

USSR

UDC 669.183.218.5

TRUVETSKOV, K. M., TARASOV, V. M., KONOVALOV, I. M., MOKRUSHIN, K. D., TAT'YANSHCHIKOV, A. G., and YAKUSHIN, V. I.

"Operation of a Dual Bath Steel Melting Furnace at the Cherepovetsk Metallurgical Plant"

Proisvodstvo Chernykh Metallov (Production of Ferrous Metals - Collection of Works), No 75 Metallurgiya Press 1970, pp 56-68

Translation: The operating indicators of a dual bath steel-making furnace for 1968 are analyzed. The productivity of the dual bath furnace was 1.024 million tons. The technology of melting of steel in the dual bath furnace has a number of specifics in the mode of carbon oxidation, steel heating, and desulfuration and dephosphoration of the metal. Over 60% high-quality structural steel is produced by the furnace. The quality of the metal is equal to that of open-hearth steel. 8 figures; 3 tables; 5 biblio. refs.

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- 25

Steels

USSR

UDC 669.187.2

KONOVALOV, K. N., DUBROVIN, A. K., ROSTOVITSEV, A. N., MISELEV, I. A., and PASHCHENKO, V. YE., Kuznets Metallurgical Combine and Novokusnets State Pedagogical Institute

"Melting Stainless Steel (0)Kh18N10T With Additions of Boron and Silicocalcium"

Moscow, Stal', No 11, Nov 73, pp 1000-1011

Abstract: In the melting of Okh18N10T and Kh18N10T steels, the addition of silicocalcium (1 kg/t) and microquantities of ferroboral (0.2 kg/t) significantly improves the steel ductility at 1000-1050° C. Owing to improvement of the surface quality of slabs and sheet, it was possible to reduce nickel consumption by 2 kg/t and metal losses from the slab surface by 9 kg/t. Results are presented from laboratory sampling of different additions of boron (0.002-0.007% calculated) in 32-kg melts in an induction furnace. Results are also presented for a large number of heats in 40-ton electric furnaces at the Kuznets Metallurgical Combine. One figure, two tables, five bibliographic references.

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USSR

UDC: 669.187.2

KRASNORYADTSEV, N. N., LEVIN, A. M., GLAZOV, A. N., PASHCHENKO, V. Ye.,  
KONVALOV, K. N., VERSHININ, V. I.

"Decreasing the Loss of Titanium During Production of Stainless Steel"

Moscow, Metallurg, No 10, Oct 73, pp 18-19.

Abstract: Balance melts performed in a 40 ton arc furnace at the Kuznetsk Metallurgical Combine have shown that when type Kh18N10T stainless steel is produced by the ordinary technology (using up to 70% of waste of this type of steel in the charge, blowing of oxygen through the bath, running off of slag at the end of the melt and introduction of new lime and spar, alloying with 30% ferrotitanium in the furnace), the titanium losses are approximately as follows: 56% by interaction with oxides, 15% with oxygen and nitrogen in the metal, 27% with oxygen in the air, other losses 4.0%. Replacement of 30% ferrotitanium with 65% and alloying the metal in the ladle rather than in the furnace reduced the mean titanium loss from 57.0 to 52.9%. Several series of experimental melts were performed to find additional means of reducing and stabilizing titanium loss, without success. Success was finally achieved by modifying the technology quite basically. The primary features of the new technology are that the slag is not run

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USSR

Krasnoryadtsev, N. N., Levin, A. M., Glazov, A. N., Pashchenko, V. Ye.,  
Konovalov, K. N., Vershinin, V. I., Moscow, Metallurgy, No 10, Oct 73, pp  
18-19.

off from the furnace after melting of the ferrochromium, but rather poured into the ladle with the metal at a high temperature (averaging about 1640° C), reducing the length of the reduction period and increasing the degree of reduction of chromium from the slag. The metal is poured from the first ladle into a second ladle through a tap hole 100-110 mm in diameter, and alloyed with 65% ferrotitanium in the second ladle, preventing contact between titanium and slag. Titanium loss was further reduced from 52 to 40.9% by the new technology, and the stability of the titanium content was increased.

2/2

Acc. Nr: **AP0055923** Abstracting Service:  
CHEMICAL ABST. 6-70

Ref. Code:

**UR 0028**

✓ 116345g Infrared spectra of complexes of methylamine and ethylamine with cupric chloride. ~~Konovalex, L. V.; Maslennikova, I. S.; Shemyakin, V. N. (USSR). Zh. Neorg. Khim. 1970, 15(2), 571-2 (Russ). The ir absorption max. of N-H shifted to lower frequencies on coordination of MeNH<sub>2</sub> or EtNH<sub>2</sub> to CuCl<sub>2</sub>. CuCl<sub>2</sub>·2MeNH<sub>2</sub>·2HCl and CuCl<sub>2</sub>·2EtNH<sub>2</sub>·2HCl (I) had  $\nu(\text{Cu-N})$  at 580 cm<sup>-1</sup> and  $\nu(\text{Cu-Cl})$  at 312 and 294 cm<sup>-1</sup>, resp. When I was prepd. in alc. instead in aq.-alc. soln., a strong new (not yet assigned) band appeared at 226 cm<sup>-1</sup>. HMJR~~

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USSR

UDC: 537.312.62

ENMAN, V. K., KRAINSKIY, I. S., BARANOV, I. A., KONOVALOV, N. T.

Production and Investigation of Tape with Nb<sub>3</sub>Sn Coating"

Moscow, Sverkhprovodyashchiye splayy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 60-63 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D548 [résumé])

Translation: An installation is developed for continuous heat treatment of niobium tape in a tin bath. On this installation a study was made of the influence of temperature and rate of the process on the critical parameters of the tape. It is concluded that it is advisable to use additional heat treatment of tape having a coating of Nb<sub>3</sub>Sn+Sn. Two illustrations, bibliography of four titles.

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without functional separating elements, this  
simplifies the switch manufacture. The plates (1)  
hold the springs in their working positions.  
1.4.66 as 1065107/26-9. KONOVANOV, N. J. (5.11.68)  
Bul 24/2.8.68. Class: 21a, Int. Cl. 31h.

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1937

0868

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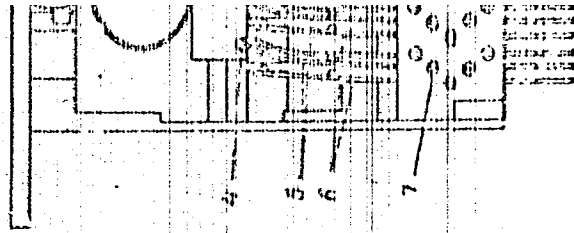
AA9028583

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 37

223161 CHANCELOVER BUITON COMPTON 1964 11





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1937

0869

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USSR

UDC: 537.312.62

BARANOV, I. A., KONOVALOV, N. T., KUNAKOV, Ya. N., KAMSKIY, L. Z."Development of Nb<sub>3</sub>Sn Superconducting Material for Solenoids"

V sb. Probl. sverkhovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 120-123 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D547)

Translation: It is known that three intermediate compounds -- Nb<sub>3</sub>Sn, Nb<sub>6</sub>Sn<sub>5</sub> and NbSn<sub>2</sub> -- are formed in Nb-Sn diffusion layers, and the regions and temperatures of phase existence have also been determined. These data were used in developing the technology of Nb<sub>3</sub>Sn superconducting wire. Nb<sub>3</sub>Sn superconductor was developed and produced in the form of microcable with copper coating and heat-resistant enamel. The tinning technique is worked out; the amount of tin deposited on the cable may be regulated up to 30 percent by weight. The critical temperature and critical current are measured in multiplier cable heat-treated at 960±10°C. One illustration, one table, bibliography of ten titles.

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APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R001401430002-6"

AA9028583

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USSR

UDC 669.293.6.018.5.537.312.62

BARANOV, I. A., KONOVALOV, N. T., KUNAKOV, Ya. N., KAMSKIY, L. Z.

"Development of Superconducting Material of Nb<sub>3</sub>Sn for Solenoids"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 120-123. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 1778 by the authors).

Translation: A superconductor of Nb<sub>3</sub>Sn is developed and manufactured in the form of microcable with Cu coating and heat-resistant enamel. A technology of tinning is developed; the quantity of Sn precipitated on the cable can be adjusted up to 30%. Measurements of the critical temperature and critical current in specimens of multiple-core cable heat-treated at 960±10°C are performed. 1 fig; 1 table; 10 biblio refs.

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USSR

UDC 539.29:669.293:669.6

BARANOV, I. A., KONOVALOV, N. T., KUNAKOV, Ya. N., and KAMSKIY, L. Z.

"Development of Superconducting Material of Nb<sub>3</sub>Sn for Solenoids"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 120-123

Translation: It is known that three intermediate compounds, Nb-Sn, Nb<sub>6</sub>Sn<sub>5</sub>, and NbSn<sub>2</sub>, are formed in diffusion layers of Nb-Sn; the areas and temperatures of existence of the phases have also been established. These data were used to develop the technology for a superconducting wire of Nb<sub>3</sub>Sn.

A superconductor of Nb<sub>3</sub>Sn has been developed and manufactured in the form of a microcable with a copper coating and heat resistant enamel.

A tinning technology is developed; the quantity of tin deposited on the cable can be regulated up to 30 wt.%. Measurements are performed of the critical temperature and critical current in specimens of multiple core cable heat treated at 960 ± 10°C.

1 figure; 1 table; 10 biblio. refs.

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1/2 035 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--PROTONS POLARIZATION ARISING DURING THE INTERACTION OF 650-840 MEV  
PHOTONS WITH LITHIUM-7 AND CARBON-12 -U-  
AUTHOR--(05)-TONAPETYAN, S.G., KONOVALOV, O.G., DEREBCHINSKIY, A.I.,  
ZYBALOV, A.A., KHVOROSTYAN, V.M.  
COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(3), 165-8

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--PROTON POLARIZATION, PHOTONUCLEAR REACTION, ELASTIC  
SCATTERING, GRAPHITE, LITHIUM ISOTOPE, CARBON ISOTOPE, GAMMA SPECTRUM,  
PHOTO EMF

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0242

STEP NO--UR/0386/70/011/003/0165/0168

CIRC ACCESSION NO--AP0105318

UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--16JCT70

CIRC ACCESSION NO--AP0105318

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLARIZATION, P, OF P WHICH ARE ELASTICALLY SCATTERED ON NUCLEI OF GRAPHITE ELECTRODES WAS CALCD. AT ENERGIES OF PHOTOCURRENTS OF 700-900 MEV, P POLARIZATION FOR NUCLEI OF PRIME7 LI AND PRIME12 C IS CLOSE TO ZERO. IN THE MESON II KINEMATIC REGION P CHANGES SHARPLY FROM MINUS 0.76 TO 0.48 AS THE PHOTON ENERGY INCREASED. FOR PHOTONS WITH ENERGIES 650, 715, AND 840 MEV, IN THE REACTION GAMMA PLUS N YIELDS N PRIME NEGATIVE PLUS P, P EQUALS MINUS 0.74, MINUS 0.16, AND 1.66, RESP. FACILITY: FIZ.-TEKH. INST., KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC 669.293.5.784.018.44.621.785

TIKHONOVA, G. S., MEL'NIKOVA, L. V., ZHELEZNYAK, O. N., KONOVALOV, S. V.

"Structure and Mechanical Properties of Alloys of Niobium With Carbon as Functions of Heat Treatment"

Nauchn. Tr. N-i. i Proyechn. In-t Redko met. Prom-sti [Scientific Works of Scientific Research and Planning Institute for the Rare Metals Industry], 1971, Vol. 32, pp. 50-56. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I737 by the authors).

Translation: The alloy 5VMTs with 0.05% C is heterogeneous in its structure. The mechanical properties of the sheet material at high temperatures depend on the phase composition, resulting from the heat treatment mode. 2 figs; 3 tables; 4 biblio refs.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--DETERMINATION OF SULFURIC ACID CONCENTRATION -U-

AUTHOR--(04)-KONVALOV, V.A., LOLENKO, I.Z., MITROFANOV, YU.A., KHLYNIN,  
V.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,544

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, SULFURIC ACID, ELECTRICAL CONDUCTIVITY,  
MEASUREMENT, IONIZATION CONSTANT, AQUEOUS SOLUTION, SULFATE, SODIUM  
COMPOUND, ZINC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3004/0834

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0131427

UNCLASSIFIED



2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0131427

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. H SUB2 SO SUB4 CONCN. IS DETD. IN  
A TERNARY SOLN. BY MEASURING THE ELEC. COND. OF THE SOLN. TO REMOVE THE  
EFFECT ON THE MEASUREMENT OF 7-10PERCENT ZNSO SUB4 AND NA SUB2 SO SUB4  
CONTAINED IN H SUB2 SO SUB4, THE ELEC. COND. FOR A SOLN. DILD. IN A  
1:(1-1.2) RATIO. FACILITY: RYAZAN RADIOTECHNICAL INSTITUTE.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--AUTOMATIC CONTROL AND REGULATION OF THE CONCENTRATION OF SULFURIC  
ACID AND ZINC SULFATE IN PRECIPITATING AND PLASTICIZING BATHS -U-  
AUTHOR--(03)-MITROFANOV, YU.A., LOLENKO, I.Z., KONVALOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VOLOKNA 1970, (3), 53-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AUTOMATIC CHEMICAL PROCESS CONTROL, SULFURIC ACID, RAYON, ZINC  
COMPOUND, SULFATE, ELECTRIC CONDUCTIVITY, TEXTILE ENGINEERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/C09 STEP NO--UR/0183/70/000/003/0053/0054

CIRC ACCESSION NO--AP0140275

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140275

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELEC. COND. OF THE COAGULATING AND PLASTICIZING BATHS, USED IN THE MANUF. OF RAYON FIBERS, DEPENDS PREDOMINANTLY ON THE CONCEN. OF H SUB2 SO SUB4; THE CHANGES OF ZNSO SUB4 AND NA SUB2 SO SUB4 CONCNS. HAVE NEGLIGIBLE EFFECTS. AN AUTOMATIC RECORDING CONTROLLING DEVICE IS DESCRIBED WHICH CONTINUALLY DETS. THE COND., H SUB2 SO SUB4 CONCEN., AND ADJUSTS ITS FEED IN THE 0-50 G PER 1. RANGE WITH PLUS OR MINUS 1.2 G PER 1. ACCURACY. THE CONCEN. OF ZNSO SUB4 IS DETD. PERIODICALLY BY COLORIMETRY WITH TRILON B, CHROME DARK BLUE DYE, AND A BUFFER MIXT. FACILITY: BALAKOVSKII KOMB., USSR.

UNCLASSIFIED

USSR

UDC 612.821.2

KONOVALOV, V. F., Department of Memory Problems, Institute of Biophysics,  
Academy of Sciences USSR, Pushchino-na-Oke

"Formation and Retrieval of Stimulus Traces in the Consciousness of Subjects  
With Healthy and Disturbed Memory"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, No 2,  
Mar/Apr 73, pp 384-391

Abstract: Tests were performed on young healthy subjects and elderly patients with cerebral atherosclerosis on whom EEG, EKG, EMG, SGR, and a mechanogram were recorded. In each test, the subject was to open his eyes to 3-second light stimuli delivered at 15-second intervals, and close them in darkness. After formation of traces, the subject was to turn the light on at the same intervals and simultaneously state "light." The findings indicate that the intensity, steadiness, and mobility of nervous processes determine the formation and retention of the trace of an indifferent stimulus. Predominance of excitatory over inhibitory processes promotes an earlier formation of the trace, while inertia protracts the consolidation time. The established traces affect conscious acts. Individuals with numerous reactions preceding delivery of successive stimuli underestimate the assigned interval more frequently. In all  
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KONOVALOV, V. F., Zhurnal Vyshey Nervnoy Deyatel'nosti imeni I. P. Pavlov,  
Vol 23, No 2, Mar/Apr 73, pp 384-391

probability, formation and retrieval of unconscious and conscious traces is  
based on cyclically functioning two-way connections that are being established  
between the traces of indifferent stimuli and the traces of volitional acts.

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USSR

UDC 612.821.6.001.5

VORONIN, L. G., Corresponding Member of the Academy of Sciences USSR, KONOVALOV, V. E., SERINA, R. YA., and SERIKOV, I. S., Institute of Biological Physics, Academy of Sciences USSR, Pushchino-na-Ok- River

"Correlation Between Electrographic Signs of Cerebral Processes and Short-Term Memory"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 1, 1971, pp 253-256

Abstract: The investigation was performed on 70 healthy children and adults aged 5-36 and 46 patients (cerebroscerosis or alcoholism) whose bioelectrical currents were recorded (visual and motor cortex EEG, skin resistance, ECG, and EMG) while they were being exposed to auditory and visual stimuli and, the same time, the duration and the volume of their short-term memory was being determined by the answers they supplied to questions (asked at progressively longer intervals) as to what they had seen or heard, how much of it, and in what sequence. The period during which the initial signs of cerebral excitation caused by the emotionally indifferent stimuli persisted in the skin-resistance records was longer in children and patients than it was in healthy adults. The volume of short-term memory, on the other hand, was greatest in healthy adults. Thus, there is a reciprocal correlation between the persistence of 1/2

USSR

VORONIN, L. G., et al., Doklady Akademii Nauk SSSR, Vol 201, No 1, 1971,  
pp 253-256

the initial signs and the short-term memory volume. In small children, the power, flexibility, and balance of cerebral activity are not yet fully developed, while in patients with brain damage they are deteriorated; as a result, the initial signs are quenched with a delay. In healthy adults, the well-established cerebral activity as well as the properly functioning second signal system into which the information is transferred are responsible for both the quick quenching of the initial signs and short-term memory of greater capacity.

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USSR

UDC 539.4

PANIELEYEV, A. K., RZHAVIN, L. N., GL SHECHENKO, N. I., KONOVALOV, V. I., and TRIPOL'SKIY, S. S. (Zaporoz'ye)

"Investigation of Combined Vibrations of the Disk-Blade System of the Impeller of a Turboprop-Engine Turbine"

Kiev, Problemy Prochnosti, No 11, Nov 73, pp 78-81

Abstract: In order to study the nature and modes of the vibrations of a turbo-prop-engine turbine, as well as the distribution of the stresses, a tensometric investigation was conducted of the entire set of the 82 blades and the disk of the turbine impeller. Results of the conducted tests show that the cause of the high stresses occurring in the blades is to be found in the critical impeller rotation rates, at which combined vibrations of the disk-blade system occur in accordance with a mode with five node diameters. Frequency adjustment of the disk-blade system was conducted via variation of the system components. A correlation was established between the critical rotation rates and the average frequency during the axial mode of vibrations of the blade set. On the basis of this correlation, control over the average vibration frequency of the blade set during the axial vibration mode has been introduced into the process of blade production. 5 figures.

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USSR

UDC 669.295-492.8

VOROB'YEV, B. YA., OLESOV, YU. G., USTINOV, V. S., PETRUNIKO,  
A. N., KONOVALOV, V. K., and ZAPADNYA, V. I.

"Assembly-Line Manufacture of Construction Parts From Titanium  
Powder by the Metal-Ceramic Process"

Moscow, Tsvetnyye Metally, No 7, Jul 70, pp 65-66

Abstract: The titanium powder discussed in this article is made from reworking the wastes formed in the production of parts and semi-finished titanium materials by an electrolytic refining process. The article describes the metal-ceramic method by which the powder is first pressed into bricks and baked in a vacuum at 1100° C. The materials for the finished parts is then pressed on P-472, P-474, and D-2334 hydraulic equipment with a force of 100-250 tons, used normally for the production of plastic parts. The process for producing the finished parts is described and the hourly rates for making disks, rings, and flanges 57 mm in diameter and 12-15 mm high, are specified. The article is illustrated with a cross-sectional sketch of the modernized EVT-15 vacuum oven in which the parts are baked before finishing. Dimensions of the oven are given in this sketch,  
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VOROB'YEV, B. YA., et al., Tsvetnyye Metally, No 7, Jul 70,  
pp 65-66

and the various parts identified. A photograph of some of the  
parts manufactured by the metal-ceramic process is also shown.

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UDC 612.821.2

USSR

VORONIN, L. G., KONVALOV, V. F., and SERIKOV, I. S., Institute of Biophysics  
Academy of Sciences USSR, Pushchino-on-Oka

"Role of Reinforcement in the Formation and Short-Term Retention of Trace  
Processes in Man"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti, No 5, 1971, pp 891-897

Abstract: The dynamics of the formation and retention of traces of indifferent stimuli with changes in the parameters of reinforcement was studied in 36 subjects age 14 to 24. The conditioned stimuli were sound or a contact stimulator and reinforcement was light lasting 0.5, 3, or 6 sec. In 3 series of experiments the subjects kept their eyes open while the light was on; in the 4th series, the subjects kept their eyes closed while the light was on for 3 sec. The conditioned and unconditioned responses were manifested by the galvanic skin reflex. In the first 3 series, the immediate and trace processes were most stable when reinforcement lasted 0.5 or 6 sec. The trace was reproduced for 100 to 120 sec and in some cases for 140 to 160 sec. However, it was reproduced for a much shorter period an average of 73 sec, after reinforcement lasting 3 sec. When the subjects kept their eyes closed, the galvanic skin reflex was quickly extinguished and drowsiness set in. Judging by the dynamics of the alpha and rolandic rhythms in the visual and rolandic areas, reproduction of the trace on the EEG lasted 18 to 36 sec, sometimes as long as 56 sec.

