KAZAKOVA, V. N.

MEDICINE

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UDC 616.988.75-085.371-039.71-07:616.15-097.3-078.7

ANTIVIRAL INHIBITORS AND ANTIBODIES IN THE BLOOD OF INDIVIDUALS VACCINATED AGAINST INFLUENZA

Moscow (Medicine)

[Article by V.N. Kazakova, L.M. Kunyavskaya of the Institute of Virology iment D.I. Ivanovskiy, USSR Academy of Medical Sciences; Moscow, Voprosy Virusologii, Russian, No 6, 1971, submitted 13 January 1970, pp 651-655]

One hundred twenty-three paired sera of persons immunized with influenza viruses A2 and B were investigated in parallel by the complement fixation reaction and hemagglutination inhibition. Changes in the amount of antibodies and viral hemagglutination inhibitors were analyzed separately. It was found that along with parallelism in antibody and inhibitor titer changes, in an entire series of cases antibody shifts occur without changes in the level of inhibitors and vice versa. Comparisons were made between thermolabile and thermostable inhibitors, which, as we noted, do not always correspond to each other. The inhibiting activity of serum not containing specific antibodies or deprived of them by heating, can nevertheless selectively develop against one of the two influenza viruses A2 or B; whereas the titer rises for one virus, for the other, on the contrary, it either decreases or remains unchanged.

Investigations concerning the character of changes in human blood serum during influenza virus immunization, as a rule, are limited to the study of specific antibodies. From experimental works on animals it is known, however, that the inhibitor level also changes along with that of the antibodies in response to influenza viral antigen action in the organism [2,4,5]. In connection with [illegible] information [illegible] about the possible connection between the inhibitor level fluctuation in humans and their individual susceptibility to influenza, we attempted to examine serological shifts during the vaccination of persons against influenza, by analyzing not only antibody changes but inhibitor changes as well.

It is well known that immunological studies of serum antibodies and inhibitors separately, represent specific difficulties. Our method for the differential study of serum was based on the experimental data of T.N. Kosyakov

USSR UDC 615.917:547.538.141

KAZAKOVA, V. V., Novokuznetsk Scientific Research Chemical-Pharmaceutical Institute

"Effect of Styrene on the Immunobiological Reactivity of Experimental Animals"

Moscow, Gigiyena i Sanitariya, No 11, Nov 71, pp 110-111

Abstract: A study was made of the effects of styrene on the phagocytic activity of neutrophils, sensitivity to experimental infection, and the efficacy of penicillin therapy for Staphylococcal infection of white mice. Styrene was administered in 0.035±0.0035 mg/l doses, 4 hours a day, 5 days a week. The animals were infected with Staphylococcus 24 hours after administration of styrene; penicillin was administered 30-40 minutes later. The results showed that low concentrations of styrene induce changes in immunobiological reactivity, manifested by diminished phagocytic activity of neutrophils, increased sensitivity to infection, and decreased efficacy of penicillin therapy for Staphylococcal infection.

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USSR

UDC 613.632:547.215]:621.017.1

KAZAKOVA, V. V., and LUS, M. B., Novokuznetsk Chemical and Pharmaceutical Institute

"Effect of 2-Bromopentane on Immunobiological Reactivity"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 10, 1971, pp 54-56

Abstract: Phagocytosis and sensitivity to Staphylococcal infection were studied in mice exposed for 4 hours daily for 4 months to 0.09 mg/L of 2-bromopentane (an intermediate product of the synthesis of thiopental and pentobarbitol) and then inoculated with a Staphylococcal culture. Phagocytosis was found to be depressed after 30 to 60 days of intoxication; the phagocytic index and degree of digestion were markedly lower than in the control. In exposed mice infected with Staphylococci, the inflammatory-necrotic process developed more slowly and was completed sooner than in the control. Thus, while chronic inhalation of 2-bromopentane inhibited phagocytosis and slowed the development of inflammation, it increased the animals' resistance to Staphylococcal sepsis. The phagocytic system remained capable of reacting to a specific antigen (Staphylococci). The author shares A. V. Volkova's view that the inhibition of phagocytosis induced by some chemical and physical factors does not always signify a decrease in natural immunity.

