

AP0049745

identified by ir and NMR spectra. Thus, 0.1 mole RCHO (R = Me, Et, Pr) was slowly added to 0.1 mole I in 25 ml Et<sub>2</sub>O at 0° and the mixt. kept 2 hr at room temp., dried, and analyzed by gas-liq. chromatog. The following II were obtained (R, b.p., d<sub>4</sub><sup>20</sup>, and n<sub>D</sub><sup>20</sup> given): Me, 87-8°, 0.8752, 1.4412; Et, 118-20°, 0.8759, 1.4430; Pr, 152-4°, 0.8764, 1.4442. Similar reaction of freshly distd. and stabilized acrolein with I in abs. EtOH with a small amt. of PrCO<sub>2</sub>H gave 20-5% II (R = CH:CH<sub>2</sub>), b. 136-7°, d<sub>4</sub><sup>20</sup> 0.9512, n<sub>D</sub><sup>20</sup> 1.5210. Although II were more stable than I, they were partially isomerized to III on standing at room temp. By preparative gas-liq. chromatog., the following III were obtained (R, b.p., d<sub>4</sub><sup>20</sup>, and n<sub>D</sub><sup>20</sup> given): Me, 92-3°, 0.8356, 1.4404; Et, 126-8°, 0.8362, 1.4456; Pr, 159-62°, 0.8376, 1.4482. By chromatog. on Al<sub>2</sub>O<sub>3</sub>, it was shown that the asym. III did not disproportionate to mixts. of sym. III (Ioffe *et al.*, *CA*, 68: 86781u) under the conditions used. V. Stepan

19801656

Acc. Nr:

AP0049783

Abstracting Service:  
CHEMICAL ABST. 5/10

Ref. Code:

2R0409

100391h Chemistry of ethylenimine. IV. Heterolysis of the 1-aminoethylenimine ring under the action of sulfonyl halides. Hillers, S.; Yermolov, A. V.; Lidaks, M.; Pesturovich, V. A. (Inst. Org. Syn., Riga, USSR). *Khim. Geterotsikl. Soedin.* 1970, (1), 8-II (Russ). In the reaction of 1-aminoethylenimine (I) with  $RC_6H_4SO_2Cl$  (II), the aziridine ring was opened to give substituted 1-( $\beta$ -chloroethyl)-2-(phenylsulfonyl)hydrazines  $RC_6H_4SO_2NHNH(CH_2)_2Cl$  (III) as the main products. The structure of III was supported by NMR ir, and uv spectra, and synthesis. Slow addn. of 0.02 mole I in 10-15 ml abs. EtOH to a stirred soln. of 0.02 mole II in 10-15 ml abs. EtOH at  $-10^\circ$ , stirring 1 hr at  $-10^\circ$ , warming up to  $20-2^\circ$ , stirring 0.5-2 hr at that temp., filtering the ppt. in an inert atm., and drying in desiccator gave the following III [R and m.p. (EtOH) given]: H,  $103-5^\circ$ ; p-Me,  $200-1^\circ$ ; p-AcNH,  $145-7^\circ$ . Satg. a soln. of 0.1 mole I in 50 ml abs. EtOH with dry HCl in an inert atm. at gradually elevated temp. from  $-30^\circ$  to  $20^\circ$  gave  $ClCH_2CH_2NHNH_2 \cdot HCl$  (IV), m.  $34-6^\circ$  (EtOH:Et<sub>2</sub>O). The reaction of IV with II catalyzed by NaOH also gave III. On standing at room temp., III slowly decompd. to deeply colored oils, in which the presence of N:N groups was proved by ir spectra. The hydrolysis of these oils gave  $PhSO_2H$ . Similar changes were obsd. in the reaction of Br with III in EtOH soln. The oxidn. of III to azo compds. took place. V. Stepan

REEL/FRAME  
19801701

USSR

UDC 531.717.12.082.32:531.787.3

BAKHVALOVA, V. V., and ~~YEREMEYEV, A. Ye.~~

"Measurement of the Inner Diameter of Cylinders of Piston Manometers by the Pneumatic Method"

Tr. VNI Fiz.-Tekhn. i Radiotekhn. Izmereniy / Works of the All-Union Scientific Research Institute of Physicotechnical and Radiotechnical Measurements /, No 5(35), 1971, pp 269—279 ( from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 32. Single Issue No 1, 1972, Abstract No 1.32.398, Resume )

Translation : Results of processing, investigating, and using of a pneumatic instrument for measuring lengths with a complex of calibrated little balls for measuring deep and small openings are described. A standard gaging apparatus has been developed and testified. The technical requirements for the apparatus and measuring conditions guarantee stability, sensitivity, and linearity of characteristics of the instrument. The accuracy of the instrument is  $\pm 0.3-0.4 \mu\text{m}$ . Four illustr., one table, two biblio. refs.

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Hydraulic

USSR

531.787

~~YEREMEYEV, A. YE.~~"25,000 kg/cm<sup>2</sup> Metering Pump"

Tr. Metrol. In-Tov SSSR, Vyp. 104(164), [Works of Metrological Institutes of USSR, No. 104(164)], pp 148-149 (translated from Referativnyy Zhurnal Metrologiya I Izmeritel'naya Tekhnika, No. 4, 1970, Abstract No. 4.32.717 by M. I. M.)

Translation: A modernized model of an earlier metering pump is described, including a number of improvements in comparison to a metering pump with self-compression of the piston, widely used in high pressure installations at VNIIFTRI [All Union Scientific Research Institute for Physical and Electronic Measurements]. The usage of the differential piston system improves coaxiality between the internal piston and rod, the telescopic placement of pistons allows an increase in rod travel of 50 percent of its previous length and, consequently, increases the delivery, which is particularly important in devices with piston manometers which have natural leakage, and for the performance of investigations in chambers with large volumes and significant compressibility of the fluid. The improvements have assured reliable operation of the metering pump throughout the entire pressure range up to 25,000 kg/cm<sup>2</sup> and increased the volume of fluid delivered in one piston stroke to 18 cm<sup>3</sup>. One illustration, one biblio. ref.

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USSR

620.162.2:531.781.089.6

SEKOYAN, S. S., YEREMEYEV, A. YE.

"Elongation of a Rod of a Non-Linearly Elastic Material"

Tr. Metrol. In-Tov SSSR [Works of Metrological Institutes of USSR], No. 104 (164), 1969, pp 121-125 (translated from Referativnyy Zhurnal Metrologiya I Izmeritel'naya Tekhnika, No. 4, 1970, Abstract No. 4,32,393 by M. I. M.)

Translation: The value of the parameter of non-linearity of the elastic elongation curve of a rod made of heat treated type 60S2N2A steel, used in high pressure apparatus, is found. It is demonstrated that it is similar to the value calculated using the non-linear Murnaghan theory of elasticity using the third order constant of elasticity of this steel, measured earlier by the US-pulse method (see Izmeritel'naya Tekhnika, No. 7, 1966, p 10), equal to  $\delta = 4.1$ . As an example of one possible area of practical application of the results produced for the solution of practical problems, the possibility is noted of significantly decreasing the volume of work involved in certifying standard rod dynamometers for very high forces by using the US method of determining  $\delta$ . The values of third order elasticity constant determined by this method for the material of which the dynamometer is made can subsequently be used to calculate similar non-linear deformation corrections for the elastic elements in instruments of other designs made of the same material. Two illustrations; five biblio. refs.

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USSR

531.787

YEREMEYEV, A. YE.

"Semi-Automatic Loader for Loaded Piston Manometers"

Tr. Metrol. In-Tov SSSR, Vyp. 104(164), [Works of Metrological Institutes of USSR, No. 104(164)], pp 166-168 (translated from Referativnyy Zhurnal Metrologiya I Izmeritel'naya Tekhnika, No. 4, 1970, Abstract No. 4.32.726, unsigned)

Translation: A special loader is described which is used to load and unload piston manometers with total weight sets of about 100 kg. The loader also rotates the piston carrying the weights and automatically maintains the required pressure. The usage of the semi-automatic loader is quite convenient for test operations with fixed required pressures. When the manometer is used for measurement of an unknown pressure, or for installation and dismantling operations, the semi-automatic loader is disconnected by being moved away toward a movable bracket carrying the weight set. In this case, loading is performed manually. Long term operation of an experimental model of the loader showed that it operated satisfactorily in all load ranges. This loader can be used in other loaded piston devices as well. One illustration, one biblio. ref.

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USSR

532.1:531.787

YEREMEYEV, A. YE., DOLGUSHIN, G. G.

"Pressure Transmitting Liquid Separator"

Tr. Metrol. In-Tov SSSR, Vyp. 104(164), [Works of Metrological Institutes of USSR, No. 104(164)], pp 164-165 (translated from Referativnyy Zhurnal Metrologiya I Izmeritel'naya Tekhnika, No. 4, 1970, Abstract No. 4.32.723, unsigned)

Translation: The design is described of a separator designed to operate with large volumes of liquids (up to 300 cm<sup>3</sup>) in the pressure range up to 3500 kg/cm<sup>2</sup>.  
One illustration.

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- 100 -

UDC: 621.372.01-503.25

USSR

TODUA, A. V., ZUYEV, L. N., ~~YEREMEYEV, G. A.~~, CHITAISHVILI, I. A.

"Frequency Parameters of the Input Circuits of Electronic Devices"

V sb. Radioelektronika optich. diapazona (Radio Electronics in the Optical Band--collection of works), Moscow, 1970(1971), pp 188-193 (from RZh-Radio-tekhnika, No 3, Mar 72, Abstract No 3A118)

Translation: The paper deals with the frequency and wave properties of a series tank circuit with auxiliary active load in parallel with the tank capacitance. An expression is found for the modulus of the transmission factor of the circuit, and an extremum analysis of this expression is given which shows the cutoff frequencies of the tank passband and the maximum transmission factor. An examination of transient processes in periodic and aperiodic modes of conduction is made on the basis of a differential equation for the voltage across an equivalent capacitor. It is shown that the given circuit can have two types of transient characteristics: classical, where the resistance of the loop is less than the double wave impedance, and non-trivial, where the zone of periodicity is in the middle of the range of external loads relative to the capacitor. In this connection, between the

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USSR

TODUA, A. V. et al., Radiotekhnika optich. diapazona, Moscow, 1970(1971),  
pp 188-193

upper and lower limits of the oscillatory region is a load at which the  
oscillatory process has an extremum. Two illustrations, bibliography of  
two titles. Ye. R.

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Physiology

USSR

UDC 612.27+612.45

YEREMEYEV, N. S., TROSHKIN, G. V., and SHALYAPINA, V. G., Laboratory of Respiratory Physiology, Institute of Physiology imeni I. P. Pavlov, Academy of Sciences SSSR, Leningrad

"The Effects of Increased Partial Pressure of Oxygen on the Sympathoadrenal System and Brain Acetylcholine esterase in Animals"

Leningrad, Fiziologicheskij Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 5, 1972, pp 768-772

Abstract: In white mice exposed to 60 and 80% oxygen at atmospheric pressure for 10 days and to pure oxygen at partial pressures 1.3, 3, and 3.5 atm for 2 hrs, noradrenaline concentration in the brain decreases while adrenocorticoid concentration in the blood increases. In rats, exposure to oxygen at atmospheric pressure causes an increase while exposure to oxygen at higher partial pressures (convulsive levels) causes a decrease in acetylcholinesterase activity in the cerebral cortex, subcortex, brain stem, medulla oblongata, and cerebellum. It is concluded that excess oxygen induces a general stress reaction and a specific reaction in the body and that oxygen toxicity is in a large measure due to disturbances in the synthesis and destruction of neuronal transmitter substances.

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UDC 577.23

USSR

GURVICH, A. A., YEREMEYEV, V. F., KARABCHIYEVSKIY, YU. A., Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Recording Mitogenetic Radiation of Animal Hearts in VIVE Tests Using a Photomultiplier"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 4, Dec 70, pp 972-975

Abstract: Under narcosis and with the chest wall open, the heart of cold or warm-blooded animals emits mitogenetic radiation with sufficient intensity to be picked up by a FEU 18-A photomultiplier. It is necessary to collect the radiation on the surface of the photocathode by means of an optical device. The intensity of heart radiation is of the order of 1,000 photons/cm<sup>2</sup>·sec. The intensity of mitogenetic radiation depends on the physiological state of the organ. Progressive cooling of the heart, which occurs when the chest wall is open and the lowered metabolic level lowers the intensity of mitogenetic radiation. Along with it a weak visible radiation may appear as well.

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1/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ON SOME MECHANISMS OF BRONCHOSPASM IN PATIENTS WITH BRONCHIAL  
ASTHMA -U-  
AUTHOR--(03)--DCTSENKO, YA.N., MEDVEDCHUK, G.YA., YEREMEYEV, V.G.  
COUNTRY OF INFO--USSR  
SOURCE--VRACHEBNOYE DELO, 1970, NR 5, PP 90-92  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--PULMONARY DISEASE, HYPOCAPNIA, HYPOXEMIA, HYPERCAPNIA,  
RESPIRATORY DRUG  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/1738 STEP NO--UR/0475/70/000/005/0090/0092  
CIRC ACCESSION NO--AP0129106  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 021

CIRC ACCESSION NO--A0129106  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE BRONCHIAL PATENCY CHANGES HAVE BEEN STUDIED IN 22 HEALTH PERSONS AND 13 PATIENTS WITH BRONCHIAL ASTHMA AND ASTHMATIC BRONCHITIS UNDER THE EFFECT OF HYPOCAPNIA, HYPERCAPNIA AND HYPOXEMIA. SIGNS OF MILD BRONCHOSPASM WERE FREQUENTLY FOUND DUE TO THESE EXCITATIONS OF THE RECEPTORS OF THE BRONCHO PULMONARY APPARATUS. A STUDY OF 35 PATIENTS WITH ASTHMA BRONCHIALE REVEALED A GROUP OF 10 PATIENTS WITH THE SO CALLED HYPERVENTILATION SYNDROME, IN WHICH DRUGS INHIBITING THE RESPIRATORY CENTER ARE INDICATED. FACILITY:  
KAFEDRA FAKUL'TETSKOY TERAPII, ZAPOROZHSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR

UDC: 621.374.5(088.8)

YEREMEYEV, V. P., Riga Institute of Civil Aviation Engineers

"A Sectional Magnetostriction Converter"

USSR Author's Certificate No 272363, filed 31 Jan 69, published 1 Sep 70  
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2G319 P)

Translation: This Author's Certificate introduces a sectional magnetostriction converter for delay lines. In order to extend the passband and reduce distortion of pulse fronts, the converter consists of sections of various lengths with different numbers of turns interconnected through additional delay lines and separated by a distance corresponding to the delay time.

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USSR

UDC 613.644:666.932

AUSENARENKO, N. I., YEREMEYEVA, A. M., MOSHCHANSKIY, Yu. D., and KOLOMEYETS, R. G.,  
Ministry of Health USSR

"Experience in Reducing the Level of General Vibration at the Vibration Tables of  
a Reinforced Concrete Plant"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 2, 1970, p 44

Abstract: The vibration tables used in shaping articles made of concrete subject  
the workers to general vibrations far above permissible levels. The authors suc-  
ceeded in lowering the levels to the point where vibrations could not be recorded  
with a VR-1 gauge or felt by the workers. They did this by placing spring-  
supported, individually fitted concrete or metal slabs under each table.

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172 008 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--EQUILIBRIUM BETWEEN ZINC NITRATE AND UREA IN AN AQUEOUS MEDIUM AT  
25DEGREES -U-  
AUTHOR--(02)-YEREMEYEVA, N.YE., DRUZHININ, I.G.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 1094-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ZINC COMPOUND, NITRATE, UREA, CHEMICAL EQUILIBRIUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1999/1113 STEP NO--UR/0078/70/019/004/1094/1096  
CIRC ACCESSION NO--AP0123105  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123105

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY. ISOTHERM (25DEGREES) OF  
ZN(NO SUB3) SUB2 UREA H SUB2 O SYSTEM IS PRESENTED. THE SYSTEM FORMS A  
NEW BINARY COMPD. ZN(NO SUB3) SUB2.4 UREA HAVING D. 1.7838 G-CM PRIME3,  
MOL. VOL. 241.27 CM PRIME3-MOLE, AND SP. VOL. 0.56159 CM PRIME3-G.  
FACILITY: MOSK. GBL. PEDAGOG. INST. IN. KRUPSKOI, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.378:530.145:13

DMITRIYEV, V.G., YEREMEYeva, R.A., YERSHOV, A.G., ITRHOXI, I.YA., KARPOVA, YE.P.

"Engineering Calculation And Optimization Of Parameters Of Optical Band Frequency Doublers"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), 1972, pp 72-79

Abstract: At the contemporary level of development of experimental nonlinear optics, the necessity for engineering calculation and optimization of the parameters of frequency doublers is dictated by the appearance of a large number of nonlinear crystals which make it possible to obtain a high efficiency of conversion into the second optical harmonic without special focusing schemes. As a rule, relatively powerful solid-state lasers are used as the sources of initial radiation. The radiation of the lasers introduces a predominately pulse character and the divergence substantially exceeds the diffraction limit. During calculation of frequency doublers of such lasers it is necessary because of the back reaction to take into account both the pulse character of the initial radiation and the effect of saturation of the harmonic. Calculation of the enumerated factors introduces a number of special features in the nature of the calculation of the efficiency of conversion, such as determination of the optimum ratio

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USSR

DMITRIYEV, V. G., et al., *Kvantovaya elektronika*, No 5(11), 1972, pp 72-79

between the intensity of the exciting wave and the length of the nonlinear crystal, and others. The methods of calculation used in the present work were developed by others for the case of a prescribed field of initial frequency, and for a substantially nonlinear regime. For production of engineering graphs it is most advisable to conduct numerical integration of equations because analytical methods of calculation, valid in some approximations, lead to fairly awkward solutions. 5 fig. 1 tab. 11 ref. Received by editors, 6 Oct 1971.

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Devices

UDC 621.3.049.7

USSR

GOLOVANOV, V. A., YEREMICHEVA, K. A., KRASNOV, Ye. S., MERKIN,  
E. I., OSNOVINA, G. Q., POLYAK, N. M., and ERLIKH, I. M.

"Adhesive with Epoxy Base"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye  
znaki, No. 33, 1971, p 200

Abstract: This adhesive is designed to improve the operation of ferrite UHF devices in the face of low and high powered signals as well as temperature variations. A recipe for its manufacture is given.

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USSR

UDC 681.32:31

ANILOV, V. M., BORISOV, M. S., VLASOV, F. S., YEREMIN, A. T., MONAKHOV, G. D.,  
and RUMYANTSEV, V. I.

"Computer Complex"

USSR Authors' Certificate No 308430, Cl. G 06 f 15/16, filed 20 Apr 70,  
published 12 Aug 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya  
Tekhnika, No 5, May 72, Abstract No 5B98P)

Translation: Special-purpose computer complexes are known which contain a set of digital computers with interlinking units, with synchronization of synchronous series of machines and coupling lines between the digital computers of the complex, which assure correction of data errors occurring as a result of machine malfunctions. However, the amount of time and hardware redundancy used for increasing reliability and for organization of input data averagings in these complexes is considerable. In addition, parallel operation of the machines of the set is impossible in the event that it is necessary to raise the productivity of the computer complex by lowering its reliability. The unique feature of the proposed special-purpose complex is that the output data, address, and control lines of each section into which each computer of the complex is divided are assembled in each machine via assembly circuits into data, address, and control mainlines, which are connected to the inputs of the

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USSR

ANILOV, V. M., et al., USSR Authors' Certificate No 308430

intersectional coupling units of all machines of the set; the output data, address, and control lines of the intersectional coupling unit of each machine of the complex are connected to the data, address, and control inputs of the functional sections of the corresponding computer of the complex. Another unique feature of the special-purpose computer complex is the fact that the intersectional coupling unit of each machine of the complex contains "m" out of "n" (where  $n > m$ ) majority circuits, majorizing inhibit gates, by-pass gates, assembly circuits, and a control register with a control signal generating circuit: the mainline of each machine of the complex being connected to the majority circuit input, through the majorizing inhibit gate to the first assembly input, and through the by-pass gate to the additional assembly input, the control inputs of the gates coupled by control lines to the corresponding outputs of the control circuit, which is connected to the control register output. This makes it possible to reduce the time and hardware redundancy for increasing reliability, provide averaging of input data, and organize parallel operation of the machines of the complex.

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- 24 -

YEREMIN, A. V.

JPRS 553411  
6 MAR 72

UDC: 611.36.014.477-013.9

CHANGES IN TROPIC FUNCTION OF THE EMBRYONIC LIVER UNDER THE INFLUENCE OF TRANSVERSE G FORCE (V.G.)

[Article by S.N. Konshina, V.I. Stepanov, A.V. Yerin, Chair of Normal Anatomy (headed by Professor M.G. Priva, Honored Scientist), Eksp. Leningrad Medical Institute, Acad. I.P. Pavlov; Leningrad, Arkhiv Anatomii, Gistolozii i Embriologii, Russian, No 11, 1971, submitted 25 December 1970, pp 50-55]

The problem of investigating the effect of accelerations on the human organism acquired special significance with development of aviation and rocket technology which resulted in high speed flights.

At the present time we have many works by Soviet and foreign authors dealing with physiological, morphological, histochemical, and other changes developing in the organism under the influence of diverse gravitational stress (M.G. Priva, 1963, 1969, and others; V.I. Stepanov, 1955, 1963; A.V. Yerin, V.I. Stepanov, 1969; V.G. Petrukhin, 1954, 1962; V.I. Babushkin, 1958, 1966; N.V. Usal'nev, 1963; A.R. Kotovskaya, 1962, 1964; R.Ye. Kogan, 1963; A.S. Baret, 1961, 1962; V.A. Ocellin, 1964; A.A. Kiselev, 1963; A.D. Voskresenskiy, 1963; Prouer et al., 1952; Webb, 1958; Muller, 1961, and others). All these studies were conducted on adult organisms.

Of particular interest is the study of the effect of accelerations on the normal ontogenetic process. This is not only of theoretical interest, but also of great practical significance for astronaut and superflights. Space flights, living on orbital stations or other planets under conditions that are appreciably distinct from earth. The effect of accelerations on the young developing organism could lead to significant changes and affect its development in a specific manner.

However, we failed to find any special works dealing with changes in organs and systems in the course of ontogeny arising under the effect of accelerations in the literature available to us. For this reason, it appeared purposeful to pursue experimental investigations in this direction.

We selected the liver and, specifically, its tropic function as our investigative object, since it reflects to total energy balance in the

USSR

UDC 611.127+611.145/.146+611.132]:611.83]:613.73

PRIVES, M. G., ASTAKHOVA, V. V., STEPANTSOV, V. I., and YEREMIN, A. V.,  
Chair of Normal Anatomy and Central Scientific Research Laboratory, First  
Leningrad Medical Institute imeni, Academician, I. P. Pavlov

"The Effect of Transverse Accelerations on the Nerve Structures of the Aorta,  
Venae Cavae, and Auricles"

Leningrad, Arkhiv Anatomii, Gistologii i Embriologii, No 5, 1970, pp 32-37

Abstract: In experiments on dogs, single or repeated exposures to steadily intensifying transverse accelerations that did not result in decompensation failed to produce morphological changes in the nerve structures of the auricles, venae cavae, and aorta, regardless of the magnitude of the accelerations. On the other hand, exposure to accelerations of magnitudes that resulted in pronounced decompensation produced gross morphological changes, including disintegration of the nerve fibers and endings in the wall of the articles and blood vessels. Preliminary training on a centrifuge enabled the animals to tolerate stress better and decrease the response of nerve structures even to accelerations of such magnitude as to impair compensation. Relative bradycardia is suggested as an indicator of impending failure of cardiovascular compensation induced by transverse accelerations.

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1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--SOME SPECIFIC CHARACTERISTICS OF HUMAN ENERGY CONSUMPTION DURING  
THE SIMULATION OF MODIFIED GRAVITATION -U-  
AUTHOR-(04)-YEREMIN, A.V., STEPANTSOV, V.I., SOKOLOV, V.I., TIKHONOV, M.A.  
COUNTRY OF INFO--USSR  
SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL. 4, JAN.-FEB. 1970, P.  
41-45  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GRAVITATION EFFECT, MEDICAL EXPERIMENT, HUMAN PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1967

STEP NO--UR/0453/70/004/000/0041/0045

CIRC ACCESSION NO--AP0120610

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120610

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE ENERGY CONSUMPTION IN 4 MALE SUBJECTS DURING THE WALKING AT 4-4.5 KM-H AND RUNNING AT 9-9.5 KM-H ON A 'RUNNING LANE' WITH CONTROLLED MOTION. THE FORCE OF GRAVITY WAS MODIFIED DURING THE EXPERIMENTS BY RUBBER SHOCK ABSORBERS ATTACHED TO A GIRDLE ON THE SUBJECT AND PULLING DOWN TO THE PLANE OF THE LANE, OR BY CHANGING HIS POSITION WITH RESPECT TO THE FORCE OF GRAVITY VECTOR ON A SPECIAL 'PSEUDOGRAVITATION' STAND. IT IS FOUND THAT WALKING AND RUNNING REQUIRE MORE ENERGY IN A SUPINE POSITION THAN IN A VERTICAL POSITION EVEN WHEN THE LOADS ALONG THE HORIZONTAL AXIS OF THE BODY ARE EQUAL.

UNCLASSIFIED

USSR

UDC 621.371.18:533.951

YEREMIN, B. G., LITVAK, A. G., POLUYAKHTOV, B. K. [Nauchno-issledovatel'skiy  
~~radiofizicheskiy~~ institut--Scientific-Research Radio Physics Institute]

"Investigation of Thermal Electromagnetic Wave Self-Focusing in Plasma"

Izv. VUZ: Radiofizika, Vol XV, No 8, Aug 1972, pp 1132-1138

Abstract: The results are presented of a study of thermal self-focusing of electromagnetic waves of the microwave band in an isotropic weakly-ionized plasma. The experimental study was conducted on a unit consisting of a microwave generator (GW magnetron with power up to 100 W), a vacuum chamber, an injector, a receiving waveguide, a tuned filter, a dielectric antenna, a double T-piece, and a klystron oscillator. It is shown that the special features of the phenomena observed are in good agreement with existing theoretical assumptions. 5 fig. 5 ref. Received by editors, 17 Dec 1971.

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USSR

UDC 51:155.001.57:612.82

DYUBKO, G. F., YEREMIN, G. S.

"~~Mathematical Model of Conversion of Found Information in the Human Audio Analyzer~~"

Probl. Bioniki. Resp. Mezhved. Nauchno-tekhn. Sb. [Problems of Bionics, Republic Interdepartmental Scientific and Technical Collection], No 4, 1970, pp 114-116, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V677 by the authors).

Translation: A mathematical model is presented, constructed by the cybernetic "black box" method.

D2SR

UDC 51

YEREMIN, I. I.

"On the Method of Penalties in Convex Programming"

Tr. 4-y Zima, shkoly po mat. programir, i smezh. vopr., Drogobych, 1971  
 (Proceedings of the Fourth Winter School on Mathematical Programming and  
 Related Questions, Drogobych, 1971), No 4, Moscow, 1972, pp 71 - 90  
 (from RZh Matematika, No 12, 1973, item 12 V566)

Translation: This article considers the extension of the penalty method to  
 convex programming. Let  $f_0(x), \dots, f_T(x)$  be an ordered sequence of functionals  
 determined in real linear space  $X$ ; and  $C_0$  be a non-empty convex set in  $X$ . The  
 following sequence of problems is inductively determined:

$$\min\{f_1(x) \mid x \in C_1\}, \quad (I)_1$$

where  $C_1$  is the optimal set of the problem  $(I)_{1-1}$  that is,

$$C_1 = \left\{ y \in C_{1-1} \mid \min_{x \in C_{1-1}} f_{1-1}(x) = f_{1-1}(y) \right\}, \quad 1 = 1, \dots, T.$$

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Drogobych, 1971, No 4, Moscow, 1972, pp 71 - 90

The closure of these; i. e., the problem  $\min\{f_T(x) | x \in C_T\}$  is called the  
T-problem. Under certain conditions it is possible to reduce T-problems to a  
problem of mathematical programming (MP) in the ordinary formulation. Assume

$$\begin{aligned} \Phi_{i+1}(x, f_1, \dots, f_{i+1}) &= f_{i+1}(x) + r_{i+1} \Phi_i(x, r_1, \dots, f_i), \\ i &= 0, \dots, T-1, \end{aligned}$$

where  $r_k > 0$  ( $k=0, \dots, T$ ) and

$$\min\{\Phi_i(x, r_1, \dots, r_i) | x \in C_i\} = E_i(r_1, \dots, r_i) = E_i. \quad (2.1)$$

Close relationships are discovered between problems  $(I)_i$  and (2.1). We  
assume that the functionals  $f_0(x), \dots, f_T(x)$  are convex and continuous on  $X$ --  
real topological space. We call  $x_0$  the optimal solution to some problem of  
convex programming, "regular" if the problem permits a linearization such that  
 $x_0$  remains optimal for the linearized problem. Under the assumptions made,  
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Drogobych, 1971. No 4, Moscow, 1972, pp 71 - 90

the following theorem holds:

Theorem 1. Suppose the problem  $(I)_T$  is solvable and  $x_0$  is one of its optimal vectors (it is then obvious that  $x_0$  is also optimal for the problems  $(I)_i, i=0, \dots, T-1$ ).

1. If in the problem  $(I)_{i=1}$

$$\min \{x_1(x)' \in C_1 = C_0 \cap \{x | \phi_0(x) \leq E_0\}\}$$

$x_0$  is regular, then for  $r_1 > |u_0|$ , where  $u_0$  is an ambiguous evaluation corresponding to the inequality  $\phi_0(x) \leq E_0$ , the optimal sets of problems  $(I)_{i=1}$  and  $(2.1)_{i=1}$  coincide.

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2. Inductively: if the selection  $r_2 > 0, \dots, r_1 > 0$  ensured the coincidence of the optimal sets of problems  $(I)_t$  and  $(2.1)_t$  for  $t \leq i$ , while in the problem  $(I)_{i+1}$

$$\min \{f_{i+1}(x) | x \in C_{i+1} = C_0 \cap \{x | \phi_1(x, r_1, \dots, r_i) \leq E_t\}\}$$

$x_0$  is regular, then for  $r_{i+1} > |u_1(r_1, \dots, r_i)|$ , where  $u_1$  is an ambiguous evaluation corresponding to the inequality

$$\phi_1(x, r_1, \dots, r_i) \leq E_1(r_1, \dots, r_i),$$

the optimal sets of problems  $(I)_{i+1}$  and  $(2.1)_{i+1}$  coincide ( $i = 1, \dots, T-1$ ).

The practical utility of considering T-problems is demonstrated with a number of examples, one of which is an application of Tikhonov regularization to incorrect problems ( $T = 1$ ). As a result of theorem 1, theorems are

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Drogobych, 1971. No 4, Moscow, 1972, pp 71 - 90

formulated on the existence of constants for which the appropriate regularization algorithm of incorrect MP problems ensures the determination of a normal solution to MP problems. Further, for various T-problems, deviations of the functional and variables from the solution of the basic MP problem are given as a function of the constants chosen. We shall give one such theorem. It relates to a T-problem (  $T = 1$  ) determined by objects  $C$ ,  $f(x)$ , and  $I(x)$ . Given

1)  $C = \{x \mid g_j(x) \leq 0, j = 1, \dots, m\}$ , where  $g_j(x)$  are differentiable convex functions determined on  $H$ .

2)  $f(x)$  is a continuous convex function,  $I(x)$  is a doubly differentiable function for which  $(y, I''(x)y) \geq \alpha \|y\|^2$ ,  $x \in H$ ,  $y \in H$ , for some  $\alpha > 0$ .

3) The problem

$$\min\{I(x) \mid x \in \tilde{C}\}, \quad (5.8)$$

where  $\tilde{C}$  is the optimal set for  $\min\{f(x) \mid g_j(x) \leq 0, j = 1, \dots, m\}$ ; i.e.

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Drogobych, 1971, No 4, 1972, pp 71-90

$$\bar{C} = \{x | g_j(x) \leq 0 \ (j = 1, \dots, m), f(x) \leq \bar{m} \leq \min_{x \in C} f(x)\},$$

is soluble, supposedly in  $x_0$ , where  $x_0$  is regular for (5.8).

Theorem 8. Suppose conditions 1)--3) are fulfilled. Then there exists a  $r_0 \geq 0$ , and for  $r > r_0$  the vector  $x_0$  is optimal also for problems

$$\min \{\bar{f}(x) = f(x) + r^{-1} I(x) | g_j(x) \leq 0, \ j = 1, \dots, m\}. \quad (5.9)$$

If  $x_0$  is regular for this problem and  $u_j(r)$  are evaluations corresponding to the inequalities in (5.9), then

$$\|x(r, r_1, \dots, r_m) - x_0\| \leq \frac{1}{2} \left( \frac{r}{\alpha} \sum_{j=1}^m \frac{\bar{u}_j^2(\bar{x})}{r_j} \right)^{1/2},$$

where  $x(r, r_1, \dots, r_m)$  is the minimum point of the functional

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Drogobych, 1971, No 4, 1972, pp 71-90

$$f(x) + r^{-1}I(x) + \sum_{j=1}^n r_j [g_j^+(x)]^2, r_j > 0, j = 1, \dots, n.$$

Abstract by V. Skokov.

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UDC: 51

YEREMIN, I. I."On Problems in Sequential Programming"

Sib. mat. zh., 1973, 14, No 1, pp 53-63 (from RZh-Kibernetika, No 5, May 73, abstract No 5V627 by the author)

Translation: An extremum problem is considered which involves a system of sequentially optimized functionals  $f_0(x), \dots, f_m(x)$  defined on some real linear space  $X$ . If  $C_0$  is a non-empty convex set from  $X$ , then the conclusive problem of problems  $(i+1): \min\{f_i(x) | x \in C_i\}$ , where  $C_i$  is the optimum set of problem  $(i)$ ,  $i = 0, 1, \dots, m$ , is called a sequential programming problem. If  $X$  is a normed space,  $m=1$  and  $f_1(x) = \|x\|$ , then the given formulation is transformed to the problem of finding the normal solution of the program  $\min\{f_0(x) | x \in C_0\}$ , which arises when regularizing algorithms are constructed for the latter program in the case of incorrectness. A scheme is given for reducing a sequential programming problem to the conventional formulation of a mathematical programming problem depending

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on a number of parameters; an investigation is made of the relations between these parameters in the form of estimating inequalities (for their solutions) or statements on equivalence with a given selection of the above mentioned parameters. Resolving procedures are constructed for the case of convex piecewise-linear programs.

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YEREMIN, I. I.

"Problems of Successive Optimization"

Mat. Metody v Nekotor. Zadachakh Optimal'n. Planir. Vyp 3 [Mathematical Methods in Certain Problems of Optimal Planning, No 3 -- Collection of Works], Sverdlovsk, 1971, pp 60-74 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V551 from the Article).

Translation: Suppose  $C_0$  is a non-empty, convex, closed set in topological vector space  $X$ ;  $f_0(x), \dots, f_s(x)$  is an ordered system of continuous convex functionals defined in  $X$ . Let us determine the sequence of the problem. Find

$$\begin{aligned} \min \{f_0(x) | x \in C_0\}, \\ \min \{f_i(x) | x \in C_i\}, \end{aligned} \quad (1)$$

where  $C_i$  is the optimal set of problem  $(i - 1)$ , i. e.,

$$C_i = \left\{ y \in C_{i-1} \mid \min_{x \in C_{i-1}} f_{i-1}(x) = f_{i-1}(y) \right\} \quad (i = 1, \dots, s).$$

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YEREMIN, I. I., Mat. Metody v Nekotor. Zadachakh Optimal'n. Planir. Vyp 3, Sverdlovsk, 1971, pp 60-74.

The task of successive optimization relative to the ordered system of functions  $f_0(x), \dots, f_s(x)$  means the problem

$$\min \{f_s(x) \mid x \in C_s\}.$$

where  $C_s$  is the optimal set of problem (1) for  $i = s - 1$ .

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USSR

UDC: 512.25/.26+519.3:330.115

ASTAF'YEV, N. N., YEREMIN, I. I.

"Duality in Complex Programming"

Metody uob. bol'shimi sistemami. T. 1 (Methods of Controlling Large Systems. Vol. 1), Irkutsk, 1970, pp 25-49 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9v489)

Translation: A survey article. Section 1 describes two schemes for constructing dual problems: a) with the use of linearization followed by a transition to the dual problem; b) based on representing the problem in an equivalent form through a Lagrange function followed by a change in the order of carrying out the operations  $\inf \sup$ . Section 2 presents various conditions of regularity and the results on solvability and optimality (of the Coon-Tucker type). Section 3 contains various formulations of theorems of duality. Also analyzed are problems of symmetry and self-adjointness in the theory of duality (section 4), quasiconvex and pseudoconvex problems (section 5) and some problems of localized duality. Bibliography of 28 titles. S. Lebedev.

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USSR

UDC 512.25/26+519.5:330.115

YEREMIN, I. I.

"Determination of Points of Immobility of Certain Feier Operators"

Metody Upr. Bol'shimi Sistemi. T. 2, [Methods of Control of Large Systems, Vol. 2--Collection of Works], Irkutsk, 1970, pp 220-226, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V533, from the Introduction).

Translation: The operator  $F(x) \in \{E, \rightarrow E\}$ , where  $E$  is a metric space, is called an  $M$ -Feier operator ( $MCE, M \neq \emptyset$ ), if  $F(y) = y$  and  $|F(x) - y| < |x - y|$  for all  $x \in M$  and  $y \in M$ . Feier operators are used, for example, in developing methods of solution of systems of convex inequalities and problems of convex programming (RZHMat. 1968, 9V349).

A new type of Feier process is constructed, based on the use of an approximating sequence of Feier operators, and the application of the latter to the problem of determining the solution of an infinite system of convex inequalities is given; the problem of projecting a point on the intersection of convex sets is stated in a certain manner in correspondence to the Feier operator depending on the scalar parameter  $\alpha \in (0, 1)$ , the single non-moving point of which approaches the desired projection  $\alpha \rightarrow 0$ .

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1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--USE OF THE MOESSBAUER EFFECT AND EPR IN STUDYING THE ACTION OF  
PROTON IRRADIATION ON IRON OXALATES -U-  
AUTHOR-(04)-YEREMIN, L.P., SHIPATOV, V.T., TARASOV, V.A., SEREGIN, P.P.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. VYS. ENER. 1970, 4(2), 185-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--MOSSBAUER EFFECT, EPR, IRON COMPOUND, OXALATE, PROTON  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/0856 STEP NO--UR/0456/70/004/002/0185/0186  
CIRC ACCESSION NO--AP0118032  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118032

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF IRRADN OF FE OXALATES BY 5-MEV PROTONS WAS STUDIED. THE DOSE VARIED (0.7-7) TIMES 10 PRIME22 EV-G. THE MOESSBAUER EFFECT WAS STUDIED AT 295DEGREE SK. WITH INCREASING DOSE THE FE(III) OXALATE (I) CHANGED COLOR FROM GREEN TO YELLOW. THE INTENSITY OF THE LINES CORRESPONDING TO THE QUADRUPOLE SPLITTING OF FE(II) INCREASED IN THE MOESSBAUER SPECTRA. AT 7 TIMES 10 PRIME22 EV-G ONLY FE PRIME2 POSITIVE IONS ARE PRESENT. COMPARISON OF THE I SPECTRA WITH THAT OF FE(II) OXALATE (II) THAT WAS IRRADIATED TO 7 TIMES 10 PRIME22 EV-G SHOWED THAT THE CHEM. SHIFT AND THE QUADRUPOLE SPLITTING OF BOTH SPECTRA ARE SIMILAR AND THAT THE IRRADN. BY PROTONS FORMS II. THE CONVERSION IS DUE TO THE STRONG REDUCING ACTION OF C SUB2 O SUB4 PRIME2 NEGATIVE ANIONS SURROUNDING THE FE(III) ION. THE DECREASE IN THE EFFECT OBSD. IN THE IRRADN. OF I WITH UP TO 7 TIMES 10 PRIME22 EV-G IS DUE TO THE DESTRUCTION OF THE CRYSTAL STRUCTURE OF INITIAL I AND THE FORMATION OF A POROUS STRUCTURE OF II CHARACTERIZED BY A LOWER MOESSBAUER COEFF. FACILITY: NAUGH-ISSLED. KHIM. INST., LENINGRAD. GOS. UNIV. IM. ZHDANOVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC:

YEREMIN, M. V. and KORNIYENKO, A. A., Kazan' State University imeni V. I. Ul'yanov-Lenin

"Theory of a Crystalline Field in Dielectrics"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 3, Mar 1972, pp 754-760

Abstract: The authors develop a sequential, multi-electron theory of a crystalline field while taking into consideration the direct exchange interaction of the electrons of the impurity ion with the s- and p-electrons of the ligands. It is shown that consideration of direct exchange interaction results directly in the renormalization of the  $\langle r^k \rangle$  average values of the point model in crystalline field theory. At the same time, it also ensures the appearance of supplementary terms in the Hamiltonian of the crystalline field. As an example, the authors calculate the crystalline field parameters for the  $\text{PrCl}_3$  complex. The authors also explain changes in Slater's parameters during the introduction of ions into the crystal along with the appearance of the dependence of the parameters of the phenomenological Hamiltonian on the  $\gamma$ , L, and S quantum numbers. Original article: 19 formulas, one table, and 10 bibliographic entries.

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USSR

UDC 669.71.046.44

GAZIYEV, A. I., YEREMIN, N. I., ISMATOV, KH. R.

"Study of Shrinkage of Bauxite Charges During Heating"

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrokn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 58-63 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G123)

Translation: Results are presented from a study of the shrinkage of bauxite charges during heating. The studies were performed by the method of automated recording of the linear deformation of the briquettes. Synthetic and natural saturated and unsaturated mixtures were studied. These mixtures had the following weight ratios of components:  $Al_2O_3/SiO_2 = 2.5-3.8$  and  $Al_2O_3/Fe_2O_3 = 1.2-2.5$ . The relation between the shrinkage of the charge and its chemical and mineralogical composition at sintering temperatures of 1,160-1,300° is established. There are 2 illustrations and 1 table.

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USSR

UDC 669.71.006

YEREMIN, N. I.

"Basic Research Areas in the Field of Alumina Production"

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrokn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 24-27 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G117)

Translation: The basic problems of scientific research and planning and design work requiring resolution in the near future are discussed. Means of solving these problems are noted. Specific proposals are made with respect to expanding the production of  $Al_2O_3$  from various types of raw material.

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172 029 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--USE OF MAGNETIC METALLOGRAPHY DURING A STUDY OF THE STRUCTURE OF  
DEFORMED AUSTENITIC STAINLESS STEELS -U-  
AUTHOR--(03)-YEREMIN, N.I., ZHURGV, A.P., BARATS, N.K.  
COUNTRY OF INFO--USSR  
SOURCE--ZAVOD. LAB. 1970, 36(2), 189-91  
DATE PUBLISHED-----70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS  
TOPIC TAGS--AUSTENITIC STEEL, STAINLESS STEEL, METALLOGRAPHY, ALLOY  
DESIGNATION, PLASTIC DEFORMATION, MICROSCOPY, X RAY  
TECHNIQUE/(U)KHIBNIOT STAINLESS STEEL, (U)OKHIBNIOT STAINLESS STEEL,  
(U)OOKHIBNIOT STAINLESS STEEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1993/0344 STEP NO--UR/0032/70/036/002/0189/0191  
CIRC ACCESSION NO--AP0113270  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113270

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FINELY DISPERSED, SMALL PARTICLES OF THE ALPHA SUB2 PHASE, FORMED IN AUSTENITIC STEELS BY PLASTIC DEFORMATION AT TEMPS. GREATER THAN M SUB3, CAN OFTEN BE STUDIED ONLY WITH DIFFICULTY BY CONVENTIONAL METALLOGRAPHIC OR X RAY METHODS, OWING TO THE SMALL SIZE AND AMT. OF THE PPTS. HOWEVER, THE FERROMAGNETIC ALPHA SUB2 PHASE CAN BE EXAMD. BY MAGNETIC METALLOGRAPHY. HERE THE ELECTROPOLISHED SPECIMENS ARE COVERED WITH A UNIFORM FILM OF CHEM. PREPD., COLLOIDAL, 1-DOMAIN MAGNETIC PARTICLES SUSPENDED IN AN AQ. SOLN. OF A SURFACE ACTIVE AGENT. GLYCEROL IS ADDED TO REDUCE EVAPN. AND IMPROVE THE OPTICAL PROPERTIES OF THE SUSPENSION. THEN THE SPECIMEN SURFACE IS WASHED TO REMOVE PARTICLES NOT ATTACHED MAGNETICALLY, AND EXAMD. OR PHOTOGRAPHED UNDER A METALLOGRAPHIC MICROSCOPE. THE METHOD WAS APPLIED IN STUDYING THE INCIDENCE AND DISTRIBUTION OF DEFORMATION MARTENSITE IN SPECIMENS OF GOST GRADE 00KH18N1OT, 0KH18N1OT, AND KH18N1OT STEELS (WHICH DIFFERED IN THE DEGREE OF AUSTENITE STABILITY) SUBJECTED TO PLASTIC DEFORMATION AT VARIOUS TEMPS.

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Acc. Nr:

AP0047645

Abstracting Service:  
CHEMICAL ABST. 5-70

Ref. Code:

UR0080

104601z Solid solutions of  $2CaO \cdot SiO_2$  with some metal oxides. Eremin, N. I.; Egereva, A. I.; Dmitrieva, A. M.; Firfarskiy, A. B. (Vses. Nauch.-Issled. Proekt. Inst. Alyum., Magn. Elektrodnoi Prom., Leningrad, USSR). *Zh. Prikl. Khim.* (Leningrad) 1970, 43(1), 18-24 (Russ). Solid solns. of  $2CaO \cdot SiO_2$  (I) with each of  $Na_2O$ ,  $Fe_2O_3$ ,  $TiO_2$ , and  $MgO$  formed either during slow or rapid cooling of heat-treated mixts. were investigated by means of x-ray anal. The soly. of  $Na_2O$ ,  $Fe_2O_3$ ,  $TiO_2$ , and  $MgO$  in the  $\beta$ -modification of  $2CaO \cdot SiO_2$  is 0.6, 1.3, 0.75, and 1.0% and the  $n_s$  of the solid solns. formed are 1.728-1.730, 1.740-1.742, (not given), and 1.730, resp. The phase diagram for the  $MgO-2CaO \cdot SiO_2$  system is presented. The effect of the metal oxides on the transition of the  $\beta$  into the  $\gamma$ -modification of  $2CaO \cdot SiO_2$  is discussed. Ivan Wichterle

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18 AT

1/2 007 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--THE ADULARISATION AND GOLD, SILVER MINE RELIZATION RELATIONSHIP  
EXAMPLIFIED BY FINISH'S ORE MANIFESTATION -U-  
AUTHOR--YEREMIN, R.A.  
COUNTRY OF INFO--USSR  
SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 2, PP 34-40  
DATE PUBLISHED-----70  
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY  
TOPIC TAGS--ORE, GOLD, SILVER, QUARTZ, MINERAL FORMATION ANALYSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1987/0873 STEP NO--UR/0210/70/000/002/0034/0040  
CIRC ACCESSION NO--AP0104309  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104309

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDITIONS OF GOLD,SILVER  
ADULARIA,QUARTZ VEINS FORMATION ARE CONSIDERED IN THE PAPER EXAMPLIFIED  
BY TYPICAL ORE MANIFESTATION OF THE NDRTH EAST OF THE USSR.

UNCLASSIFIED

0123

USSR

UDC 621.375.018.756

ARAKCHEYEVA, I. A., DOMIN, L. P., YEREMIN, S. A., NIKISHIN, V. I., OSTAPENKO, G. S., PETROV, L. N., TKACHEV, A. I., UDOVIK, A. P.

"A Differential Amplifier"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 4, Feb 72, Author's Certificate No 326704, Division H, filed 19 Jan 70, published 19 Jan 72, p 208

Translation: This Author's Certificate introduces a differential amplifier which contains two emitter-followers, two amplification stages with dynamic load and a common source of direct current. As a distinguishing feature of the patent, the amplification factor is increased and the thermal compensation is improved by basing the dynamic load on a reverse conductivity transistor, and by connecting in each branch of the amplifier a transistor of the same conductivity as that of the amplification stage, and a diode biased in the forward direction. The emitter of the amplification stage is connected to the DC source and to the emitter of the transistor with the same conductivity. The base of this transistor is connected through a diode to the centertap of the supply source, and the collector is connected to the base of the dynamic load transistor.

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Inventions and Discoveries

USSR

UDC 615.472:615,847.8

SOLOV'YEVA, G. R., YEREMIN, V. A., and GORZON, R. R., All Union Scientific Research Institute of Medical Instrumentation Construction, Moscow

"Apparatus for Low-Frequency Magnetotherapy "Polyus-1"

Moscow, Meditsinskaya Tekhnika, No 5, Sep/Oct 73, pp 29-33

Abstract: An apparatus has been developed at the Scientific Research Institute of Medical Instrumentation Construction for producing non-contact action of a magnetic field. The instrument will be manufactured at the Electromedical Apparatus Plant (EMA). The advantage of this apparatus is that there are virtually no vibrational or heat side effects. It is designed for local application of a low-frequency magnetic field. A special inductor for gynecological application is available. Since the human body presents practically no barrier to the magnetic field, the air gap of a magnetic field may be used to calculate the depth of penetration of a patient. "Polyus-1" has been already successfully tested at several clinics.

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1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--PROPER CONTROL OF THE MELTING PERIOD WHEN MAKING STAINLESS STEEL IN  
ELECTRIC FURNACES -U-  
AUTHOR--(03)-KOCHO, V.S., YEREMIN, V.E., GRUNIN, V.S.  
COUNTRY OF INFO--USSR  
SOURCE--STAL' 1970, 30(2), 133-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--STAINLESS STEEL, ELECTRIC FURNACE, CHROMIUM, SILICON, STEEL  
SCRAP  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1994/1947 STEP NO--UR/0133/70/030/002/0133/0134  
CIRC ACCESSION NO--AP0115755  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0115755

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. CR LOSSES WERE STUDIED STATISTICALLY AS A FUNCTION OF THE O VOL. USED FOR BLOWING IN A 50 TON ARC FURNACE REMELTING OF STAINLESS STEEL SCRAP. THE SI IN THE CHARGE SHOULD BE RAISED TO 0.8PERCENT, THE ARC HEAT SUPPLEMENTED WITH A 5-10 MIN MILD O BLOWING, AND STRONG BLOWING STARTED WHEN THE BATH IS AT 1600-1610DEGREES. HEATS MADE IN THIS WAY SHOWED A CR LOSS OF 600-700 KG.

FACILITY: KIEV. POLITEKH. INST., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 621.382.2

DUDNIK, YE.P., YEREMIN, V.K., LEVINSON, D.I., RYVKIN, S.M., STROKAN, N.B.  
SUBASHIYEVA, V.F., TISNEK, N.I. [Physico-Technical Institute imeni A.F. Ioffe,  
Academy Of Sciences, USSR, Leningrad]

"High-Resolution Counters Of Germanium With Radiation-Induced Defects"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 779-781

Abstract: The characteristics are presented of counters obtained as usual on the basis of germanium with  $N_D - N_A \sim 10^{12} \text{ cm}^{-3}$  but with a decrease of more than one order of magnitude of the background of impurities and defects  $N_I$ . The amplitude spectrum of a specimen of  $^{127}\text{Ge}$  is shown. The resolution of the counters at this line is less than  $R \approx 1.2$  percent. The dependence is shown of the constant capture time on the electrical field intensity. 2 fig. 13 ref. Received by editors, 5 Nov 1971.

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- 192 -

UNCLASSIFIED

PROCESSING DATE--27NOV70

-1/3 014

TITLE--RESULTS OF USING AEROMETHODS IN GEOLOGY IN THE PAST 25 YEARS -U-

AUTHOR--(05)-VOSKRESENSKIY, YE.N., DRENOV, N.V., GAVRILOV, A.A., YEREMIN, V.K., NIKITSKIY, V.YE.

COUNTRY OF INFO--USSR

SOURCE--RAZVEDKA I OKHRANA NEOR, 1970, NR 2, PP 5-8

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOLOGIC EXPLORATION, PROSPECTING, AEROMAGNETIC SURVEY, RADIO METER, MAGNETOMETER, AEROELECTRIC SOUNDING, GEOPHYSIC INSTRUMENT, (U)AYAAM6 AEROMAGNETOMETER, (U)AMM13 AEROMAGNETOMETER INSTRUMENT, (U)AM13 AEROMAGNETOMETER INSTRUMENT, (U)AEM49 AEROMAGNETOMETER INSTRUMENT, (U)ASG48 GEOPHYSIC INSTRUMENT, (U)SG10

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA M E--3007/1357

STEP NO--UR/9083/70/000/002/9005/0008

CIRC ACCESSION NO--AP0136722

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/3 . 014

CIRC ACCESSION NO--AP0136722

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A HISTORY OF THE DEVELOPMENT OF AEROMETHODS IN GEOLOGICAL PROSPECTING, LISTING INSTITUTIONS, PERSONALITIES, AND INSTRUMENTS, IS GIVEN. IN 1949, THE VIRG INTRODUCED THE SG-10 AERORADIOMETER, AND LATER DEVELOPED THE ASGM-25, ASG-46, AND ASG-48 AEROGEOLOGICAL STATIONS FOR SIMULTANEOUS AEROMAGNETIC AND AERORADIOMETRIC SURVEYS. THE ASG-48 INSTRUMENT IS USED TO DETECT CONCENTRATIONS OF URANIUM THORIUM, ETC. IN THE 1950'S, THE AEM-49 FERRO SOUND AEROMAGNETOMETERS WERE INTRODUCED. THE MINISTRY OF GEOLOGY THEN INTRODUCED THE AM-13 AND AMM-13 AEROMAGNETOMETERS. THE VNIIGEOFIZIKA DEVELOPED AND INTRODUCED THE PROTON MAGNETOMETER ACCESSORY TO FERRO SOUND AEROMAGNETOMETERS. VITR DEVELOPED THE AYAAM-6 PROTON AEROMAGNETOMETER CAPABLE OF MEASURING ABSOLUTE VALUES OF GEOMAGNETIC FIELD FORCE AND, AT PRESENT, IS SUCCESSFULLY TESTING A NEW MODEL PROTON AEROMAGNETOMETER, THE AMP-7, FOR BAUXITE PROSPECTING. A HELICOPTER BORNE AEROELECTROPROSPECTING DEVICE, THE INFINITELY LONG CABLE, WAS INTRODUCED IN 1959. THE AIRCRAFT BORNE AERIS SYSTEM (INDUCTION INVESTIGATIONS) WAS DEVELOPED AT THE SAME TIME. IN THE 1960'S, BITR DEVELOPED APPARATUS FOR THE ROTATING MAGNETIC FIELD SYSTEM, WHILE SVEGINGEO DEVELOPED APPARATUS FOR THE AERORADIOKIP METHOD OF SEARCHING OUT WATER IN DESERT AREAS. VIRG DEVELOPED A SIMILAR INSTRUMENT TO USE IN GEOLOGICAL MAPPING OPERATIONS VNIIGEOFIZIKA INTRODUCED THE SUCCESSFUL PDISK RADIOGEODETTIC SYSTEM. IN 1968-69 SEVERAL DIFFERENT INSTITUTES DEVELOPED THE AMPP AEROELECTROPROSPECTING SYSTEM FOR USE IN A METHOD INVOLVING TRANSITION PROCESSES OF THE ELECTROMAGNETIC FIELD.

UNCLASSIFIED

\*3/3 014

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136722

ABSTRACT/EXTRACT--RADAR, THERMAL, SPECTROMETRIC, AND RELATED AERIAL SURVEY METHODS ARE DEVELOPED IN LAEM. VARIOUS GEOLOGICAL SURVEY PROJECTS NOW UNDER WAY ARE GIVEN. FACILITY: VSESOUZNY AEROGEOLOGICHESKIY TREST. FACILITY: VSESOUZNY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT EKONOMIKI MINERAL'NOGO SYR'YA I GEOLOGORAZVEDOCHNYKH RABOT. FACILITY: MINISTERSTVO GEOLOGII SSSR.