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USSR

UDC 612.821.6.001.5

VORONIN, L. G., and ~~KONOVALOV, V. E.~~, Institute of Biological Physics, Pushchino-na-Oky, corresponding member of the Academy of Sciences USSR

"New Data on the Interrelation Between Electrographic Present and Trace Processes and Short-Term Memory"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 2, 1071, pp 503-506

Abstract: In other articles the authors have demonstrated the existence of an inverse relationship between electrographic trace phenomena and short-term memory, and have described the formative dynamics of present and trace reactions to simple stimuli. This article proposes to show the process of forming present and trace reactions to composite stimuli and to compare this process with the dynamics of analogous reactions elicited by single agents. The composite stimulus consisted of tactile, auditory, and proprioceptive components, with a visual reinforcing signal employed in the present reaction test. Short-term memory capacity of the subjects was gauged by the length of a correctly remembered sequence of numbers. Electrical activity in the visual and rolandic cortical regions and Tarkhanov-type cutaneous galvanic reactions (CGR) were both recorded, but for this study only the CGR dynamics were analyzed as accurately reflecting the experimental effects on the subject. The first application of the composite stimulus evoked a long (up to 35 sec.), multiwave CGR with a latent period of 1.3-1.8 sec. Further stimulation led to extinction

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VORONIN, L. G., and KONOVALOV, V. F., Doklady Akademii Nauk SSSR, Vol 201, No 2, 1971, pp 503-506

of the CGR. Extinction began on the third, then on the second component of the compound stimulus. Presentation of the reinforcing stimulus was observed to revive the CGR, but only temporarily. The most stable present and trace reactions appeared primarily in those instances when more complex stimuli were operating, and secondly when compound stimuli were separated by some time interval. Short-term memory capacity was tested with 1-, 2-, and 3-digit numbers; the capacity was less as the numbers became more complex. Comparative results between short-term memory capacity and stability of present and trace electrographic reactions confirmed an inverse relationship. However, electrographic changes in the aspect of the CGR dynamics reflect formation and reproduction of traces only on the level of short-term memory. Transferring stimuli traces to the sphere of long-term retention is accompanied by extinction of electrographic reactions.

2/2

USSR

UDC 621.833.81

VORONIN, L. G., and KONOVALOV, V. F., Chair of Physiology of Higher Nervous Activity, Moscow State University imeni M. V. Lomonosov, and Division of Memory Problems, Institute of Biophysics, Academy of Sciences USSR, Pushchino-na-Oke

"Physiological Analysis of the Interaction Between Conscious and Unconscious Trace Processes During a Time Count"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlova, Vol 20, No 5, Sep/Oct 70, pp 899-907

Abstract: The interaction of conscious and unconscious trace processes resulting from the pairing of acoustic, tactile, and proprioceptive stimuli with a light stimulus was studied by means of polygraphic records (EEG, SGR, oculomotor reactions). The light was switched on for 3 seconds every 6, 9, 15, and 30 seconds after the end of a conditioning stimulus lasting from 0.5-0.8 to 3 secs. It was found that a passive attitude on the part of the subjects toward the experiment caused formation of traces primarily at the level of the first signal system. Trace processes are therefore realized with difficulty or remain unconscious. Interaction between  
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VORONIN, L. G., and KONOVALOV, V. F., Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlova, Vol 20, No 5, Sep/Oct 70, pp 899-907

conscious and unconscious processes and their transition from one into the other are principally achieved with the subject's attitude to the experiment becomes active. The trace processes formed in the brain may be reproduced, based on the mechanism of a "biological clock" which may function at the level of both the first and second signal systems. When the subjects were passive or became drowsy, their biological clock functioned only at the level of the first signal system. Time perception is possible only with active analysis of the experimental scheme by the subjects and is based on the interaction of trace processes in the sphere of both signal systems.

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1/3 Q25 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ELECTROPHYSIOLOGICAL DATA ON INTERACTION OF APPRECIATED AND  
UNAPPRECIATED TRACE PROCESSES IN MAN IN ONTOGENESIS -U-  
AUTHOR--(04)-VORONIN, L.G., KONOVALOV, V.F., GROMYKO, M.M., SERIKOV, I.S.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL VYSSHEY NERVNOY DEYATEL'NOSTI, 1970, VOL 20, NR 2, PP  
431-440  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ELECTROPHYSIOLOGY, EEG, MEMORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3005/0352

STEP NO--UR/0247/70/020/002/0431/0440

CIRC ACCESSION NO--AP0132585

UNCLASSIFIED



2/3 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132585

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE DYNAMICS OF FORMATION AND INTERACTION OF TRACE PROCESSES IN CHILDREN AGED FROM FOUR TO SIXTEEN YEARS. IN THE FIRST SERIES OF EXPERIMENTS THE SUBJECT WAS INSTRUCTED TO OPEN HIS EYES AND PRESS THE BUTTON ONLY WHEN THE LIGHT WAS TURNED ON; IN THE SECOND SERIES, HE WAS TO REPRODUCE THE OPERATION AT THE MOMENT WHEN THE LIGHT WAS DUE TO BE SWITCHED ON; IN THE THIRD SERIES, HE WAS TO ACT BEFORE THE SWITCHING ON OF THE LIGHT. FORMATION OF TRACE REACTIONS WAS ACHIEVED WITHOUT DIFFICULTY IN THE SUBJECTS OF ALL AGE GROUPS. EEG REACTIONS, SGR, OCULO MOTOR AND MOTOR REACTIONS APPEARED BEFORE THE LIGHT WAS TURNED ON ALREADY IN THE FIRST EXPERIMENT. BY THE SECOND TO THIRD EXPERIMENT, THEY WERE STABILIZED AND COULD APPEAR IN 80-90PERCENT OF THE TRIALS. WHEN A CONSCIOUS EVALUATIONS OF THE TRACE PAUSE WAS DUE (SECOND SERIES OF EXPERIMENTS) THE MOMENT OF THE APPEARANCE OF THE LIGHT WAS UNDERESTIMATED IN MOST OF THE CASES. IN THE THIRD SERIES OF EXPERIMENTS, WHEN THE SUBJECTS WERE TRYING TO ACT BEFORE THE LIGHT WAS SWITCHED ON, UNDERESTIMATION OF THE TIME WAS RECORDER ONLY IN CHILDREN OF FOUR TO EIGHT YEARS OLD. THE 14 TO 16 YEAR OLD SUBJECTS EXACTLY EVALUATED THE INTERVAL BY COUNTING. HOWEVER, IN SPITE OF THESE UNDER AND OVER ESTIMATES, THE EEG RESPONSES SGR AND OTHER REACTIONS APPEARED AT THE POINT OF THE ACTION OF THE SIGNAL (WHEN IT WAS COMMITTED) OR BEFORE ITS SWITCHING ON. A CONCLUSION IS DRAWN THAT TRACE PROCESSES IN FOUR TO EIGHT YEAR OLD CHILDREN ARE FORMED MAINLY AT THE LEVEL OF THE FIRST SIGNAL SYSTEM, AND IN 14 TO 16 YEAR OLD SUBJECTS, AT THE LEVEL OF BOTH SIGNAL SYSTEMS.

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UNCLASSIFIED

PROCESSING DATE--20NOV70

GIRC' ACCESSIGN NO--AP0132585

ABSTRACT/EXTRACT--FACILITY: DEPARTMENT OF MEMORY PROBLEMS, INSTITUTE OF  
BIOPHYSICS, USSR ACADEMY OF SCIENCES, PUSCHINJ-ON-OKA.

UNCLASSIFIED

USSR

UDC 533.92:621.039.61

KONOVALOV, V. G.; MARTININ, V. G., OSIPOV, V. A.

"Study of the Characteristics of a Beam-Plasma Discharge With an Anticathode"

Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb.  
(Plasma Physics and Problems of the Controlled Thermonuclear Fusion. Republic Interdepartmental Collection), 1972, No. 3, pp 23-30 (from RZh-Fizika, No 11, Nov 72, Abstract No 11G282)

Translation: A beam-plasma discharge with an anticathode in a magnetic trap with mirrors is investigated. The discharge occurs in a mode with a developed high-frequency beam-centrifugal instability. It is shown that the frequency characteristics of the oscillations that were measured experimentally coincide with the theoretical characteristics. A nonlinear interaction between the longitudinal electron waves and waves of the high-frequency beam-centrifugal instability is observed. The plasma-beam system occurring in this mode is characterized by heating of the ion component of the plasma. Heating of the ion component was recorded with three different analyzers. It was shown that the most probable value of ion energy was 1-1.8 keV in the range of discharge currents and magnetic fields studied.

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USSR

UDC 621.385.63

BONDARENKO, B. N., SHUL'GA, V. G., KONOVALOV, V. I., MILYUTIN, S. I.

"Experimental Study of a Model of a Two-Beam Traveling Wave Tube (EVLBV)"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1033-1036

Abstract: An experimental study was made of a model of the EVLBV two-beam traveling wave tube, and the results are compared with the theoretical calculations. In the nonlinear mode the velocity difference has the defining effect for achieving high efficiency of the two-beam traveling wave tube and it has optimal significance. The two-beam traveling wave tube is an efficient centimeter-band electronic device capable of insuring a high amplification factor of 40 decibels with a sufficiently high value of the electron economy 20%. The achieved electron economy is not the design limit. Increasing the space-charge parameter and the input signal level offers further possibilities for increasing the defined efficiency. The developed electron-optical system insures sufficiently good mixing of the beams for the occurrence of effective electron wave interaction. The two-beam traveling wave tube has good possibilities for wide band amplification of the input signals, and by selecting special operating conditions it is possible to reach an amplified frequency

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USSR

BONDARENKO, B. N., et al., Izvestiya vuzov SSR, Radioelektronika, Vol XV,  
No 8, 1972, pp 1033-1036

band of more than two octaves with an amplification nonuniformity no worse than 5 decibels. The experimental results agree well with the theoretical calculations, and the theoretical results can be recommended for use when developing efficient wide-band microwave amplifiers.

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USSR

UDC: 681.327.12

KONOVALOV, V. N., ZORICH, Ye. M., METELKIN, Ye. V., State Scientific  
Research Institute of Civil Aviation

"A Data Input Device"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 30, Oct 71, Author's Certificate No 317057, Division G, filed 8 Dec 69,  
published 7 Oct 71, pp 172-173

Translation: This Author's Certificate introduces a data input device  
which contains a control register connected to a tape-transport mechanism.  
This register is also connected through an AND circuit to a recording and  
reproducing module. The device also contains a mode-setting module, a  
delay module, and logic elements. As a distinguishing feature of the patent,  
the operational reliability of the device is improved by adding a beginning-  
-of-cycle circuit and an end-of-cycle circuit. The inputs of these cir-  
cuits are connected through the time delay module to the control register  
and the mode-setting module, which is connected through an AND circuit to  
the beginning-of-cycle and end-of-cycle circuits and to the recording and  
reproducing module.

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USSR

UDC 681.333:519.2

ZORICH, A. Ye., KONOVALOV, V. N., and MAMEDOV, V. F.

"A Device for Determining the Probability Density of Extremal Values of Random Processes"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrazttsy, Tovarnyye Znaki, No 25, Sep 71, p 193 (G 06 g 7/52, No 312274 (1361705/18-24 from 19 September 1969; Claimant: State Scientific Research Institute of Civil Aviation)

Abstract: This patent claims a device for determining the probability density of extremal values of random processes, containing a quantizer of the input signal for a given number of levels with impulse outputs and a block of registering counters; the device is distinguished in that for the purpose of increasing the error detection, it contains a multiple input coincidence block connected to the outputs of the quantizer, to which a control block is also connected that joins the two outputs with the input control coincidence block, connected to the block of registering counters.

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USSR

UDC 621.385.632

KONOVALOV, V. Ye., SHUL'GA, V. G.

"Theorem Concerning Kinetic Power in a Two-Beam TWT"

Radiotekhnika. Resp. mezhved. nauch.-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific-Technical Collection), 1970, Issue 13, pp 55-59 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5A149)

Translation: On the basis of a theorem of kinetic power, an analysis is conducted of growing waves in a two-beam traveling-wave tube. Criteria are obtained for growing waves which make it possible to develop a formal solution and to clarify the physical content of solutions which satisfy the law of the conservation of energy. Applications are illustrated of the criteria for growing waves in a two-beam TWT with concrete values of the parameters of electron streams and a delay system. 6 ref. Summary.

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USSR

UDC: 621.9.048

KONOVALOV, Ye. G., Academician of the Academy of Sciences of the BSSR, KOS-TYUKOVICH, S. S., KISELEV, M. G., Belorussian Polytechnical Institute

"Reducing Forces of Sliding Friction by Introducing Longitudinal Ultrasonic Vibrations"

Minsk, Doklady Akademii Nauk BSSR, Vol 17, No 5, May 73, pp 420-422

Abstract: The paper gives the results of investigations of the influence of longitudinal ultrasonic vibrations on reducing forces of sliding friction as a function of the normal pressure, the materials of the friction couple, the rate of sliding, the intensity of the vibrations, and the lubricant. It is found that forces of sliding friction are reduced in all cases by introducing ultrasonic longitudinal vibrations. When ultrasonic vibrations which make a vertical right angle with both the force of friction and the contact surface are introduced, the rate of sliding has no appreciable effect on the action of the vibrations. Lubricant increases the effectiveness of ultrasonic vibrations by a factor of approximately 50%. Increasing the intensity of the ultrasonic vibrations reduces forces of friction in all cases. Further research on sliding friction in an ultrasonic field is recommended before practical application of this method.

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USSR

UDC 522.54-8

KONOVALOV, Ye. G., SEDLOV, L.M., and SHILYAYEV, A.S.

"On the Problem of Ultrasonic Separation of the Gaseous Component from the Liquid Component in the Flow of a Gas-Liquid System"

Minsk, Izvestiya Akademii Nauk, BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 2, 1972, pp 65-70

Abstract: The effect of acoustic and hydrodynamic forces on a bubble approaching with a flow of liquid from an undisturbed medium to the emitter of ultrasound is discussed. The separation of the gaseous component from the liquid in the flow is theoretically analyzed by reference to diagrams showing the acting forces on the bubble. The mechanism of the process is described and fundamental correlations for determining critical values of the outflow velocity, the field intensity, and the acting forces are presented. The latter include the viscous force, the emission pressure on the bubble, the acoustic flow force, Bjerknes acoustic forces, Bernoulli hydrodynamic forces, and the floating-up force of the bubble. Characteristic moments by separation of the gaseous component, the braking action of the bubble, coalescence, stopping, and floating-up are analyzed. The most destructive feature of the coalescence is its high increase of intensity near the interface purified-gasifies liquid, where a contraction mechanism of bubbles develops, which is the final stage of the separation process. Two illustr., sixteen formulas, nine biblio. refs.

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USSR

UDC 621.791.001.5

KONOVALOV, Ye. G. (Doctor of Techn. Sciences), and GALKOV, V. S. (Engineer)

"Recording the Acoustic Emission as a Method of Studying Welding Processes in the Solid State"

Moscow, Svarochnoye proizvodstvo, No 6, June 72, p 51-52

Abstract: Information for in-depth studies on the kinetics of weld joint formation in the solid state can be provided by the acoustic emission of generated with elastic waves of solids during plastic deformation, failures, and phase transformations. Acoustic vibrations that follow the generation and migration of defects and atomic position interchange may be used as a valuable source of information on the effect of various factors on joint formation as well as concerning the nature of phenomena attending the welding process. The study on the formation of weld joints included welding with an indirectly heated tool, indirect contact-resistance microwelding with a split electrode, and ultrasonic microwelding using longitudinal (44 kc), flexural (56 kc), and transverse (60 kc) vibrations. The test materials were gold and aluminum wires, 40 $\mu$  in diameter with silicon coated with an aluminum film (1 $\mu$ ) and nickel. The results of the study show that microwelding while ensuring a higher weld quality also features acoustic emission spectra with higher values for high-frequency components. (3 illustrations, 5 bibliographic references)

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USSR

UDC: 620.172+620.178.152.2

KONOVALOV, Ye. G. and TSINGAUZ, V. Kh.

"Determining the Mechanical Characteristics of Steel from the Results of Hardness Testing"

Minsk, Izvestiya Akademii Nauk BSSR--Seriya Fiziko-Tekhnicheskikh Nauk, No 1, 1972, pp 11-15

Abstract: The purpose of this paper is to develop a single method for determining the whole complex of the mechanical characteristics of steel with a minimum of effort and time. The authors discuss the Meyer law coefficients, Brinell hardness and strength and the connection between the mechanical characteristics under expansion. An expression is derived for the strength of steels, and an important constant in this expression is computed. The theoretically derived formula is compared with an empirical formula obtained by the authors from experiments they performed on specimens of the St3, 45, U8, R18, and Kh18N9T types, and the value of the empirically obtained constant is given. Relationships are also obtained for the determination of all mechanical characteristics. The authors are associated with the Physico-Technical Institute of the Belorussian Academy of Sciences.

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Acoustical and Ultrasonic

USSR

UDC 621.77.04:621.9.048.6

KONOVALOV, YE. G., Academician of the Academy of Sciences Belorussian SSR,  
and IGNASHEV, YE. P., Electronics Laboratory, Academy of Sciences Belorussian  
SSR

"Flattening of Circular Wire Into Microtapes by Ultrasonic Vibration"

Minsk, Doklady Akademii Nauk BSSR, Vol 15, No 11, Nov 71, pp 985-987

Abstract: The authors studied geometric parameters for the flattening of narrow micron-section tapes obtained through ultrasonic vibrational energy. The method consists in passing a wire between two threading dies, one of which is attached to the base, the second directly to the face of the ultrasonic vibration concentrator. The experimental device consists of a magnetostrictive transducer with an exponential half-wavelength concentrator, a half-wave reflector to which one of the threading dies is attached, a winding-unwinding mechanism. Vibration frequency: 22 kc. Wire made of various metals and alloys, soft as well as difficult to deform, can be flattened into narrow tapes by the ultrasonic vibration method without the use of a

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USSR

UDC 621.791.89:534.1

KONOVALOV, YE. G., ROSSOSHINSKIY, A.A., GALKOV, V.S.

"Influence of Frequency Spectrum on Formation of Joints in Ultrasonic Welding"

Izv. AN BSSR, Ser. Fiz-tekhn. Nauk, No 2, Minsk, 1971, pp 93-96

Abstract: Studies were performed involving ultrasonic welding of aluminum foil to various materials, using both the frequencies ordinarily used for this purpose and much higher frequencies, up to 212 kHz. It was found that better joints were produced with the higher frequencies. Existing theories cannot explain this dependence of joint quality on frequency. The authors suggest that perhaps the best joints are produced at those frequencies at which the material being welded absorbs the maximum ultrasonic energy, but propose that broad-scale investigations be performed to determine the best welding frequencies for each type of material being welded.

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USSR

UDC 681.888:621.762

KONOVALOV, Ye. G., Academician of the Academy of Sciences BSSR, ZHDANOVICH, V. M.,  
Minsk Radio Engineering Institute

"Effect of Ultrasonic Oscillations on the Compaction of Metal Powders"

Minsk, Doklady Akademii nauk BSSR, No. 3, Mar 71, pp 219-221

Abstract: Experimental studies of the effect of ultrasonic oscillations on the relative density of a briquette are reported and the results of the experiments are reduced to a table. Processing of experimental data established that the relative density  $\theta_a$  under the effect of ultrasonic oscillations is proportional to the residual porosity  $(1-\theta_a)$ , the amplitude of the oscillations  $A$  and inversely proportional to the pressing height  $h$ . The following expression is derived for the static load under pressing with the application of ultrasonic oscillations

$$P'_0 = P_h \left[ 1 - e^{-K \frac{A}{h}} (1 - \theta_a) \right]^m.$$

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USSR

KONOVALOV, Ye. G., ZHDANOVICH, V. M., Doklady Akademii nauk BSSR, No. 3,  
Mar 71, pp 219-221

A table is given showing the values of the relative density and the amplitude  
of oscillations for pressing pressures of 50, 500, and 1000 kG/cm<sup>2</sup>.



USSR

UDC 620.178.152.2

KONOVALOV, YE. G., Academician of the Belorussian SSR Academy of Sciences,  
~~and~~ ISINGAUZ, V. KH., Engineering Physics Institute, Academy of Sciences  
Belorussian SSR

"Determining Maximum Brinell Hardness"

Minsk, Doklady Akademii Nauk BSSR, Vol 15, No 2, 1971, pp 137-139

Abstract: Since Brinell HB hardness passes through a maximum with increase in indenter loading and a corresponding rise in deformation  $d/D$ , yielding a hardness curve in the coordinates HB versus  $d/D$  that is similar to curves of standard stresses for tensile testing, a possible stable relationship can be assumed between maximum hardness  $HB_{max}$  and ultimate tensile strength  $\sigma_b$ .

A relationship between diameter  $d$  and depth  $h$  of the recovered indentation for steel was studied:

$$h = \frac{0.2}{d} \cdot 2.16. \text{ A formula was derived for } HB_{max};$$

$HB_{max} = a \cdot D^{n-2} \cdot HB'_{MM}$ . Here  $D$  is the diameter of the indenter ball,  $a$  is the dimensional coefficient of Meyer's law, and  $HB'_{MM}$  is some

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USSR

KONOVALOV, YE. G., and TSINGAUZ, V. KH., Doklady Akademii Nauk BSSR, Vol 15, No 2, 1971, pp 137-139

function of  $n$ , the Meyer's law exponent. The value of  $n$  was found to be determined from the heights  $h_1$  and  $h_2$  of two recovered indentations made with loads in the ratio  $P_2/P_1 = 2$ . The formula for  $n$  was determined to be:

$$n = \frac{0.65016}{\lg h_2/h_1}$$

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USSR

UDC 612.983.044+621.7.044.7

KONOVALOV, Ye. G., and VOLKOV, V. A., Minsk Radio Engineering Institute

"Calculation of the Pressure Necessary for the Deformation of a Blank in a Magnetic Pulse Field"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 1, 1971, pp 5-9

Abstract: The expressions determining the acceleration, the velocity, and the path of motion of a blank or of a part of it are derived theoretically on the basis of the well-known law of the change of pressure exerted by a magnetic field on a metal blank. Two special cases are considered: viz., shifting of the blank with shape formation on the matrix, and shifting of the blank with simultaneous shape formation. For each of these cases expressions are derived which determine the value of the pressure required to create the magnetic field to effect the shape formation. 1 figure, 4 bibliographic entries.

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USSR

UDC 681.888

KONOVALOV, Ye. G., SINYAYEV, V. A., and KOVALEV, S. I.

"Variation of the Mechanical Characteristics of M1 Copper as a Function of Duration of the Preliminary Cyclic Loading with Bending Vibrations of Ultrasonic Frequency"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 4, 1970, pp 9-12

Abstract: This article contains a study of the effect of ultrasonic bending vibrations on the mechanical characteristics of M1 copper. The graphs for the yield point  $\sigma_{0.2}$ , ultimate strength  $\sigma_b$ , elongation per unit length  $\delta$ , and reduction of area  $\psi$  as a function of the duration of the preliminary cyclic loading with ultrasonic bending vibrations are presented. An acoustic system permitting effective excitation of bending vibrations is the specimen and fast multiple changing of specimens is described. Results are tabulated showing that the ultrasonic bending vibrations have great effect on the mechanical properties of M1 copper (in the delivered state), and in the final analysis, destroy samples made of it. Under the effect of ultrasonic bending vibrations the mechanical characteristics  $\sigma_{0.2}$ ,  $\sigma_b$ ,  $\delta$ , and  $\psi$  of M1 copper  
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USSR

KONOVALOV, Ye. G., et al, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 4, 1970, pp 9-12

drop as the number of loading cycles increases. The higher the amplitude of the ultrasonic bending vibrations, the faster the mechanical characteristics drop.

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USSR

UDC 532:534

KONOVALOV, Ye. G., Academician of the BSSR; LYKOV, Ye. V., Physicotechnical  
~~Institute of the Academy of Sciences of the BSSR, Krasnodar Polytechnical~~  
Institute

"Acoustic Crisis in Boiling of Liquids"

Minsk, Doklady Akademii Nauk BSSR, Vol 16, No 9, Sep 72, pp 787-790

Abstract: An acoustic crisis is observed in boiling of liquids which consists in the following effect. As the specific heat flux which produces the boiling is increased, the noise accompanying boiling attains an abrupt maximum of integral acoustic pressure with a simultaneous qualitative change in the acoustic spectrum of the noise in the form of the appearance of a maximum frequency and an abrupt increase in the amplitude of the other high-frequency components of the spectrum. The acoustic crisis in boiling always shows up at a specific heat influx less than a certain critical heat flux accompanying bubbling boiling.

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USSR

UDC: 621.941.014.6

~~KONOVALOV~~ Ye. G., SOUS, A. V., and SEDEL'NIKOV, B. M.

"Analysis of the Geometry of Rotational Cuts in Statics"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No. 1, 1970, pp 37-46

Abstract: The purpose of this article is to show how labor output in cutting metals can be improved by applying new kinetic cutting methods; for example, rotational cutting through the use of a rotating instrument. Since the methods described in the literature for determining the actual operating angles of rotational cuts to best advantage are cumbersome and inconvenient for practical use, the authors offer a simpler theoretical analysis of the geometry of those cuts in prolonged lathe work, boring, and preparing flat surfaces. Their analysis leads them to three conclusions: first, the cutting angles and their positions relative to the work are chosen from the optimal values provided by three equations developed in the article's text; second, the computations made by the formulas developed by the article show that at constant grinding angles, the forward angle is reduced and the rear angle is increased with increasing machine angles; third, an increase in the depth of cut in reverse cutting leads to an increase in the forward angle and a reduction in the rear angle.

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USSR

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UDC 621.791.89

KONOVALOV, YE. G., and GALKOV, V. S.

"Ultrasonic Microwelding at a Frequency of 245 KHz"

Kiev, Avtomaticheskaya Svarka, No 6, Jun 70, pp 70-71

Abstract: In a previous paper published by Konovalov, attempts to obtain a weld using only normal oscillations at a frequency of 60 KHz with the converter held vertically and without additional heating of the specimen, ended in failure. The purpose of the present article is to explain this phenomenon. The authors also discuss a high-frequency ultrasonic welding device developed by the Minsk Radio Engineering Institute. A diagram of the converter used in this device is given. The converter contains a knife-shaped steel concentrator with a plate made of TsTS-19 piezoceramic. It is concluded that it is possible to obtain welds with high-frequency normal oscillations, and that the method described in this article provides high-quality welds.

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USSR

K  
KONOVALOV, YE. G., et al (Physics-Engineering Institute, Belorussian Academy of Sciences)

"The Application of Ultrasound During Tests to Determine Deformation Along the Length of Samples Due to Twisting"

Minsk, Vestsi Akademii Navuk BSSR: Seryya Fizika-Tekhnichnykh Navuk, No 2, 1970, pp 39-42

Abstract: The authors studied the effect of the cyclic application of an ultrasonic frequency during the twisting of samples. The results of the experiments showed that the application of ultrasonic vibrations during the process of static twisting of copper samples leads to a considerable localization of deformation along the length of the sample. The locations of local deformation occurring during twisting when ultrasound is applied coincide with the area of maximum vibrations (ultrasonic), and the damage to the samples occurs just in that area.

Data on local plasticity for twisting angles of  $60^\circ$ ,  $120^\circ$ , and  $180^\circ$  -- with and without ultrasound -- are compiled in the article's  
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USSR

KONOVALOV, YE. G., Vestsi Akademii Navuk BSSR: Seryya Fizika-Tekhnichnykh Navuk, No 2, 1970, pp 39-42

one table. The article also includes two figures. There are three bibliographic references.

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USSR

K  
UDC 621.791

KONOVALOV, YE. G., Member of the Academy of Sciences BSSR,  
KONOVALOV, G. YE., MEDVEDEV, E. M., Minsk Radio-Engineering Institute

"The Effect of Sonic and Ultrasonic Vibrations on Semiconducting Resistors"

Minsk, Doklady Akademii Nauk BSSR, Vol 14, No 2, 1970, pp 125-127

Abstract: The effect of vibrations on semiconducting thermistors of the MMT-1 and MMT-4 type has been investigated. The thermistors were tested on a specially designed testing unit which could simulate sinusoidal vibrations with a frequency of 3,500 and 23,500 Hz and amplitude of 9%. The tests were carried out at 25 and 45°C to determine the effect of initial temperature of thermistors on the magnitude and nature of the investigated effect. The results were plotted on a series of graphs shown in the article. Analysis of the graphs shows that the resistance deviation of the thermistors increases with increasing frequency, amplitude, and duration of vibrations. The effect is more pronounced in the case of a lower initial amplitude. The process of resistance recovery in the latter case is of a  
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USSR

KONOVALOV, YE. G., et al, Doklady Akademii Nauk BSSR, Vol 14, No 2, 1970, pp 125-127

nonlinear character, and the duration of recovery is significantly shortened. It can be concluded, on the basis of this investigation, that the possibility of such effects should be taken into consideration in the design of similar instruments and proper measures should be taken for their prevention.

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Stress, Strain, and Deformation

USSR

UDC 629.113

*K*  
KONOVALOV, Ye. G., and LUKOVNIKOV, Yu. N., (Physical Technical Institute, Academy  
~~of Sciences BSSR~~)

"Design of Frictional Screw Transmissions"

Minsk, Vestsi Akademii Navuk BSSR (News of the Academy of Sciences BSSR), No 3,  
1970, pp 94-97

Abstract: Frictional screw transmissions are used for winding precision micro-coils and in mechanisms in which a low-power input is used to control a high-power output. Several designs are described in which rings ride on a shaft and are advanced by screw motion. Design parameters depend on 1) the number of rings, 2) the length and diameter of the shaft, 3) inside diameter of the rings, 4) relative angle of rotation between the shaft and the ring during one revolution of the shaft, 5) whether the shaft is axially fixed or advances, 6) whether the rings advance along the shaft or remain in position while the shaft advances, 7) length of throw of the rings or shaft, 8) the distance between shaft bearings, 9) the amount of power required, 10) the frictional forces involved, etc.

Six configurations of rings and shafts and bearings are discussed. Figure a shows a configuration for the simple case of long shaft advance in which sleeve

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USSR

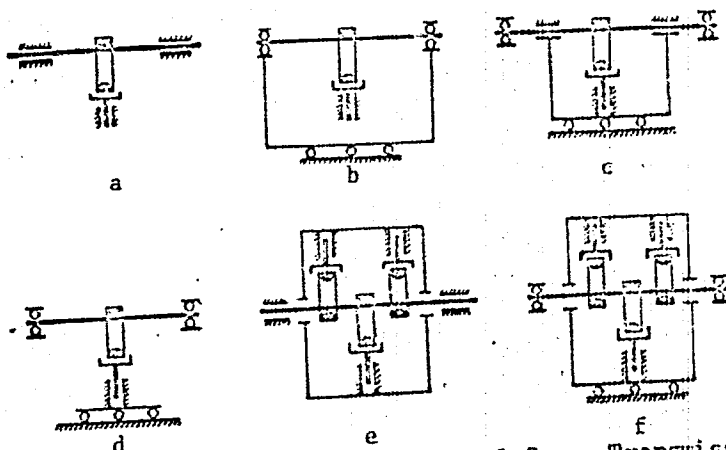
KONOVALOV, Ye. G., and LUKOVNIKOV, Yu. N., *Vestsi Akademii Navuk BSSR* (News of the Academy of Sciences BSSR), No 3, 1970, pp 94-97

bearings are spaced close together on either side of the single ring. Figure b shows the recommended configuration for the design in which the rings move a short distance along the shaft. A moving carriage with roller bearings to support the shaft is provided for dynamic stability. The carriage paces the advancement of the ring along the shaft. If the rings move a long distance along the shaft, a rolling carriage is again recommended, but the shaft is additionally supported by roller bearings, as shown in figure c. For short throws, the configuration shown in figure d is used. Figure e is for the case of an advancing shaft when multiple rings are used, and figure f is for a long-distance ring advancement along the shaft.

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USSR

KONOVALOV, Ye. G., and LUKOVNIKOV, Yu. N., Vestsi Akademii Navuk BSSR (News of the Academy of Sciences BSSR), No 3, 1970, pp 94-97



Variations in Design of Frictional Screw Transmissions

USSR

KONOVALOV, Ye. G., and LUKOVNIKOV, Yu. N., Vestsi Akademii Navuk BSSR (News of the Academy of Sciences BSSR), No 3, 1970, pp 94-97

Step-by-step procedures are outlined for designing the transmission system for various applications, and initial dimensional values are suggested.

Orig. art. has 2 figs. and 6 refs.