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1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--KINETICS OF THE ADSORPTION OF NITROGEN OXIDES ON FINE PORE SILICA GEL IN A FLUIDIZED BED -U-
AUTHOR-(03)-KAZAKOVA, YE.A., KHITERER, R.Z., SAVOSTYANOVA, N.S.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. DATA ON THE ADSORPTION OF NO SUB2 FROM GASES BY ASM SILICA GEL IN A FLUIDIZED BED MAY BE SATISFACTORILY DESCRIBED BY THE EQUATION. B DIVIDED BY B SUB8 EQUALS 3 TIMES 10 NEGATIVE PRIME3 W CO PRIMETAU DIVIDED BY A SUBS H, WHERE B IS THE AMT. OF NO SUB2 PASSED THROUGH THE BED, B SUB8 IS THE AMT. ADSORBED BY THE SILICA GEL UPON SATN., W IS THE GAS VELOCITY IN M,SEC, C SUBO IS THE INITIAL NO SUB2 CONC. IN THE GAS IN VOLPERCENT. TAU IS THE TIME IN MIN. A SUBS IS THE EQUIL. DEGREE OF ADSORPTION OF NO SUB2 ON THE SILICA GEL UNDER THE GIVEN CONDITIONS IN G,100 G, AND H IS THE HEIGHT OF THE BED IN MM. THE EXPTL. DATA WERE COLLECTED WITH GASES WITH A NEGLIGIBLE N SUB2 O SUB4 CONTENT, AT 0-40DEGREES.

UNCLASSIFIED

USSR

UDC 681.333

LAUZHADIS, A. I., KAZAKYAVICHUS, Ch. A., Vil'nyus Department of the Affiliate of the All-Union Scientific Research Institute of Electric Welding Equipment

"A Device for Simulating Welding Equipment"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 4, Feb 72, Author's Certificate No 326599, Division G, filed 12 Nov 69, published 19 Jan 72, p 184

Translation: This Author's Certificate introduces a device for simulating welding equipment. The device contains a load-simulating unit, thyristors, DC sources, and capacitors. As a distinguishing feature of the patent, the class of problems which can be solved is extended by making the load unit in the form of two circuits, each of which consists of a power thyristor, adjustable resistor, and DC source connected in series; and a control thyristor connected to a cutoff capacitor in parallel with these series circuits.

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USSR

UDC 619:614.485:663.632.8

GOLOSOV, I. M., Veterinary Institute, Leningrad, KAZAKYAVICHUS, P. A., and ZHOSTAUTAS, A. S., Lithuanian Republic Veterinary Laboratory

"Disinfection of Water With Ultraviolet Radiation"

Moscow, Veterinariya, No 10, 1971, pp 26-28

Abstract: Livestock farms in Lithuania obtain their water mainly from open sources, including small ponds, lakes, and streams, which are heavily polluted with the decomposition products of organic matter (ammonia, nitrites, chlorides, hydrogen sulfide). Bacteriological analysis showed that in those sources where the coli count was low, bacterial contamination was high. Ultraviolet irradiation of pond water (with an OV-1P unit and bactericidal lamps) increased the coli count in the winter to 105-143 while the total number of bacteria ranged from 110 to 150 in 1 ml. In the summer the coli count rose to 177-130 while bacterial contamination decreased to 110-110 microbial cells in 1 ml. The coli count in lake water did not exceed 4 throughout the year, but after ultraviolet irradiation it rose to 111-300, i.e., 25 to 75 times. The effectiveness of the treatment is enhanced by first filtering the water through fravel to remove mechanical impurities, thereby permitting the ultraviolet rays to act directly on the microbial cells.

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USSR

UDC 666.764:539.374:536.49

DAUKNIS, V.I., KAZAKYAVICHYUS, K.A., and YURENAS, V.L., Institute of Physical Technical Energy Problems: Academy of Sciences, Lithuanian SSR

"Role of Plastic Deformation in the Thermal Destruction of Refractory Materials"

Moscow, Ogneupory, No 6, 1971, pp 31-35

Abstract: Methods of quantitatively estimating the effect of plastic deformation on the heat-resistant qualities of refractory materials should be further explored. In this article, several methods are developed for making such estimates. The effect of plastic deformation on refractoriness can be considered an aspect of the theory of plasticity or on the basis of creep theory. