the pulses. Orig. art. has: 1 figure. [02]

SUB CODE: 20/ SUBM DATE: 03Oct66/ ORIG REF: 001/ ATD PRESS: 5117

Card 1/1 UDC: none

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

PETRUKHINA, M.T., kand.sel'skokhoz.nauk

Entobacterin in the control of the apple moth. Zashch. rast. ot vred. i bol. 6 no.4:30 Ap '61. (MIRA 15:6)
(Moldavia—Apple—Diseases and pests)
(Moths—Biological control)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

PETRUSHINA, M. T.: Master Agric Sci (Diss) -- "The biological principles of measures to combat grape mildew under the conditions of the Transcaucasian Region". Leningrad, 1959. 19 pp (All-Union Order of Lenin Acad Agric Sci im. V. I. Lenin, All-Union Sci Res Inst of Plant Protection), 150 copies (KL, No 17, 1959, 111)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

[illegible] : USSR

[illegible] : Plant Diseases. [illegible]

[illegible] : [illegible]

[illegible] : Petrushina, M. I.

[illegible] : Experiment in the Control of Mildew at Incubation Periods.

[illegible] : [illegible] Vinogradarstvo [illegible], No. [illegible]

[illegible] : [illegible] Abstract.

[illegible]: [illegible]

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

PETRUKHINA, M.T.

System of spraying grapes against mildew. Trudy VIZR no.11:127-143 '58. (MIRA 12:1)

(Mildew) (Grapes--Diseases and pests)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

ZILOVA, T.K.; PETRUKHINA, N.I.; PALKIN, B.A.; RYAZANOV, N.V.; FRIDMAN, Ya.B.; prinimali uchastiye: BULANOV, Yu.A., KOS'KINA, V.N.

Tension and torsion testing of studs at different flexibility of load-applying devices. Zav.lab. 27 no.7:877-883 '61. (MIRA 14:7)

(Materials--Testing)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

ZILOVA, T.K.; PETRUKHINA, N.I.; FRIDMAN, Ya.N.

Regularities in the effect of the yielding of load on the rate of deformation. Dokl. AN SSSR 124 no.6:1236-1239 F '59.
(MIRA 12:3)

1.Predstavleno akademikom G.V. Kurdyumovym.
(Deformations (Mechanics))

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

95530

S/032/60/026/011/020/035
B004/B067

18 8200

AUTHORS: Fridman, Ya. B., Zilova, T. K., Drozdovskiy, B. A. and Petrukhina, N. I.

TITLE: Evaluation of Mechanical Characteristics in Consideration of the Deformation and Destruction Kinetics

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 11, pp. 1267 - 1283

TEXT: The authors discuss the effect of the kinetics of deformation processes on the durability of the material. A pre-critical state (the process is delayed $j < 0$) and a trans-critical state ($j > 0$) may be distinguished when determining the acceleration j of the deformation process. Also the critical point at which j changes its sign may be determined. The consideration of the kinetics is especially important in establishing the modern working conditions for apparatus with a) high operation temperatures, b) high average stress applied for short time, c) nonperiodic stress due to distorted fields of stress in complex designs and irregular action of temperature, corrosion or radiation, and

Card 1/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

FRIDMAN, Ya.B.; ZILOVA, T.K.; DROZDOVSKIY, B.A.; PETRUKHINA, N.I.

Estimation of mechanical charateristics taking into consideration the kinetics of deformation and failure. Zav.lab. 26 no.11:1267-1283 '60. (MIRA 13:11)

(Strength of materials) (Deformations (Mechanics))

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

ZILOVA, T.K.; PALKIN, B.A.; PETRUKHINA, N.I.; RYAZANOV, N.V.; FRIDMAN, Ya.B.
ins.k

Tennile testing in connection with varying supply of elastic energy.
Zav. lab. 25 no.1:76-82 '59. (MIRA 12:1)
(Elasticity) (Alloys--Testing) (Testing machines)

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24(6) PHASE I BOOK EXPLOITATION SOV/2385

Akademiya nauk SSSR

Nekotoryye problemy prochnosti tverdogo tela; sbornik statey (Some Problems in the Strength of Solids; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 386 p. Errata slip inserted. 2,000 copies printed.

Ed. of Publishing House: V. I. Aver'yanov; Tech. Ed.: R. S. Pevzner; Editorial Board: A.F. Ioffe, Academician; G. V. Kurdyumov, Academician; S. N. Zhurkov, Corresponding Member, USSR Academy of Sciences; S. P. Konstantinov, Corresponding Member, USSR Academy of Sciences; F. F. Vitman, Doctor of Physical and Mathematical Sciences, Professor (Resp. Ed.); L. A. Glikman, Doctor of Technical Sciences, Professor; N. A. Zlatin, Doctor of Physical and Mathematical Sciences; V. A. Stepanov, Doctor of Technical Sciences; Ya.B. Fridman, Doctor of Technical Sciences, Professor; B. S. Ioffe, Candidate of Technical Sciences (Deputy Resp. Ed.).

PURPOSE: This book is intended for construction engineers, technologists, physicists and other persons interested in the strength of materials.

COVERAGE: This collection of articles was compiled by the Otdeleniye fiziko-matematicheskikh nauk AN SSSR (Department of Physical and Mathematical Sciences) and the Fiziko-tekhnicheskiy institut AN SSSR (Institute of Applied Physics, Academy of Sciences, USSR) in commemoration of the 80th birthday of Nikolay Nikolayevich Davidenkov, Member of the Ukrainian Academy of Sciences, founder and head of the Otdel prochnosti materialov (Department of the Strength of Materials) at the Institute of Applied Physics, Academy of Sciences, USSR, founder of the Fakul'tet fizicheskogo metallovedeniya (Department of Physical Metallurgy) at the Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute), recipient of the Stalin Prize (1943), the Order of the Red Banner of Labor (1945) and the Order of Lenin (1953). The articles deal with the strength of materials, phenomena of imperfect elasticity, temper brittleness, hydrogen embrittlement, cold brittleness, influence of deformation speed on the mechanical properties of materials, fatigue of metals, and general problems of the strength, plasticity, and mechanical properties of nonmetals. Numerous personalities are mentioned in the introductory profile of Professor Davidenkov. References are given at the end of each article.

Ratner, S.I., N.V. Kadobnova, and Ye.A. Petrov. Effect of Size of Test Piece on Its Strength Under Repeated Stresses 268

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Zilova, T.K., N.I. Pokrovskiy, and Ya. B. Fridman. Kinetics of Deformation and Rupture Processes in Connection With the Reserve of Elastic Energy 297

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Volkov, S.D. (Ural'skiy politekhnicheskiy institut imeni S.M. Kirova, g. Sverdlovsk- Ural Polytechnic Institute imeni S.M. Kirov, Sverdlovsk). Principles of the Statistical Theory of Strength 325

Burmakina, O.P., and F.S. Zaritskiy (Sverdlovskiy filial vsesoyuznogo nauchno-issledovatel'skogo instituta metrologii imeni Mendeleyeva-All-Union Scientific Research Institute of Metrology imeni Mendeleyev, Sverdlovsk Branch). Mechanical Properties of Tempered Steel Under Biaxial Tension 334

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Stepanov, V.A., and L.D. Khodakova (Institute of Applied Physics, Academy of Sciences, Leningrad). Measuring Residual Stresses in Tempered Glasses by the Mechanical Method 346

Indenbom, V.L. (Institut kristallografii AN SSSR, g. Moskva-Crystallography Institute, Academy of Sciences, USSR, Moscow). New Findings on the Destruction of Bodies Under the Action of Internal Stresses 357

Kuz'min, Ye.A., and V.P. Pukh (Institute of Applied Physics, Academy of Sciences, USSR, Leningrad). Rate of Development of Brittleness Cracks in Glass and Resin 367

Regel', A.R., and G.V. Baranova (Crystallography Institute, Academy of Sciences, USSR, Moscow). Effect of the Type of Stressed State on Flow-Curve Parameters of Some Plastics 375

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

14(10) SOV/20-124-6-15/55

AUTHORS: Zilova, T. K., Petrukhina, N. I., Fridman, Ya. B.

TITLE: On the Rules of the Kinetics of Deformation in Dependence on the Relaxation of the Load (O zakonomernostyakh kinetiki deformatsii v zavisimosti ot podatlivosti nagruzheniya)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 6, pp 1236 - 1239 (USSR)

ABSTRACT: The authors investigated the rules of load and deformation in the case of varying relaxation of the load system, i.e. in the case of a varying character of the time-dependence of the load force P_{load} in the case of deformation and lifting of the load in segregated system. The tests were carried out by means of the devices DRP-361 especially constructed for this purpose, in the spring—dynamometer an initial supply of elastic energy was provided. This device DRP-361 was developed by the authors in collaboration with B. A. Palkin and N. V. Ryazanov. The relaxation of the device during the tests carried out by the authors amounted to 0.7 mm/T. The results obtained were recorded by means of the loop-oscillograph MPO-2. The quantities recorded

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concerned stress on the dynamometer, stress on the sample and extension of the sample. The experiments were carried out with smooth samples (5 mm diameter) of the alloys D16T and of KhNMA steel in the state of quenching and tempering at 200 and 550°. In the case of a relaxation of 0.7 mm/T the kinetic curves of stress on the dynamometer show a sharp downward slope but at 2.5 mm/T this curve takes a flat course. The curves of the rate of absolute deformation are influenced by relaxation in the same way. The greater the supply of elastic energy with conditions otherwise being equal, the higher will be the rate of the deformation process when approaching fracture, and the shorter the duration of the entire process until fracture occurs. The process in all cases begins to develop with positive acceleration. The lower the degree of relaxation, the more rapidly will the process with positive acceleration go over into a process with negative acceleration, i.e. into the stage of damping. In the case of an equal initial stress, the sample will not break with a considerable decrease of force with time but in the case of a slow decrease of force, it breaks already after the short time $\tau \approx 0.32$ sec. From the results

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obtained by the present investigation the following conclusions may be drawn: The influence exercised by the supply of elastic energy (which was observed also in the case of fractures occurring during operation in practice), is essentially determined by the character of the variation of the kinetics of force in the case of disturbed or non-existing equilibrium. The greater the supply of elastic energy (with the loading force being equal), the more slowly will the loading force decrease with time if the deformation of the loading body develops further. The rules discussed in the present paper were determined in segregated systems, but it may by all means be assumed that they apply also to such cases as are subjected to an external load during the entire load process. There are 4 figures and 10 references, 7 of which are Soviet.

PRESENTED: July 24, 1958, by G. V. Kurdyumov, Academician

SUBMITTED: July 16, 1958

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USSR / Cultivated Plants. Forage Crops. M-

Abs Jour: Ref Zhur-Biol., 1958, No 16, 73028.

Author : Sokolenko, N. F.; Petrukhina, N. I.
Inst : All-Union Selection-Genetic Institute.
Title : High Seed Harvests of Fodder Melon Crops.

Orig Pub: Byul. Vses. selekts.-genet. in-ta, 1957, No 3, 16-17.

Abstract: In 1955, as a result of raising fodder and table varieties of squash and watermelon, hybrids were obtained which possess high harvest yield and higher content of nutrient matter in the fruits. Thus, the harvest of "Stofuntovoy" squash comprised 137.7 c (control) with its free pollination with "Ispanskoy" squash - 140.3 c, and with pollination by a mixture of pollen of the "Ispanskaya" and "Medovaya belaya" varieties (in the latter's pol-

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14(11)

SOV/32-25-1-31/51

AUTHORS: Zilova, T. K., Pelkin, P. A., Petrukhina, N. I., Ryazanov, [illegible], Fridman, Ya. B.

TITLE: Extension Test at Various Elastic Energy Reserves (Ispytaniye na rastyazheniye pri razlichnykh zapasakh upruggy energii)

PERIODICAL: Zavodskaya Laboratoriya, 1959, V 1 25, Nr 1, pp [illegible] (USSR)

ABSTRACT: The test plant DRP-361 was designed for studying the influence exercised by the initial elastic energy reserve upon load conditions and material properties. It is provided with a dynamometric spring with variable elasticity. The maximum load and maximum reserve of elastic energy which is stored up in the spring dynamometer, depend on the properties of the chosen spring, their number and arrangement. By means of that plant, short and long-term tests of extension can be carried out according to the scheme of an isolated and unisolated system. The mechanical and hydraulic part of the plant is calculated for a maximum axial load of 15 tons, a maximum oil pressure of 100 kg/cm², and a maximum piston motion of 15 mm. The plant covers the test plant (Fig 1), a system of hydraulic supply lines (Fig 2) and a set of measuring

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instruments. The set is provided with a loop oscillograph MPO-2, the dynamometric string represents a series of foil springs (according to GOST 3057-54), and AMG-10 was used as working liquid. The cells were calibrated (for the purpose of measuring the axial load of the specimen) by means of the IMIA test plant. The oscillograms obtained were measured by means of a BMI microscope. The sample stress was measured by means of tension indicators. The latter consist of the ICh indicator, a small elastic U beam of beryllium bronze and "resistance cells" of the DK-10 or DK-25 type. It was stated that the influence of elasticity is determined by the kinetics of the change in the load force. Some further observations were made with the D16T alloy and some 30 KhGSNA steel specimens. There are 9 figures, 2 tables, and 9 references, 9 of which are Soviet.

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PETRUKHINA, V. M. Cand Agr Sci -- (diss) "Variation of calcium and phosphorus content in fodder crops ~~in relation to the~~ diversity of soils and ~~the~~ development ~~stage~~ of plants." Kazan', 1959. 15 pp (Kazan' State Vet Inst im N. E. Bauman), 100 copies (KL, 49-59, 142)

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PETRUKHINA, Ye., brigadir sadovykh rabochikh

This will be our gift. Zhil.-kom. khoz. 11 no.8:13 Ag '61.
(MIRA 14:8)

(Moscow--Landscape gardening)

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ZAKHAROV, A.G., kand.ekon.nauk, nauchnyy sotrudnik; SHISHOV, G.A., inzh.-ekonomist, nauchnyy sotrudnik; ZAKHAROVA, Z.I., inzh.-ekonomist, nauchnyy sotrudnik; TVERSKOY, K.N., retsenzent; ABRAMOV, A.P., retsenzent; PETRUKHNOVSKIY, I.V., retsenzent; KUZNETSOV, A.N., retsenzent; KOLTUNOVA, M.P., red.; USENKO, L.A., tekhn.red.

[Economic evaluation of the operational indices of railroads. Ekonomicheskaia otsenka ekspluata sionnykh pokazatelei raboty dorog. Moskva Vses.izdatel'sko-poligr. ob"edinenie M-va puteĭ soob., 1961. 174 p. (Moscow. Vsesoiuznyi nauchno-issledovatel'skiĭ institut zheleznodorozhnogo transporta. Trudy no. 1d.) (MIRA 15:1)

1. Sektor ekonomiki kral'skogo otdeleniya Vsesoyuznogo nauchno-issledovatel'skogo instituta zheleznodorozhnogo transporta (for Zakharov, Shishov, Zakharova).

Rail: (Cost of operation)

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IVLIYEV, I.V.; PETRUKHNOVSKIY, I.V. retsenzent ; KRIMNUS, G.Kh. retsenzent ; NAUMOV, G.I. retsenzent ; ORLOV, V.N. retsenzent ; TUCHKEVICH, T.M. retsenzent ; USHAKOV, P.S. retsenzent ; CHERNUKHA, N.T. retsenzent ; EDEL'SHTEYN, P.G. retsenzent ; KRISHTAL', L.I., red.; VINNICHENKO, N.G., kand. ekon. nauk, red.; USENKO, L.A., tekhn.red.

[Finance and the financing of railroad transportation]Finansy i finansirovanie zheleznodorozhnogo transporta. Moskva, Transzheldorizdat, 1963. 439 p. (MIRA 17:2)

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VINNICHENKO, Nikolay Gavrilovich; PETRUKHNOVSKIY, I.V., retsenzent; OSHEMKOV, N.P., retsenzent; KRISHTAL', L.I., red.; BOBROVA, Ye.N., tekhn. red.

[Financing and supplying credit to railroads] Finansirovanie i kreditovanie zheleznykh dorog. Izd.3., perer. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1961. 229 p. (MIRA 14:10)

(Railroads—Finance)

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BELOV, N.D.; RAKHLIN, [illegible]; ALESHIN, L.I.; SEREGIN, I.I.; POGODIN, A.I.; PONTYAR, A.A.; PETRUKHOV, P.I., red.

[Georgievskaya Highway with track pavement made of reinforced concrete slabs in the Belozersk Logging Enterprise of Vologda Province] Georgievskaia avtomobil'naia doroga s koleinym pokrytiem iz zhelezobetonnykh plit v Belozerskom lespromkhoze Vologodskoi oblasti. Vologda. Severo-Zapadnoe knizhnoe izd-vo, 1964. 36 p. (MIRA 18:5)

1. Nauchno-tekhnicheskoye obshchestvo lesnoy promyshlennosti i lesnogo khozyaystva. Vologodskoye oblastnoye pravleniye.
2. Belozerskoye lesopromyshlennoye khozyaystvo (fo. P[redacted], Pontyar, Petrukhov)

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GOL'DFARB, Ya.L.; LITVINOV, V.P.; PETRUKHOV, V.A.; YAKOVLEV, I.P.

Thiophthene series. Report No.4: Quantitative composition of the product obtained by the cyclization of 5-ethyl-2-acetonylmercaptothiophene in the presence of aluminum chloride. Izv. AN SSSR. Ser.khim. no.9:1627-1631 S '63. (MIRA 16:9)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Thienothiophene) (Thiophene) (Cyclization)

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BERBEKOV, Temirkan Mutovich; YASHVILI, N.S., prof., zasl. deyatel' nauki Gruzinskoy SSR, doktor sel'khoz. nauk, red.; PETRUKHOVA, I.T., red.; BARGI, T.M., tekhn. red.

[Basic problems of the development of productive stockbreeding on collective farms in the Kabardino-Balkar A.S.S.R.] Osnovnye problemy razvitiia produktivnogo zhivotnovodstva v kolkhozakh Kabardino-Balkarii. Pod obshchei red. N.S.IAshvili. Nal'chik, Kabardino-Balkarskoe knizhnoe izd-vo, 1961. 183 p. (MIRA 15:2)

(Kabardino-Balkar A.S.S.R.--Stocks and stockbreeding)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

BALKAROV, M.I.; TUAYEV, N.A ; PETRUKHOVA, I.T., red.; TKHAKAKHOV, B.Zh., tekhn. red.

[Mineral waters of the Elbrus region] Narzany El'brusa. Nal'chik, Kabardino-Balkarskoe knizhnoe izd-vo, 1960. 98 p. (MIRA 14:8)
(Elbrus region—Mineral waters)

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DUNAYTSEV, A.F.; PETRUKIN, V.I.; PROKOSHKIN, Yu.D.; RYKALIN, V.I.; SAFANTSEVA, V.R., tekhn. red.

[Probability of the decays $\pi^+ \to \pi^0 + e^+ + \nu$ and $\pi^+ \to \gamma + e^+ + \nu$] O veroiatnosti raspadov $\pi^+ \to \pi^0 + e^+ + \nu$ i $\pi^+ \to \gamma + e^+ + \nu$. Dubna, Ob"edinennyi in-t iadernykh issl., 1962. 6 p. (MIRA 15:4)

(Mesons--Decay)

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KUPCHINOV, Ivan Iosifovich, dotsent; LEBEDEV, Sergey Malakhovich; PROTSKO, Dmitriy Vasil'yevich, starshiy prepodavatel'; PETRUKOVICH, Aleksey Alekseyevich, zasluzhennyy deyatel' nauki i tekhniki UzSSR; ZUBRITSKIY, I.V., prof., retsenzent; CHERNYSHEV, M.A., retsenzent; BIRYUKOV, N.N., dotsent, retsenzent; SOLOMONOV, A.A., dotsent, retsenzent

[Geodesy; textbook for students at higher railroad transportation schools] Geodeziia; uchebnoe posobie dlia studentov vuzov zheleznodorozhnogo transporta. Pod obshchei red. A.A.Petrukovicha. Moskva, Vses.zaochnyi in-t inzhenerov zhel.-dor.transp., 1959. 365 p. (MIRA 14:1)

1. Zaveduyushchiy kafedroy geodezii Belorusskogo instituta inzhenerov zheleznodorozhnogo transporta (for Lebedev). 2. Zaveduyushchiy kafedroy "Put' i putevoye khozyaystvo" Belorusskogo instituta inzhenerov zheleznodorozhnogo transporta (for Petrukovich). 3. Zaveduyushchiy kafedroy "Put' i putevoye khozyaystvo" Vsesoyuznogo zaochnogo instituta inzhenerov zheleznodorozhnogo transporta (for Chernyshev).