4/4



USSR

K

UDC 620.17

KONDOVALOV, Ye. G., KULESHOV, V. A., and MOLOCHKO, V. I., Physicotechnical Institute of the Academy of Sciences Belorussian SSR, Minsk Radiotechnical Institute

"Determination of an Ideally Stochastic Body With Constant Yield Point and Variable Young's Modulus"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 2, 1970, pp 104-109

Abstract: The article considers the random state function of an ideally stochastic body in which the yield point is constant and Young's modulus is a random variable which varies according to the law of uniform density.

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AA0040679-

Konovarov, Ye. G.

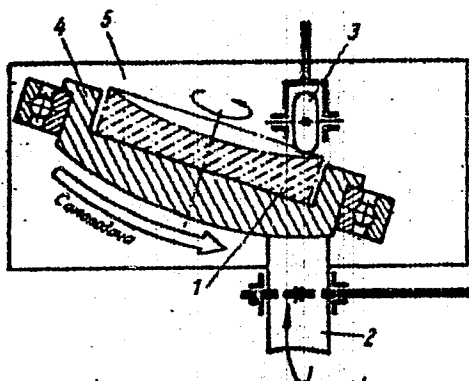
UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 70

241480 SURFACE HARDENING UNIT FOR ROTORS (1) placed between driver and idler rollers (2,3), whereupon the roller (2) is started so that it contacts the cam (4) which is arranged equi-distant from the rotor in work and thus rotates it. As the cam axis does not coincide with the axial planes of the rollers, the cam is fed together with the rotor over the support (5) along a generatrix of the cam and the surface for hardening. This arrangement expands the scope for centreless hardening in that it allows the workpiece to feed along its generatrix and thus permit the hardening of complex shapes.

19750286

AA0040679



9.1.68 as 1210362/22-1. KONOVALOV, E.G. & FLOMENBLIT,  
A.I. (29.9.69) Bul 14/18.4.69. Class 18c. Int. Cl. C. 21d.

19750287

1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ANALYSIS OF THE GEOMETRY OF ROTATIONAL CUTS IN STATICS -U-  
AUTHOR--(03)-KONOVALOV, Y.G., SOUS, A.V., SEDELNIKOV, B.M.  
COUNTRY OF INFO--USSR  
SOURCE--MINSK, IZVESTIYA AKADEMII NAUK BSSR, SERIYA FIZIKO-TEKHNICHESKIKH  
NAUK, NO. 1, 1970, PP 37-46  
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL CUTTING, CUTTING TOOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/2008

STEP NO--UR/0201/70/000/001/0037/0046

CIRC ACCESSION NO--AP0118964

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118964

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PURPOSE OF THIS ARTICLE IS TO SHOW HOW LABOR OUTPUT IN CUTTING METALS CAN BE IMPROVED BY APPLYING NEW KINETIC CUTTING METHODS; FOR EXAMPLE, ROTATIONAL CUTTING THROUGH THE USE OF A ROTATING INSTRUMENT. SINCE THE METHODS DESCRIBED IN THE LITERATURE FOR DETERMINING THE ACTUAL OPERATING ANGLES OF ROTATIONAL CUTS TO BEST ADVANTAGE ARE CUMBERSOME AND INCONVENIENT FOR PRACTICAL USE, THE AUTHORS OFFER A SIMPLER THEORETICAL ANALYSIS OF THE GEOMETRY OF THOSE CUTS IN PROLONGED LATHE WORK, BORING, AND PREPARING FLAT SURFACES. THEIR ANALYSIS LEADS THEM TO THREE CONCLUSIONS: FIRST, THE CUTTING ANGLES AND THEIR POSITIONS RELATIVE TO THE WORK ARE CHOSEN FROM THE OPTIMAL VALUES PROVIDED BY THREE EQUATIONS DEVELOPED IN THE ARTICLE'S TEST: SECOND, THE COMPUTATIONS MADE BY THE FORMULAS DEVELOPED BY THE ARTICLE SHOW THAT AT CONSTANT GRINDING ANGLES, THE FORWARD ANGLE IS REDUCED AND THE REAR ANGLE IS INCREASED WITH INCREASING MACHINE ANGLES; THIRD, AN INCREASE IN THE DEPTH OF CUT IN REVERSE CUTTING LEADS TO AN INCREASE IN THE FORWARD ANGLE AND A REDUCTION IN THE REAR ANGLE.

UNCLASSIFIED

USSR

UDC 911.3.616.9.576.895.42(478.9)

USPENSKAYA, I. G., and KONOVALOV, Yu. N.

"Focus of Ixodes apronophrus Ticks on the Prut River Islands"

V sb. Parazity zhivotnykh i rast. (Parasites of animals and plants ---col-  
lection of works), vyp. 5, Kishinev, AS Moldavian SSR, 1970, pp 88-96 (from  
RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.71)

Translation: In Moldavia I. apronophorus ticks live on floating islands  
in an atmosphere of absolute humidity. The distribution has a focal  
character. The tick is very numerous; in the summer 78-100% of the ro-  
dents are infected by these ticks. Tick hosts on the Prut River Islands  
are 11 rodent species.

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USSR

UDC 621.771.23.001.5

~~KOROVALOV, Ya. V.~~, and VORONOV, A. I.

"Tension of Strips in a Finishing Group of Continuous Hot Rolling Sheet Mill Stands"

Moscow, Plasticheskaya Deformatsiya Metallov i Splavov, "Metallurgiya" Publishing House, No 64, 1970, pp 103-106

Translation: The values of tension between stands of a continuous hot rolling mill were studied.

It was established that specific tensions reach their maximal value between the ninth and tenth stands. However, these values do not reach the yield point of the material. One illustration, one table, and four bibliographic entries.

1/1

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USSR

UDC 66.023-21.001.24

KONOVALOVA, A. I., KURANOV, B. A., LIFSHTS, L. A. (Balashikha)

"Temperature Stresses in the Pole of a Spherical Reservoir During Chilling by a Liquified Gas"

Kiev, Problemy Prochnosti, No 12, December 1971, pp 19-23

Abstract: The article deals with the problem of temperature stresses in a spherical reservoir at the initial moment of pouring in the liquified gas. Analyzing the temperature fields in the vessel at the initial moment of pouring permits the problem to be reduced to that of linking a hollow spherical cupola to an infinite spherical shell with an opening in the presence of a temperature-field discontinuity at the line of linkage. Formulas are given for determination of the basic internal force factors. Analysis of the experimental data shows that, when a product with a temperature of  $-95^{\circ}\text{C}$  and lower is poured into the reservoir, considerable temperature stresses originate in the structure, that are capable of causing the destruction of the reservoir within a fixed number of chilling cycles. Preliminary chilling of the container wall can solve this problem. However, considering the considerable technological and design difficulties of prechilling, first priority must be directed to the development of methods of evaluating the thermal

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USSR

KONOVALOVA, A. I., et al., Problemy Prochnosti, No 12, Dec 1971, pp 19-23

fatigue strength of the vessels for selecting the minimum necessary level of prechilling. 5 figures. 4 references.

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USSR

UDC 547.26'118+543.226

ROMANOV, G. V., YAGFAROV, M. Sh., KONOVALOV, A. I., PUDOVIK, A. N.,  
 KONOVALOVA, I. V., and YUSUPOVA, T. N., Institute of Organic and Physical  
 Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, and Kazan' State  
 University imeni V. I. Ul'yanov-Lenin, Kazan'

"The Thermodynamic and Kinetic Characteristics of the Phosphonate-Phosphate  
 Rearrangement"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, pp 2378-2386

Abstract: The thermal effects in the rearrangement

$$\begin{array}{c} \text{R} \\ \diagdown \\ \text{P}(=\text{X})-\text{C}(\text{OH}) \\ \diagup \\ \text{R}' \end{array} \begin{array}{c} \text{R}'' \\ \diagup \\ \text{C}(\text{OH}) \\ \diagdown \\ \text{R}''' \end{array}$$

(I)  $\rightarrow$   $\begin{array}{c} \text{R} \\ \diagdown \\ \text{P}(=\text{X})-\text{O}-\text{CH} \\ \diagup \\ \text{R}' \end{array} \begin{array}{c} \text{R}'' \\ \diagup \\ \text{C}(\text{OH}) \\ \diagdown \\ \text{R}''' \end{array}$  (II) were studied, where R=Alk, AlkO, Ph; R' =Alk,

AlkO, Ph, CH; R'' = H, Me, Ph, COAlk; R''' = COAlk, COMe, P(O)(OR)<sub>2</sub>, CN;  
 X = O, S. The heat capacities at -50 - +120° and the changes in enthalpy  
 during the rearrangement I  $\rightarrow$  II at the temperature of the reaction were deter-  
 mined for a number of compounds I. It was shown that an approximately linear  
 relation exists between the temperatures at which the reaction begins and the  
 logarithms of the velocity constants of the isomerization of compounds I deter-  
 mined at a single temperature.

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UDC 547.438.1+547.26\*118+543.226

USSR

PUDOVIK, A. N., KONOVALOVA, I. V., ROMANOV, G. V., FIRSEVA, R. G., and BURMISTROVA, N. P.

"Study of Phosphonate-phosphate Regrouping and the Processes accompanying It by the Differential Thermal Analysis Method with Simultaneous Recording of the Electrical Conductivity"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 41-45

Abstract: The study of phosphonate-phosphate regrouping and the processes accompanying it by the thermographic method with simultaneous recording of the electrical conductivity is continued. The thermal behavior of a series of  $\alpha$ -oxyalkyl phosphonates and substituted  $\alpha$ -oxyethylphenyl phosphonic acids was studied. The thermal conversion of  $\alpha$ -oxyalkylphosphonates and their analogs was preceded by ionization of the hydroxyl group on the  $\alpha$ -carbon atom. The study was made of the mechanism of thermal phosphonate-phosphate regrouping.

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UDC 547.26'118 + 543.226

USSR

PUDOVIK, A. N., KONOVALOVA, I. V., YAGFAROV, M. Sh., GOL'DFARB, E. I., and ROMANOV, G. V.

"Decomposition of  $\alpha$ -Hydroxyalkyl(benzyl)phosphonates"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, pp 556-559

Abstract: Thermal behavior of  $\alpha$ -hydroxyalkylphosphonates containing alkyl and phenyl substituents at the  $\alpha$ -carbon atom has been studied by means of differential-thermal analysis in the range 20-300°. Substituting a hydrogen atom for a methyl group at the  $\alpha$ -carbon results in a higher temperature of the endoeffect of the beginning of breakdown, while introduction of a phenyl group lowers the thermal stability of the phosphonate. Differential thermal analysis of an equimolar mixture of O-ethylethylphosphonite and ethylpyro-racemate shows a formation of O-ethyl- $\alpha$ -carboethoxyethylphosphinate followed by its isomerization to O-ethyl-O-( $\alpha$ -carboethoxyethyl)ethylphosphonate; benzaldehyde and diethylphosphite from diethyl- $\alpha$ -hydroxybenzylphosphonate in temperature range 100-120° to be followed by decomposition. Thermography of phenyl- $\alpha$ -hydroxybenzylphosphinic acid at 220-250° is accompanied by a strong exothermic effect yielding a dense mass suggestive of the formation of phenylphosphine.

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UDC 547.26'118

USSR

PUDOVIK, A. N., KONOVALOVA, I. V., KAKURINA, V. P., and BURNAYEVA, L. A.,  
Kazan' State University imeni V. I. Ul'yanov-Lenin

"Reactions of Monoisocyanates of Alkyleneglycolphosphorous Acids With the  
Esters of  $\alpha$ -Ketocarboxylic Acids and Phenylglyoxal"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, pp 553-556

Abstract: Isocyanates of ethylene- and 1,3-butyleneglycolphosphorous acids form 1:1 addition products with esters of pyroracemic, benzoylformic,  $\alpha,\beta$ -diketobutyric acids and phenylglyoxal. On the basis of spectral data and sharp melting points bicyclic structures were assigned to these compounds. The reactions were carried out at  $-5$  to  $0^\circ$  in methylene chloride, adding the carbonyl compounds dropwise to the isocyanate; the products crystallized on overnight standing. Esters of pyroracemic and benzoylformic acids form crystalline products with ethyleneglyoxal phosphorous acids, phenylglyoxal yields a dense liquid and the ester of  $\alpha,\beta$ -diketobutyric acid -- a glassy material.

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UDC 547.245'241

USSR

PUDOVIK, A. N., ROMANOV, G. V., NAZMUTDINOV, R. Ya., and KONOVALOVA, I. V.,  
Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Academy  
of Sciences, USSR, and Kazan' State University Imeni V. I. Ul'yanov-Lenin

"Reaction of bis(trimethylsilyl)hypophosphite With Methyl Pyroracemate"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, p 678

Abstract: Title reaction carried out in an atmosphere of argon at  $-5$  to  $0^{\circ}$   
followed by overnight stirring at room temperature gave trimethylsilyl( $\alpha$ -  
carbomethoxy)ethylphosphite, b.p.  $83^{\circ}/0.2$  mm,  $d_4^{20}$  1.0857,  $n_D^{20}$  1.4276.

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USSR

UDC 547.26'118

PUDOVIK, A. N., KONOVALOVA, I. V., KAKURINA, V. P., BURNAYEVA, L. A.,  
and KOMISSAROVA, T. A.

"Reactions of Dialkylphosphorous Acid Monoisocyanates With Esters of  
Benzoylformic and  $\alpha, \beta$ -Diketobutyric Acids and Phenylglyoxal"

Leningrad, Zhurnal Obshchey Khimii, Vol 43(105), No 2, Feb 73, pp 256-260

Abstract: Monoisocyanates of dialkylphosphorous acids react with esters of pyruvic, benzoylformic, and  $\alpha, \beta$ -diketobutyric acids and phenylglyoxal in methylene chloride at  $-5^{\circ}$  to  $0^{\circ}$  yielding 2-alkoxy-2-oxo-3-alkyl-5-substituted 2-phosphaoxazolidin-4-ones, dense liquids soluble in organic solvents, insoluble in water, and isocyanates of dialkylphosphoric acids in 15% yield. The reaction mechanism was studied by IR and NMR spectroscopic methods.

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USSR

UDC 547.558.1

KONOVALOVA, I. V., and PUDOVIK, A. N., Kazan State University imeni V. I. Ul'yanov-Lenin

"Reactions of Trivalent Phosphorus Acid Derivatives With Carbonyl Containing Compounds"

Moscow, Uspekhi Khimii, Vol 41, No 5, May 72, pp 799-827

Abstract: A review with 188 references covering the reactions of neutral esters of phosphorous acid, amidophosphites, and mixed anhydrides of dialkylphosphorous and carboxylic acids with carbonyl compounds containing no halogen atoms: saturated and unsaturated aldehydes and ketones,  $\alpha$ -diketones, carbonyl compounds activated by a carbethoxy, a phosphoryl, a nitrile or some other electronegative group. The directions of these diverse and very interesting reactions and their mechanisms have been analyzed in light of their importance in the development of the chemistry of phosphorus compounds and theoretical organic chemistry.

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USSR

UDC 547.26'118

PUDOVIK, A. N., KONOVALOVA, I. V., and BURNAYEVA, Kazan' State University  
imeni V. I. Ul'yanov-Lenin

"Reactions of Phosphite Esters With Phenylglyoxal and the Ethyl Ester of  
 $\alpha$ ,  $\beta$ -Diketobutyric Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,413-2,417

Abstract: This study is a continuation of earlier work on the reactions of tri- and pentavalent phosphorus acids with carbonyl compounds; here the reactions of dialkylphosphorous acids with phenylglyoxal and the ethyl ester of  $\alpha$ ,  $\beta$ -diketobutyric acid are studied. It was shown that the dialkylphosphorous acids add to phenylglyoxal and to the ethyl ester of  $\alpha$ ,  $\beta$ -diketobutyric acid, with formation of benzoyl- and acetocarbethoxyhydroxymethyldialkylphosphonates. The latter, on heating, were isomerized into benzoyl- and acetocarbethoxymethyldialkylphosphates. In the reaction of phenylglyoxal and the ethyl ester of  $\alpha$ ,  $\beta$ -diketobutyric acid with triethyl phosphite in acetic acid, the same phosphates were formed. Finally, the reaction between phenylglyoxal and the ethyl ester of  $\alpha$ ,  $\beta$ -diketobutyric acid, with phosphites in a solution of methylene chloride produced 1,3,2-dioxaphospholenes.

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USSR

UDC 547.26'118

PUDOVIK, A. N., KONOVALOVA, I. V., and KAKURINA, V. P., Kazan' State University imeni V. I. Ul'yanov-Lenin

"Reactions of Dialkyl Anilidophosphites with  $\alpha$ -Ketocarboxylic Acid Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 333-337

Abstract: The authors investigate reactions of ethyl benzoylformate with anilido- and p-toluidinodiethylphosphites. It is shown that these reactions result in formation of O,O'-diethyl-O''- $\alpha$ -carboethoxybenzyl-N-phenylimidophosphates. It is found that O,O'-diethyl O''- $\alpha$ -carboethoxyethyl N-phenylimidophosphate reacts with the second molecule of the pyruvic ester to form diethyl  $\alpha$ -carboethoxyethyl phosphate. Reactions of diphenyl anilidophosphinite with pyruvic, benzoylformic and mesoxalic acid esters take place with the formation of diphenylanilidophosphine.

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USSR

UDC 547.26'118

PUDOVIK, A. N., KONOVALOVA, I. V., ROMANOV, G. V., and NAZMUTDINOV, R. Ya.,  
Kazan' State University

"Reaction of Partial Esters of Phenylphosphonous and Phosphorous Acids With  
Benzophenone"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 323-326

Abstract: O-Methyl- and O-ethyl phenylphosphonites, and also dimethyl-, diethyl-, di-n.-propyl- and di-isopropyl phosphites reacted with benzophenone. It was found that the partial esters of phenylphosphonous and phosphorous acids add to benzophenone with the formation of monoalkyl esters of  $\alpha$ -hydroxybenzhydrylphenylphosphinic and dialkyl esters of  $\alpha$ -hydroxybenzhydrylphosphonic acids. When heated,  $\alpha$ -hydroxybenzhydrylphosphinates and phosphonates dissociate into the initial products and undergo rearrangement to the corresponding phosphonates and phosphates.

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Corrosion

USSR

UDC: 621.785.79:669.14.018.8

KONOVALOVA, K. M., KOVRIGIN, A. A., FOSTNIKOVA, T. I., Engineers, Kuznetsk Metallurgical Combine

"Effect of  $\alpha \rightleftharpoons \gamma$ -Conversion on the Corrosion Resistance of OKh17N7Yul Steel"

Moscow, Stal', No 7, Jul 72, pp 649-650

Abstract: It is shown that intergranular corrosion in OKh17N7Yul high-strength stainless steel is connected with structural changes which take place during heat treatment. One-time high-temperature intermediate tempering at 740-780°C produced 55.8%  $\alpha$ -phase, increasing the tendency of the steel toward intergranular corrosion. A second tempering at the same temperature increased the amount of  $\alpha$ -phase to 82.6% with more uniform distribution of the  $\alpha$ -phase (martensite) within the grain and on the grain boundary. After such heat treatment, the corrosion properties of the steel conform to GOST State Standards 6032-58.

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172 009 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--MECHANISM UNDERLYING THE EXTRACTION OF PALLADIUM WITH  
TRI-N-OCTYL PHOSPHINE SULPHIDE -U-  
AUTHOR--(04)-BLEDNOV, B.P., PAVLENKO, A.F., KONOVALOVA, L.A., DULNEVA,  
V.YE.  
COUNTRY OF INFO--USSR  
SOURCE--IZVEST. V.U.Z., TSVETNAYA MET., 1970, (1), 60-64  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--PALLADIUM, CHLORIDE, EXTRACTIVE METALLURGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0552 STEP NO--UR/0149/70/000/001/0060/0064  
CIRC ACCESSION NO--AP0124247  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124247

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXTRACTION OF PD FROM CHLORIDE SOLUTIONS BY MEANS OF TRI,N,OCTYL PHOSPHINE SULPHIDE, (C SJB6 H SUB17) SUB3 PS, WAS STUDIED, USING A GRAPHICAL METHOD. THE SOLVATION COEFF. THUS DETERMINED EQUALLED UNITY. WITH INCREASING CONCENTRATION OF CL PRIME NEGATIVE IONS IN THE ORIGINAL AQUEOUS SOLUTION THE EXTRACTION OF PD BY THE REAGENT DIMINISHED. ANALYSIS OF THESE RESULTS SUGGESTED THAT THE EXTRACTION OF PD BY TRI,N,OCTYL PHOSPHINE SULPHIDE TOOK PLACE BY WAY OF AN INTERNAL SUBSTITUTION MECHANISM WITH THE FORMATION OF THE MONOSULVATE IN THE ORGANIC PHASE.

UNCLASSIFIED

USSR

K UDC 77.01:772.933

PEVCHEV, YU. F., KALASHNIKOVA, V. I., KONOVALOVA, L. P.