UNCLASSIFIED

UDC 615.917

NIKOLOV, S. KH., LYUBETSKIY, KH. Z., BARSEL'YANTS, G. B., ZABELIN, A. A., NEFELOV, P. V., ONOPCHENKO, N. V., CHURSINA, M. A., YERENIN, V. M., TRENSUK, R. A.

"Toxicologic Estimate of the New Organophosphorus Pesticide Bitex"

V sb. Vliyanie ul'trazvuka, yadokhimik. i druzikh faktorov sredy na organizm cheloveka i pishch. produkty (Effect of Ultrasound, Poisons and other Factors of the Environment on the Organism of Man and Food Products -- collection of works), Krasnodar, 1971, pp 85-91 (from RZh-Farmakologiya. Khimioterapevticheskiye sredstva. Toksikologiya, No 2, Feb 72, Abstract No 2.54.773)

Translation: Rats were injected intraventricularly with bitex (an organophosphorus pesticide; I: contains 50% active principle) dissolved in water (1 ml) in doses of 100, 200, 300, 400, 500, 600, 700 and 800 mg/kg, and they were observed for 3 weeks. With a dose of 100-200 mg/kg, the activity of the cholinesterase dropped by 2-3 times during the first 1-2 days, and it began to recover after 7-11 days. The dose of 100 mg/kg was taken as the minimum toxic dose. For doses of 300 mg/kg and higher, sluggishness, increased frequency of urination, diarrhea, contraction of the pupils, tears, paresis of the extremities, a drop in body temperature of 1-5°, an increase in the sedimentation rate, leucocytosis, neutrophileisis and a reduction in the sedimentation rate, 3-15 times were noted. The  $DL_{100}$  of I is 800 mg/kg, the  $DL_{50}$  is 384.6

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KOLOV, S. Kh., et al., Vliyeniye ul'trazvuka, yadokhnik. i drugikh faktorov  
redy na organizm cheloveka i pishch. produkty, Krasnodar, 1971, pp 85-91

(491.6-277.4 mg/kg). For rabbits (I was injected in doses of 25-200 mg/kg) the  
DL<sub>50</sub> was calculated on the level of 32 (11.67-47.3) mg/kg. The pathomorphologi-  
cal changes in rabbits were characterized by circulatory disorders and distrophy.  
USSR, Krasnodar, Medical Institute.

UDC 621.385.64

USSR

YEREMIN, V.P.

"Experimental Study Of The Operation Of Magnetrons In A Synchronized Regime With High Amplification Factors"

V sb. Vopr. elektron. tekhn. (Problems Of Electronics Technology--Collection Of Works), No 2, Saratov, Saratov University, 1971, pp 28-40 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A137)

Translation: Pulse magnetrons in a regime of synchronized oscillation are experimentally studied. Magnetrons were used with an output power of 20-30 kw in a pulse, with a pulse duration of 5-10 microseconds. An amplification factor of 20-25 db and a synchronization band of 2-4 percent were obtained. It is shown that a synchronized magnetron behaves like saturated amplifiers, i.e., the output power and the efficiency do not depend on the input power. The magnitude of the anode current and  $Q_b/t$  acts on the magnitude of the synchronization band. The experimental synchronized magnetron had better parameters than regenerative amplifiers, which is connected with the difficulty of developing the electronics of a magnetron in an underexcited regime, whereas with synchronized magnetrons all parameters are finished off in a regeneration regime. 10 ref. Zh.N.

1/1

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1/2 043 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--INFRARED EQUIPMENT OF METEOR SYSTEM SATELLITES -U-  
AUTHOR--VETLOV, I.P., YEREMIN, V.P., LISTRATOV, A.V., RODIONOV, V.T.  
COUNTRY OF INFO--USSR  
SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 4, PP 80-91  
DATE PUBLISHED-----70  
SUBJECT AREAS--SPACE TECHNOLOGY, NAVIGATION  
TOPIC TAGS--IR SENSOR, ATMOSPHERIC CLOUD, SPACECRAFT CARRIED EQUIPMENT,  
METEOROLOGIC SATELLITE/(U)METEOR METEOROLOGIC SATELLITE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1987/1041 STEP NO--UR/0050/70/000/004/0030/0091  
CIRC ACCESSION NO--AP0104439  
UNCLASSIFIED

2/2 043

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104439

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INFRARED EQUIPMENT OF METEOR SYSTEM SATELLITES DESTINED FOR TRACING THE CLOUD DISTRIBUTION OVER THE HIGH AND DAY SIDES OF THE EARTH IS BEING DESCRIBED. PRINCIPLES OF OPERATION OF THE EQUIPMENT, AN OPTICAL SCHEME OF THE ON BOARD RECEIVING DEVICE, A BLOCK SCHEME OF THE GROUND PHOTO RECORDING DEVICE, THE BASIC PARAMETERS AND CHARACTERISTICS OF THESE DEVICES ARE CONSIDERED. THE RESULTS OF INTERPRETATION OF THE INFORMATION OBTAINED ARE DISCUSSED.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--KINETICS AND MECHANISM OF PROPANE PYROLYSIS IN A HYDROGEN PLASMA  
JET -U-  
AUTHOR--102)-MOGEL, G., YEREMIN, YE.N.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 43-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PROPULSION AND FUELS  
TOPIC TAGS--PYROLYSIS, PROPANE, PLASMA JET, PLASMA FLOW, CHEMICAL REACTION  
MECHANISM, PROPYLENE, ACETYLENE, ETHYLENE, METHANE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/2065 STEP NO--UR/0076/70/044/001/0043/0046  
GIRC ACCESSION NO--AP0125652  
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PYROLYSIS OF PROPANE IN A H PLASMA JET IS A 1ST ORDER REACTION. THE INFLUENCE OF THE PLASMA FLOW RATE ON PYRELYSIS IS SHOWN. THE SUGGESTED REACTION MECHANISM EXPLAINS THE PRESENCE OF PROPYLENE, ACETYLENE, ETHYLENE, AND METHANE IN THE REACTION PRODUCTS. FACILITY: MOSK. COS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--HETEROGENEOUS CATALYSIS IN A GLOW DISCHARGE -U-  
AUTHOR--(03)-YEREMIN, YE.N., MALTSEV, A.N., BELOVA, V.M.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(3), 629-31 (PHYS CHEM)  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--HETEROGENEOUS CATALYSIS, METAL CATALYST, AMMONIA,  
CHEMICAL SYNTHESIS, CHEMICAL REACTION RATE, GLOW DISCHARGE,  
CHEMICAL STABILITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1984/1573 STEP NO--UR/0020/70/190/003/0629/0631  
CIRC ACCESSION NO--AT0100191  
UNCLASSIFIED

272 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--ATG100191

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF INTRODUCING METAL CATALYSTS (PT, AG, AND CU IN THE FORM OF A SCREEN SHAPED INTO A ROLL) DIRECTLY INTO THE INTERELECTRODE REGION SO THAT THEY ARE IN THE PLASMA DURING DISCHARGE WAS STUDIED ON THE REACTION RATE AND STATIONARY NH SUB3 CONC. DURING THE SYNTHESIS OF NH SUB3 FROM A N-H MIXT. THE EXPTS. WERE MADE AT 50 AND 100 TORR FOR A CURRENT OF 35 MA AND A GAS FLOW RATE OF 1.2-50 L.-HR. THE CATALYSTS CAUSED A MARKED INCREASE IN THE REACTION RATE, AND THE NH SUB3 CONC. WAS INCREASED 25 TIMES OVER THAT WITHOUT A CATALYST. IN ADDN., THE PRESENCE OF A CATALYST RETARDS THE DECOMP. OF NH SUB3. THE PHENOMENON IS ATTRIBUTED DIRECTLY TO THE DIFFERENCE IN THE MECHANISM FOR THE CATALYST REACTION IN THE DISCHARGE: THE GENERATION OF ACTIVE PARTICLES IN THE DISCHARGE PLASMA AND THE SYNTHESIS AND STABILIZATION OF THE NH SUB3 MOLS. ON THE SURFACE OF THE HETEROGENEOUS CATALYST.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--INFLUENCE OF VARIOUS FACTORS ON THE EFFECTIVENESS OF THE CHEMICAL  
ACTION OF A DISCHARGE DURING METHANE CRACKING. II. INFLUENCE OF  
AUTHOR--MESHKOVA, G.I., YEREMIN, YE.N.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 461-3  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TASS--METHANE, CATALYTIC CRACKING, HYDROGEN, ETHYLENE, HELIUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAHE--1989/1143 STEP NO--UR/0076/70/044/002/0461/0463  
CIRC ACCESSION NO--AP0107632  
UNCLASSIFIED

PROCESSING DATE--11SEP70

UNCLASSIFIED

2/2 013

CIRC ACCESSION NO--AP0107632

ABSTRACT/EXTRACT--(U) GP-Q- ABSTRACT. THE EFFECTS OF ADDN. OF H AND HE ON THE CRACKING OF CH SUB4 IN GLOW DISCHARGE IN A CONTINUOUS STREAM WERE STUDIED. EXPTL. CONDITIONS WERE: 350 MA, CH SUB4 PRESSURE 10 MM, AND H OR HE ADDED TO BRING THE TOTAL PRESSURE TO 40 AND 110 MM (DILN. 3 AND 10 TIMES, RESP.). ADDN. OF H OR HE INCREASES OVERALL EFFICIENCY OF THE CHRM. EFFECT OF DISCHARGE. AT CONVERSIONS UP TO 50PERCENT, THE TOTAL CONVERSION OF CH SUB4 INCREASES ON DILN. WITH H 2-3 TIMES. SELECTIVITY TO C SUB2 H SUB2 OVER THE INTERVALS STUDIED INCREASES WITH DILN. DILN. WITH HE HAS A GREATER EFFECT. SELECTIVITY TO C SUB2 H SUB2 ALSO INCREASES, BEING EQUAL OR HIGHER THAN WITH H. AT HIGH SP. ENERGY, THE C SUB2 H SUB2 YIELD IS PROPORTIONAL TO THE DILN. THE POSSIBLE EFFECT OF H IS RETARDATION OF C SUB2 H SUB2 DECOMPN. A. SHADAN.

UNCLASSIFIED

1/2 053  
 UNCLASSIFIED  
 PROCESSING DATE--11SEPT0  
 TITLE--REACTION OF ALUMINUM BOROHYDRIDE WITH TETRAETHYLAMMONIUM  
 BOROHYDRIDE -U-  
 AUTHOR--TITOV, L.V., YEREMIN, YE.R., GAVRILOVA, L.A., ROSOLOVSKIY, V.YA.  
 COUNTRY OF INFO--USSR  
 SOURCE--IZV. AKAD, NAUK SSSR, SER. KHIM. 1970, (1), 180-2  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--CHEMISTRY  
 TOPIC TAGS--ALUMINUM COMPOUND, BOROHYDRIDE, AMMONIUM COMPOUND, COMPLEX  
 MOLECULE, WATER, PROPANOL, THERMOGRAM, X RAY DIFFRACTION STUDY, IR  
 SPECTRUM, THERMAL DECOMPOSITION, TRIETHYLAMINE, ETHANE, ALUMINUM, BODON  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAME--1984/1665  
 STEP NO--U9/0052/70/000/001/0150/0182  
 CIRC ACCESSION NO--400100270  
 UNCLASSIFIED

2/2 053

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0100270

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ET SUB4 ((BH SUB4 ) PREPD. BY EXCHANGE BETWEEN ET SUB4 NBR AND EXCESS NABH SUB4 IN ISO,PROH, WAS ALLOWED TO REACT IN A VACUUM SYSTEM WITH 5 MOLES AL((H SUB4)SUB3, THE MIXT. WAS KEPT FINALLY AT ROOM TEMP. 3 TO 4 HR TO YIELD 100PERCENT COLORLESS AND STABLE (UNDER N ATM.) ET SUB4 N, AL((H SUB4)SUB4, WHICH RAPIDLY REACTS WITH H SUB2 O WITH EVOLUTION OF H BUT WITHOUT SELF IGNITION; ET REACTS SIMILARLY WITH ISO,PROH. THE SUBSTANCE WAS CHARACTERIZED BY X RAY DIFFRACTION AND IR SPECTRUM; ON A THERMOGRAM IT GAVE AN ENDOTHERM AT 97DEGREES THAT WAS REVERSIBLE AND PROBABLY CAUSED BY A POLYMORPHIC CHANGE. IN INERT ATM. AT 1500DEGREES, IT DECOMPD. WITH LOSS OF H, ET SUB3 N, C SUB2 H SUB6 AND H SUB2 H SUB6 (SMALL AMT.), LEAVING A RESIDUE OF B AND AL.

UNCLASSIFIED

172 013 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--SYNTHESIS OF ANILINIUM POTASSIUM SULFATOCERATES -U-  
AUTHOR--(02) YEREMIN, YU.G., MARTYSHOVA, T.I.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 638-42  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--CHEMICAL SYNTHESIS, METAL COMPLEX COMPOUND, POTASSIUM  
COMPOUND, CESIUM COMPOUND, SULFATE, ANILINE, ORGANIC COMPLEX COMPOUND,  
SELENIUM COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1994/1385 STEP NO--UR/0078/70/015/003/0638/0642  
CIRC ACCESSION NO--AP0115704  
UNCLASSIFIED

Z/2 013

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115704

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPODS. WERE PREPD. IN H  
 SUB2 SO SUB4, HNO SUB3, AND HCL SYSTEMS. COMPODS. OF DIFFERENT COMPN.  
 WERE OBTAINED DEPENDING ON THE STARTING CONC. RATIO OF CE PRIME4  
 POSITIVE & PRIME POSITIVE PHNH SUB3 PRIME POSITIVE. IN GENERAL, (PHNH  
 SUB3) SUBX K SUB3-X CE (SO SUB4) SUB3 FORMED IN HNO SUB3 OR H SUB2 SO  
 SUB4 AND (PHNH SUB3) SUBX K SUB5-X SE(SO SUB4) SUB4 FORMED IN HCL SOLNS.  
 THE COMPODS. HAD LOW SOLY. PHNH SUB3 PRIME POSITIVE HAS A DUAL ROLE IN  
 THESE REACTIONS. IN HCL IT FORMED AN INSOL. COMPD. AND SEPD.  
 IMMEDIATELY AFTER MIXING OF REAGENTS AND IN HNO SUB3 OR H SUB2 SO SUB4  
 IT REDUCED CE PRIME4 POSITIVE TO CE PRIME3 POSITIVE BEFORE PPTN. IT  
 APPEARS THAT PHNH SUB3 PRIME POSITIVE HAS A STRONG SALTING OUT EFFECT  
 AND ACCELERATES PPTN. OF DOUBLE SULFATE SALTS OF CE AND K.  
 FACILITY: KALANIN. POLITEKH. INST., KALININ, USSR.

UNCLASSIFIED

172 029 UNCLASSIFIED PROCESSING DATE--ZUNGYU  
TITLE--SYNTHESIS AND PROPERTIES OF ANTIPIRINE AND PYRAMIDON COMPLEXES OF  
SCANDIUM OF THE AMINE TYPE -U-  
AUTHOR--(02)--YEREMIN, YU.G., KATOCHKINA, V.S.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 972-7  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHEMICAL SYNTHESIS, SCANDIUM COMPOUND, AMINE DERIVATIVE,  
ELECTRICAL CONDUCTIVITY, IR SPECTRUM, ION EXCHANGE RESIN, COMPLEX  
COMPOUND, NITRATE, CHLORATE, IODIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3004/2033 STEP NO--UR/0078/70/015/004/0972/0977  
CIRC ACCESSION NO--AP0132290  
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132290

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. (SCL SUB6)X SUB3 (X EQUALS ND SUB3 PRIME NEGATIVE, CLO SUB4 PRIME NEGATIVE, I PRIME NEGATIVE AND L EQUALS ANTIPYRINE) AND (SCIPYR) SUB3(CLO SUB4) SUB3 .3H SUB2 O (PYR EQUALS PYRAMIDON) WERE PREPD. IN AQ. SOLNS. SOLY. IN H SUB2 OF (SCL SUB6)X SUB3 DECREASED WITH X IN THE ORDER NG SUB3 PRIME NEGATIVE LARGER THAN I PRIME NEGATIVE LARGER THAN CLO SUB4 PRIME NEGATIVE. ELEC. COND., IR SPECTRA, AND ION EXCHANGE CHROMATOG. PROVED THAT ANTIPYRINE AND PYRAMIDON COORDINATE TO SC FORMING A COMPLEX CATION. TRIS(PYRAMIDON) COMPLEXES FAILED TO PPT. AS NITRATES OR IODIDES. WITH THE EXCEPTION OF (SCL SUB6)(NG SUB3) SUB3 WHICH M. 224DEGREES, THE COMPLEXES DECOMP. ON MELTING.

FACILITY: KALININ. POLITEKH. INST., KALININ, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--THIOCYANATOSCANDATES OF SOME QUATERNARY AMMONIUM BASES -U-  
AUTHOR--(03)-YEREMIN, YU.G., KATOCHKINA, V.S., KOMISSAROYA, L.N.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1248-54  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--COMPLEX COMPOUND, THIOCYANATE, SCANDIUM COMPOUND, QUATERNARY  
AMMONIUM SALT, ELECTRIC CONDUCTIVITY, ELECTROLYTE, THERMAL DECOMPOSITION  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3007/0740 STEP NO--UR/0078770/015/005/1248/1254  
CIRC ACCESSION NO--AP0136179  
UNCLASSIFIED

272 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136179

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. SOLY. OF (R SUB6 N) SUB3 (SC(NCS) SUB6) (I) (R EQUALS ME, ET, OR BU) IN H SUB2 O, MECOET, ACETOPHENONE, ETOH, AMYL ALC., ACOET, AND ACOBU IS GIVEN. ELEC. COND. OF I IN MEQH OR CONCD. AQ. SOLNS. SHOWS THAT THESE SALTS ARE 3:1 ELECTROLYTES AND THEY DECOMP. ON DILN. THE ANION HAS NCS COORDINATED VIA N (DELTA(NCS) EQUALS 490, NU(CS) 825, AND NU(CN) 2050-100 CM PRIME NEGATIVE1). I DECOMP. GREATER THAN 180DEGREES.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--SPECTROPHOTOMETRIC STUDY OF THE INTERACTION OF SCANDIUM WITH  
BROMOCRESOL GREEN, BROMOCRESOL PURPLE, AND BROMOPHENOL BLUE -U-  
AUTHOR-(02)-YEREMIN, YU.G., KATOCHKINA, V.S.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ANAL. KHIM. 1970, 25(1), 68-71  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, SCANDIUM, COMPLEX COMPOUND,  
CRESOL, PHENOL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1993/0495 STEP NO--UR/0075/70/025/001/0068/0071  
CIRC ACCESSION NO--AT0113386  
UNCLASSIFIED

2/2 010

CIRC ACCESSION NO--AT0113386

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BROMOCRESOL GREEN FORMS A COMPLEX WITH SC AT PH 4.0-4.6 (MOLAR ABSORPTIVITY (E) 6 TIMES 10<sup>3</sup> PRIME3 AT 520 MMU), BROMOCRESOL PURPLE FORMS A COMPLEX AT PH 4.0-4.2 (EPSILON 8.15 TIMES 10<sup>3</sup> PRIME3 AT 470 MMU), BROMOPHENOL BLUE FORMS A COMPLEX AT PH 4.0-4.2 (EPSILON 14 TIMES 10<sup>3</sup> PRIME3 AT 480 MMU). BEER'S LAW IS OBEYED IN THE 1-33 MUG SC-ML RANGE FOR BROMOCRESOL GREEN, 1-35 MUG-ML FOR BROMOCRESOL PURPLE AND 0.5-28 MUG-ML FOR BROMOPHENOL BLUE. ALL THE ABOVE ELEMENTS ACT WITH SC IN A 1:1 MOLAR RATIO. FACILITY: KALININ POLYTECH. INST., KALININ, USSR.

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Abstracting Service:  
CHEMICAL ABST. 6/70

Ref. Code

410028

YEREMIN Yu.G.

117257s Synthesis of hexa- $\epsilon$ -caprolactamcerium(III) isopolyhalides. Yeremin, Yu. G.; Martyshova, T. I. (Kalinin. Politekh. inst., Kalinin, USSR). *Zh. Neorg. Khim.* 1970, 15(2), 350-3 (Russ).  $Ce(I_2)_3 \cdot 6L$  (I) and  $Ce(Br_2)_3 \cdot 6L \cdot 16H_2O$  (II) formed when a corresponding Ce(III) halide was dissolved in satd. K halide soln. and 1st I or Br and then caprolactam (L) were added to these mixts. I is a brown powder, decomp. at 173°, sol. in alc., esters, PhMe, xylene,  $CCl_4$ , and hexane. II is a bright orange powd., m. 150°, evolving Br on a subsequent heating. Soly. of II is analogous to that of I. In mineral acids, II forms a thick red sirup. At 25°, elec. cond. of II in EtOH was  $\sim 93.0-99.7 \text{ ohm}^{-1} \cdot \text{m}^2/\text{kilomole}$ . The elec. cond. of I was 31.9-54.6, depending on diln. It is assumed that these halides are stabilized by the complex cation  $[CeL_6]^{3+}$ . HMJR -

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USSR

UDC 616.981.42

SHIN, N. G., REBENTSOVA, M. M., YEREMIN, Yu. P., and FEDOSEYENKO, V. M.,  
Institute of Zoology, Kazakh Academy of Sciences, and Institute of Regional  
Pathology, Kazakh Ministry of Health

"Ultrasonic Disintegration of Brucella"

Alma-Ata, Izvestiya Akad. Nauk Kazakh SSR, Ser. Biol., No 1, 1973, pp 68-71

Abstract: Suspensions of 12 Brucella strains (Br. melitensis 16 M, Br. abortus 544, and Br. ruis) isolated from human being, deer, and cattle disintegrated on exposure to ultrasound, the rate varying with the intensity and duration and with the physicochemical factors (pH of the medium, viscosity, concentration of the microbial suspension, etc.). For example, at a frequency of sonication of 22 kHz and intensity of 15 to 18 wt/cm<sup>2</sup>, selective disintegration was evident within 7 or 8 minutes and it became "explosive" in 30 to 45 minutes. Destruction was total after 1 hour. Further sonication resulted in complete homogenization. By an appropriate choice of the frequency, intensity, and other parameters of ultrasound, one can control the process of cell disintegration to permit isolation of the nuclear substance and other organelles. Meanwhile the biological activity of the material thus isolated is preserved. Ultrasound appears to be an effective method of fractionating Brucella and possibly other biological objects.