(Surveying)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

PETRUKOVICH, A.A., kand. tekhn. nauk (Gomel'); SMYKOV, Ye.K., kand. tekhn. nauk (Gomel'); LIZOGUB, I.G., inzh. (Gomel').

Mechanized exchange of switches. Put' i put. khoz. 8 no.11: 13 '64 (MIRA 18:2)

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[illegible] (Gomel)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

PETRUKOVICH, A.A., dots.; RYABCHENKO, V.S., dots. (Gomel')

Stability of a track with reinforced concrete ties. Put' i put.khoz. no.10:15 O '59. (MIRA 13:2)

(Railroads--Ties, Concrete)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

LEBEDEV, Mikhail Nikolayevich, prof.; SHADRIN, Nikolay Aleksandrovich, prof.; KRYUKOV, Georgiy Nikolayevich, dotsent; MOLLOT, Aleksandr Georgiyevich, dotsent; PETRUKOVICH, A.A., inzh.; PAL'CHUN, P.S., inzh., retsenzent; SOKOLOV, F.G., inzh., retsenzent; EYGEL', I.Yu., inzh., red.; BOBROVA, Ye.N., tekhn. red.

[Railroad surveying and construction] Izyskaniia i postroika zheleznykh dorog. By M.N.Lebedev i dr. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia. Pt.2. [Railroad construction] Postroika zheleznykh dorog. 1961. 319 p. (MIRA 14:8)
(Railroads--Construction)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

ZAKHAROV, A.G., kand. ekon. nauk (Sverdlovsk); PETRUKHNOVSKIY, I.V. (Sverdlovsk); ROZENTSVAYG, A.I. (Kiyev)

Improvement of business accounting and distribution of profits among railroads. Zhel. dor. transp. 41 no.4:40-44 Ap '59. (MIRA 12:6)

1.Nachal'nik finansovoy sluzhby Sverdlovskoy dorogi (for Petrukhnovskiy). 2.Nachal'nik otdela dokhodov finansovoy sluzhby Yugo-Zapadnoy dorogi (for Rozentsvayg).
(Railroads--Accounts, bookkeeping, etc.)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

MILLER, E.E.; BYALKOVSKAYA, V.S., kand. ekon. nauk, retsenzent; PETRUKOVICH, V.G., inzh., red.

[Economics, organization and design of forge shops in macinery plants] Ekonomika, organizatsiia i proektirovanie kuznechnykh tsekhov mashinostroitel'nykh predpriiatii. Moskva, Mashinostroenie, 1964. 255 p. (MIRA 17:11)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

RESHETNIKOV, N.S., dotsent; GRUZINOV, A.V., inzh.; KHAZOV, I.I., inzh.; PETRULEVICH, N.A., tekhnik; MERZHANOVA, O.M., red.izd-va; PARAKHINA, N.L., tekhn.red.

[Album of drawings of parts with repair dimensions and additional parts (pieces) for the MAZ-200/501 motortrucks] Al'bom chertezhei detalei remontnykh razmerov i dopolnitel'nykh detalei (nasadkov) avtomobilia MAZ-200/501. Moskva, Goslesbumizdat. (Tipovaia tekhnologiia remonta lesozagotovitel'nykh mashin i mekhanizmov). Pt.2. (Detali shassi avtomobilia MAZ-200. 1960. 130 p. (MIRA 13:11)

1. Moscow. TSentral'nyy nauchno-issledovatel'skiy institut mekhanizatsii i energetiki lesnoy promyshlennosti. 2. Nachal'nik laboratorii tipovoy tekhnologii remonta mashin i organizatsii remontnykh predpriyatiy TSentral'nogo nauchno-issledovatel'skogo instituta mekhanizatsii i energetiki lesnoy promyshlennosti (for Reshetnikov).
(Motortrucks--Maintenance and repair)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

PETRUKHINA, M.T., mladshiy nauchnyy sotrudnik

Foliar feeding and mildew in grapes. Zashch. rast. ot vred. i bol. 3 no.4:26-27 Jl-Ag '58. (MIRA 11:9)
(Grapes--Diseases and pests) (Mildew)
(Fertilizers and manures)

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PETROKAINA, V.K.

Calcium and phosphorus content of corn. Veterinariia 34 [illegible] S '57. (MIRA [illegible])

1. Kazanskiy veterinarnyy institut.
(Corn (Maize)) (Calcium) (Phosphorus)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

1. [illegible]SCHUK, N. N., Prof.; [illegible], N. K.

2. USSR (600)

4. Skin Grafting

7. Vascular reflexes in Filatov skin flaps under the effects of temperatures. Vest. khir. 73, No. 1, 1953.

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

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PETRUKOVICH, A.A., kand.tekhn.nauk (Gomel'); TARTAKOVSKIY, K.N., kand.-tekhn.nauk (Gomel'); SMYKOV, Ye.K., kand.tekhn.nauk (Gomel'); LIPSKIY, M.V., dotsent (Gomel'); LIZOGUB, I.S., starshiy prepodavatel' (Gomel'); GANKEVICH, V.I. (Gomel'); PETROV, A.G. (Gomel'); ZNAMENSKIY, P.I. (Gomel')

"The railroad track" by G.M.Shakhuniants. Reviewed by A.A. Petrukovich and others. Zhel.dor.transp. 44 no.4:65-[illegible] Ap '62. (MIRA 15:4)

1. Zamestitel' nachal'nika Belorusskoy dorogi (for Gankevich).
2. Nachal'nik sluzhby puti Belorusskoy dorogi (for Petrov).
3. Glavnyy inzh. sluzhby puti Belorusskoy dorogi (for Znamenskiy)

(Railroads--Track)
(Shakhuniants, G. M.)

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PETRUKOVICH, S.U.

Discussions on the role of silicate bacteria. Zashch. rast. ot vred. i bol. 3 no.5:27-29 S-O '58. (MIRA 11:10)

1. Zaveduyushchiy Man'kovskim entomo-fitopatologicheskim sortouchastkom.

(Bacteria, Silicate)

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PET[illegible], S. [illegible].

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SO

So: [illegible] - [illegible]-[illegible], [illegible] [illegible]

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PETRUKOVICH, S. V.

Petrukovich, S. V. "Pseudo-rosette (Zakuklivanie) of Oats," in Virus Diseases of Plants and Measures for Their Control, Works of the Conference on Virus Disease of Plants [illegible], Publishing House of the Academy of Science [illegible], Moscow, 1[illegible], pp. [illegible]

So: SIRA,- Si- [illegible]-53, 1[illegible] Dec 1[illegible]

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BURYAKOV, V.S., technik; PETRUKOVICH, V.D., inzh.; KIRNOV, Ye.S., inzh.; METEL'NIKOV, V.I., inzh.; KUDRYASHOV, S.A., inzh.

Concerning V.V.Vasil'ev's article "Should equipment be grounded or reliably insulated?". Energetik 10 no.12:15-17 D '62. (MIRA 16:1)

(Electric lines--Overhead)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

PETRULENKO, A.F.

AUTHOR: Petrulenko, A.F., Technician

TITLE: Exchange of Experience (Obmen opytom). Devices Preventing the Manual Release of the Electromagnetic Lock on Disconnectors (Ustroystva, prepyatstvuyushchiye ruchnoy deblokirovke elektromagnitnykh zamkov privodov raz"yedin...

PERIODICAL: Energetik, 1958, Nr 7, pp 30-31(USSR).

ABSTRACT: Some types of switch-and-lock movements of disconnectors permit a manual release of the electromagnetic lock without its being unsealed. The author describes a device suggested by him, preventing this manual release. There are 2 diagrams.

1. Disconnect Fittings--Design

Card 1/1

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240620012-3

PETRULENKO, A.F.

Automatic start of transformer cooling fans. Energetik 11 no.1:23 Ja '63. (MIRA 16:1)
(Electric transformers--Cooling)

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