"Concerning the Mechanism of the Effect of a Pulsed Electrical Field Upon the Photographic Process"

Moscow, Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii, Vol 15, No 4, 1970, pp 250-256

Abstract: It is shown that the positive as well as the negative effect of the action of a pulsed electrical field, determined through the ratio of the difference in the density of blackening with the field and without the field to the density of blackening without the field, first increases linearly with an increase in the intensity of the field, and then passes into saturation. Decreasing the illumination of the photographic layer brings about a sharp increase of the effect, when the light flash is delayed with respect to the front of the voltage pulse, the effect decreases roughly exponentially with a characteristic time of about 30 microseconds. The action of the electrical field is regarded as a sequence of processes taking place in an individual emulsion microcrystal. Since the photoelectrons are displaced by the electrical field to the surface of the microcrystal, their behavior is essentially determined by the number and character of the electron traps located on a small sector of surface. The

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USSR

FEVCHEV, YU. F., et al., Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii, Vol 15, No 4, 1970, pp 250-256

absence of a sensitivity center in the region of the accumulation of photoelectrons brings about the formation of a dispersed latent image and, in the final count, to a negative effect; the presence of a sensitivity center creates conditions for concentration of the silver of the latent image at this center, which brings about a positive effect of the action of the field. The value of the effect is determined by the relationship between the intensity of the exposure, which determines the total number of photoelectrons, and the intensity of the electrical fields, which determines the number of electrical-charge carriers required for compensation of the field in the microcrystal. The sign of the effect of the action of the electrical field is tied to the average number of sensitivity centers per microcrystal. These considerations provide an explanation for the most characteristic feature of the effect of the action of the field -- its ambiguity. They are based upon the assumption that the sign of the field action effect is determined by the probability of there being at least one sensitivity center on a comparatively small random sector of the surface of an emulsion microcrystal. It can be easily seen that this probability depends only on the average number of sensitivity centers per microcrystal of the emulsion. If the average number of sensitivity centers per microcrystal is small (of the order of 1), the

2/4



USSR

PEVCHEV, YU. F., et al., Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinetografii, Vol 15, No 4, 1970, pp 250-256

probability that there will be a sensitivity center on a small sector of the surface of a microcrystal is obviously small, and the field action effect will be negative in the overwhelming majority of microcrystals. And on the contrary, with a comparatively large number of sensitivity centers per microcrystal, the probability that a sensitivity center will randomly occur in the region of the accumulation of electrons under the action of the electrical field will be of the order of unity, and for the majority of the microcrystals of the emulsion the effect will be positive. On the other hand, it can be shown that equisensitivity of the emulsion microcrystals, and, consequently, also high contrast of the photographic emulsion, may be provided only with a comparatively large average number of centers per microcrystal. From this point of view, the mechanism of the action of the electrical field upon the structure of the latent photographic image makes it possible to understand the basic experimental fact that the investigated photographic films, being divided into two groups on the basis of the sign of the observed effect, are also divided rather clearly on the basis of their parametric properties, the positive effect being, as a rule, linked to high contrast. Moreover, it has been shown on experimental film specimens that the positive effect of the action of the field is due to the introduction of radium chloride into

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USSR

PEVCHEV, YU. F., et al., Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii, Vol 15, No 4, 1970, pp 250-256

the emulsion in the process of its ripening, which considerably increases the contrast of the emulsion. These considerations concerning the behavior of the possible mechanism of the action of an electrical field upon the structure of the latent photographic image are basically qualitative, and explain only the general tendencies in the behavior of the observed effects.

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USSR

UDC 547.26'118 + 543.226

PUDOVIK, A. N., KONOVALOVA, I. V., ANOSHINA, N. P., and ROMANOV, G. V.,  
Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy  
of Sciences USSR and Kazan' State University imeni Ul'yanov-Lenin

"Determination of the Activation Energy of the Phosphonate-Phosphate  
Rearrangement and of Some Other Reactions by the Method of Differential-  
Thermal Analysis"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2153-2156

Abstract: Determination of the activation energy of the decomposition of sodium bicarbonate, isomerization of the ethylphosphonous acid diallyl ester, phosphonate-phosphate rearrangement, and the breakdown of  $\alpha$ -hydroxyalkylphosphonates and their analogs was carried out by means of the differential thermal analysis (DTA). A satisfactory agreement has been achieved between the calculated and literature data. It has been shown that DTA may be used in determining  $E_{act}$  for thermal reactions of  $\alpha$ -hydroxyalkylphosphonates.

1/1

USSR

BOROVKOV, I. I., Candidate of Economic Sciences, and KONOVALOVA, N. M.,  
Engineer-Economist, Tashkent Zonal Scientific Research Institute of Experimental  
Planning of the USSR Academy of Construction and Architecture

"Method of Complex Economic Appraisal of Antiseismic Constructive Measures in  
Residential Buildings"

Tashkent, Stroitel'stvo i Arkhitektura Uzbekistana, No 9, Sep 72, pp 10-12

Abstract: In the appraisal of antiseismic constructive measures in residential buildings, the distribution of overhead costs between individual types of construction-assembly work proportionally to the labor-consuming capacity of each of this kind of work is considered to be more in the right way than their at present practiced rating by planned expenditures. The labor-consuming capacity of antiseismic measures, as the arrangement of monolithic ferroconcrete belts, reinforcement of layings, welding of fittings and details, is always higher than the labor-consuming capacity of the erection of the object upon the whole. The shares of antiseismic measures of brick and large-panel type buildings in the planned cost of direct expenditures and total labor expenditures are discussed. Coefficients are indicated which consider the labor-consuming nature of antiseismic measures which have to be taken into account in their planned cost. These coefficients can be used in the capacity of constant indices for a more

1/2

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USSR

BOROVKOV, I. I. and KONOVALOVA, N. M., *Stroitel'stvo i Arkhitektura*  
*Uzbekistana*, No 9, Sep 72, pp 10-12

exact definition of the cost of antiseismic measures of 4-story residential buildings (series 76 and 77) designated for series construction in Middle Asia. The complex reduced expenditures for antiseismic constructive measures of residential buildings can be determined with the help of a discussed formula. Four tables, three biblio. refs.

2/2

Oncology

USSR

UDC 616-006.4:615.28

KONOVALOVA, N. P., D'YACHKOVSKAYA, R. F., and KISELEVA, Ye. G., Order of Lenin  
Institute of Chemical Physics, Academy of Sciences USSR

"Toxicity and Antitumor Properties of a New Analogue of Thio-TEPA"

Leningrad, Voprosy Onkologii, Vol 19, No 1, 1973, pp 58-63

Abstract: Since a number of stable free radicals are known to have antitumor activity and relatively low toxicity, a paramagnetic analogue of thiophosphamide (PAT) was synthesized by the substitution of an iminoxyl radical for one of the ethylenimine groups on thio-TEPA. Comparison of the toxic effects of PAT and thio-TEPA and their therapeutic effectiveness showed that the former offered a number of advantages over the latter. Studies with rat erythromyelosis showed that when equimolar quantities of PAT (5 mg/kg) and thio-TEPA (2 mg/kg) were injected 3 days after tumor transplantation, both sets of animals showed a tumor regression constant of  $0.21 \text{ day}^{-1}$ . However, if the preparations were administered on the 8th post-transplant day and continued for 10 days, PAT evoked an immediately apparent tumor regression with a constant of  $0.15 \text{ day}^{-1}$ , while in animals treated with thio-TEPA the tumors continued to grow for a couple of days before regression set in with a constant of  $0.11 \text{ day}^{-1}$ . These

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KONOVALOVA, N. P., et al, Voprosy Onkologii, Vol 19, No 1, 1973, pp 58-63

differences in the rate constants were significant on the basis of regression analysis. The chemotherapeutic indexes of PAT and thio-TEPA for rat erythro-myelosis, expressed as the ratio of LD<sub>20</sub> to the dose required for complete tumor inhibition were, respectively, 6.0 and 2.0. PAT also showed greater effectiveness than thio-TEPA against various solid and ascitic tumors of rats and mice. PAT was also more effective than thio-TEPA in affecting division of Ehrlich ascites tumor cells in male and female random bred mice (e.g., in terms of decreasing the mitotic index, increasing the number of abnormal mitoses, and in altering the relationship among the mitotic stages).

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UDC 582.285.22:633.11:582.001.4

KONOVALOVA, N. YE., SUZDAL'SKAYA, N. V., ZHEMCEUZHINA, A. I., SOROKINA, G. K.,  
and SHCHEKOTKOVA, T. V.

"Dynamics of the Race Composition of Agents of Grain Rust in the USSR"

Leningrad, Mikologiya i Fitopatologiya, Vol 4, No 2, 1970, pp 107-122

Abstract: The distribution of brown, yellow, and stem rust of wheat, in hundreds of varieties, and two types of pervasive oat rust throughout the USSR are described, with varying ecological conditions influencing the formation of new types and/or the persistence of the old. A highly virulent rust from the Far East, responsible for destruction of 80% of the crop, had lost its virulence on the West side of the Urals. Mutation depends on many factors, none of which is of similar value in all types. Where the organism passes through an intermediate host, the appearance of new types of very likely: this is rare in asexual stages.

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UDC 621.396.677

KONOVALOVA, T. A.

"Directional Characteristics of a Magnetic Vibrator Located Near a Flat Metallic Array"

V sb. Radioelektronika letatel'n. apparatov (Aviation Radioelectronics -- collection of works), Khar'kov, Khar'kov. aviats. in-t, 1972, vyp.1, pp 98-101 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 E7)

Translation: A solution is given to a problem associated with the emission of a magnetic vibrator which is located near a flat metallic array formed by infinitely thin bands with any ratio between the period of the array and the length of the source wave. A precise solution is expressed with the aid of an infinite series. An expression is derived for the radiation pattern of the vibrator for long wave operation. Original article: two illustrations and two bibliographic entries. Resume.

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UDC 621.396.674.3

KONOVALOVA, T. A.

"Emission of an Electric Vibrator Placed Near a Flat Metallic Array"

Radioelektronika letatel'n. apparatov (Aviation Radioelectronics), Khar'kov, Khar'kov. Aviats. in-t, 1972, vyp.1, pp 91-97 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B32)

Translation: Rigorous formulas are given for calculating the radiation pattern of an elementary, electric vibrator placed near a flat, metallic array. The derivation of the formulas is based on the utilization of the reciprocity theorem and on the results of the analysis of the diffraction of a plane wave obliquely falling on the array. Original article: one illustration and three bibliographic entries. Resume.

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UDC: 621.396.677

KONOVALOVA, T. A.

"Analysis of the Directional Properties of Dipoles Placed Near a Flat Metal Grating"

Radiotekhnika. Resp. mezhved. nauch.-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 13, pp 116-121 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5B36)

Translation: The problem of emission from a dipole located close to a flat metal grating is considered by two methods. In the first case the solution boils down to solving the problem of diffraction of a plane wave by the grating with subsequent application of the theorem of mutuality. In the second instance the problem is solved in the strict initial formulation with the use of Green's functions. The resultant formulas are used for plotting graphs which can be used to account for the effect which the dimensions of the grating, its distance from the dipole, and the frequency of the source have on the radiation pattern of the dipole. Four illustrations, resumé.

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UDC: 621.372.82

KONOVALOVA, T. A.

"Dipole Excitation of an Open Flat Waveguide"

Radiotekhnika. Resp. mezhved. nauch.-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 13, pp 113-115 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5B90)

Translation: The paper deals with the problem of dipole excitation of a waveguide formed by two infinite strip lattices. The solution is found by the method of the Riemann-Hilbert problem, which yields an infinite system of linear nonhomogeneous equations. The results are analyzed in detail in the long-wave case. The field is written out in the form of the wave sum for the discrete and continuous spectra. The region in which the first wave mode predominates is isolated. It is shown that emission power maxima are observed in the direction of propagation of the quasi-normal wave. Bibliography of three titles. Resumé.

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