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USSR

UDC 621.791:546.621:532.72

LARIKOV, L.N., PAL'CHENKO, V.N., RYABOV, V.R., LOZOVSKAYA, A.V., KRAVCHENKO, A.G., and YEREMINA, A.H.

"Determination of Aluminum Self-Diffusion in Intermetallics Formed During Welding"

Kiev, Avtomaticheskaya Svarka, No 6, Jun 71, pp 71-72

Abstract: In the present work, conducted by the Institute of Electric Welding jointly with the Institute of Metal Physics, Academy of Sciences Ukrainian SSR, with the use of isotope  $Al^{26}$  self-diffusion was studied in samples of pure aluminum and Fe-Al alloys having the following intermetallic phases:  $FeAl_3$ ,  $FeAl$ ,  $Fe_2Al$ ,  $Fe_3Al_5$ , and  $FeAl_2$ . Equations for the temperature relationship of self-diffusion coefficients were derived. 1 table, 2 bibliographical references.

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USSR

UDC (678.84+678.746.22-139).002.612

DAVYDOVA, V. P., YERUNOVA, G. G., and YEREMINA, L. K., All-Union Scientific Research Institute of Synthetic Rubber Lenin S. V. Izobedev

"Graft Copolymers of Siloxane Rubber and Acrylonitrile"

Moscow, Kauchuk i Rezina, No 8, 1970, pp 1-3

Abstract: A study was made of the composition and properties of graft copolymers of dimethylvinylsiloxane rubber and acrylonitrile, synthesized with the use of different solvents in the presence of a radical polymerization initiator. It was found that the structure of the graft copolymer varies according to the solvent in which the grafting was performed. The best technological properties are found in graft copolymers obtained in gasoline, cyclohexane or n-heptane. The glass transition temperature is  $115 \pm 121.5^\circ \text{C}$ , which is not very much different from the glass transition temperature of dimethylsiloxane rubber. Vulcanizates of the graft copolymers are analogous to siloxane rubbers in frost and heat resistance. They are considerably superior to rubbers of SKH-40 in heat aging resistance, but inferior to siloxane rubbers. In oil resistance, rubbers of the graft copolymers take an intermediate position between SKH-40 and SKTV rubbers. Graft copolymers containing ~ 40 percent acrylonitrile and filled with aerosil (20 parts by

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DAVIDOVA, V. P., et al., Kauchuk i Rezina, No 8, 1970, pp 1-3

weight) provide optimal oil resistance data.

L. P. TKACHEVA and T. F. KUNYASHKINA took part in the experimental work.

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USSR

UDC 529.786

YEREMINA, N. M., MISHAKOV, G. A., PIKHITELEV, A. I., and P'ONEVSKIY, N. K.

"Method and Results of Measuring the Lorentzian Dislocation and Widening of Hyperfine Components of the Major Doublet of Rubidium Caused by Buffer Gas"

V Sb. "VII Ural'sk. Konf. po Spektroskopii, 1971. Vyp 1" [In the Collection "Seventh Ural Conference on Spectroscopy, 1971. No 1".], Sverdlovsk, 1971, pp 139-141 (from Referativnyy Zhurnal, No 10, Oct 72. 32. Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 10.32.549)

Translation: In basic elements of the quantum frequency standard based on rubidium vapors - absorption section, filter section, and spectral lamp - the fillers used are rubidium vapors and a buffer gas. For the analysis and investigation of characteristics of this type of standards, e.g. the parameter of quality and filtration of superfine components of the major Rb doublet, it is necessary to know the coefficient of dislocation and of widening of the rubidium lines caused by the buffer gas. A method is suggested for the investigation of indicated constants for the major doublet of rubidium. The coefficients of dislocations and of line widenings of the major doublet of rubidium (780 nm and 794.7 nm) were measured with a relative error of 15% for argon, xenon, nitrogen, and neon. The results of measurements are shown in a table. Two illustrations, one table, seven bibliographical references.

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USSR

UDC 669.14.018.85

TIMOFEYEV, M. M., Candidate of Technical Sciences, FANTAYEVA, M. I., Candidate of Technical Sciences, YEREMINA, V. P., Candidate of Technical Sciences, and SOROKINA, T. M., Engineer, Central Scientific Research Institute of Machinery Manufacture and Metalworking

"The Kh16N9M2 Steel for Steam Pipes With Ultra-High Parameters"

Moscow, Teploenergetika, No 10, Oct 73, pp 9-11

Abstract: The strength properties of steam pipes, 194x28 mm, 133x20 mm, and 76x10 mm in diam., of Kh16N9M2 brand austenitic Cr-Ni-Mo steel, used for a block of the Chelyabinsk Heat and Electric Power Plant, were investigated. The fatigue strength of the base metal of the investigated pipes, at 585, 600, and 650°C, was in accordance with the recommended strength for Kh16N9M2 steel: 14 kg/mm<sup>2</sup>, 12 kg/mm<sup>2</sup>, and 7 kg/mm<sup>2</sup>, respectively. The metal of the pipes is characterized by high plasticity under prolonged tear conditions; the relative elongation of specimens, which desintegrated after 4-5 thousand hrs., was 14-40 %. The

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TIMOFEYEV, M. M., et al., Teploenergetika, No 10, Oct 73, pp 9-11

strength properties were found sufficiently stable during up to 10 thousand hrs. aging at 600 and 650°C. An established order is recommended for the local electro-austenization of Kh16N9M2 steel steam pipes in the zone of welded joints. The changes of mechanical properties of the pipe metal during aging and of welded joints after thermal treatment are shown. Seven figures, three tables, five bibliographic references.

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UDC: 8.74

SMIRNOVA, T. N., YEREMINA, V. P.

"On the Use of Magnetic Drums in the PRORAB Mode"

Zap. nauch. seminarov Leningr. otd. Mat. in-ta AN SSSR (Notes of Scientific Seminars of the Leningrad Department of the Mathematics Institute, Academy of Sciences of the USSR), 1971, 23, pp 128-131 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V517)

Translation: The paper describes organization of the work of a program of interpreting type (PRORAB) in the presence of two fields: an operative field of codes and an external field of codes on magnetic drums. For the latter field, three magnetic drums are used, each of them in one-to-one correspondence with a counter for calculating the length of a free space. The following operations of exchange between the operative and external fields are considered: "record", "readout", "clear" (erasure of a code for a quantity accompanied by dense packing of the codes of intact quantities). In this connection, each operation is assigned by a program (code) whose position is described in the operating manual. V. Mikheyev.

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1/2 028 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--SOCIOECONOMIC PREREQUISITES FOR EXTENDING THE WORK ACTIVITY OF  
PHYSICIANS AT RETIREMENT AGE -U-  
AUTHOR--YEREMINA, Z.I.  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, SOVETSKOYE ZDRAVOOKHRANENIYE, RUSSIAN, NO 1, 1970,  
SUBMITTED 7 AUGUST 1969, PP 44-48  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL  
SCIENCES  
TOPIC TAGS--MEDICAL PERSONNEL, GERONTOLOGY, SURGERY, MEDICAL TRAINING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
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PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133064

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE STUDY REVEALED THAT WITH INCREASING AGE THE WORK LOAD OF PHYSICIANS CHANGES; THIS APPLIES WITH PARTICULAR FORCE TO SURGEONS. IN ORDER FOR PHYSICIANS TO BE ABLE TO WORK PRODUCTIVELY UPON REACHING RETIREMENT AGE IN SOME CASES THEY MUST HAVE SPECIAL WORK AND REST CONDITIONS. TABLE 4 LISTS THESE CONDITIONS AS INDICATED BY QUESTIONNAIRE ANSWERS. A CONSIDERABLE NUMBER OF PHYSICIANS MENTIONED A SHORTENING OF THE WORKING DAY, IMPROVEMENT IN WORK ORGANIZATION AND A BETTER WORK AND REST SCHEDULE AS CONDITIONS FAVORING THEIR PROFESSIONAL WORK. AS INDICATED BY THE STUDY, PHYSICIANS OF RETIREMENT AGE, DEPENDING ON INDIVIDUAL CIRCUMSTANCES, CAN WORK IN ANY SECTOR BUT IN SOME CASES THIS REQUIRES THAT CERTAIN CONDITIONS PREVAIL. IN PARTICULAR, THEY MUST BE FREED OF NIGHTTIME WORK, PROVIDED TRANSPORTATION FOR SERVICING PATIENTS AT HOME AND ESPECIALLY IN RURAL AREAS AND MUST WORK PRIMARILY IN THE MORNING AND DAYTIME HOURS. CONSIDERATION MUST ALSO BE GIVEN TO IMPROVING THEIR HOUSING CONDITIONS AND THEIR PERIODIC VISITS TO SANATORIA AND REST HOMES, ETC. IF APPROPRIATE WORK CONDITIONS AND AMENITIES ARE PROVIDED, THE DURATION OF WORK ACTIVITY OF PHYSICIANS CAN BE EXTENDED. THIS IS OF THE GREATEST IMPORTANCE BOTH FOR IMPROVING THE HEALTH CONDITIONS OF WORKERS AND FOR PLANNING THE TRAINING OF MEDICAL PERSONNEL.

FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF SOCIAL HYGIENE AND ORGANIZATION OF PUBLIC HEALTH SERVICES IMENI SEMASHKO, USSR HEALTH MINISTRY, MOSCOW.

UNCLASSIFIED

USSR

DAVIDOV, A. S., and YERENKO, A. A., Institute of Physics, Ukrainian Academy of Sciences, Institute of Theoretical Physics, Ukrainian Academy of Sciences, Kiev

"Light Absorption by Crystals with Spatial Dispersion"

Kiev, Ukrainskiy Fizicheskij Zhurnal, Nov 73, pp 1868-1877

Abstract: The phenomenological theory of light absorption by crystals is considered on the basis of the Maxwell equations. Auxiliary extrinsic currents on the crystal surface are used in the calculations. Then the currents are expressed through the field intensities of waves incident to the crystal surface. This enables one, without introducing additional boundary conditions, to study the passage of light through the crystal and its reflection from the surface.

The authors determine the conditions under which singularities associated with spacial dispersion of the dielectric constant may arise. A case of the time change of a spacially homogeneous electromagnetic field in the crystal is also dealt with.

The article includes 54 equations. There are 12 references.

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USSR

UDC: 612.53+612.13

YERSMYAGIN, A. I., Thermoregulation Laboratory (Headed by K. P. Ivanov), I. P. Pavlov Institute of Physiology, USSR Academy of Sciences, Leningrad

"Variations in Brain Temperature and Vascular Reactions in Man"

Leningrad, Fiziologicheskii zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1520-1526

Abstract: Since most of the work devoted to the problem of the significance of the central brain temperature in thermal control in man has been done with extremal reactions to the organism while regulation of the thermal homeostasis in physiological conditions has been given too little attention, the author devotes this paper to an estimate of the thermoregulating value of oscillations in the intracranial temperature in man from experiments in the temperature of comfort, and to a clarification of the relationship of central and peripheral temperature shifts with the evocation of vascular reactions during increases in the ambient temperature. The specimens for the experiments were healthy people varying from 22 to 52 in age. The method and the equipment of the

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UDC: 612.53+612.13

YEREMYAGIN, A. I., Fiziologicheskiy zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1520-1526

experiments are explained. It is found that there are constant brain temperature oscillations in man which have a truly negative correlation with the oscillations in skin temperature at the wrists. It is also found that the vascular thermoregulatory reactions in response to increasing ambient temperatures depend on the interrelationship between the central and peripheral thermal receptors.

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REEL # 36

VORONINA, A.I.

to

YEREMY AGINAI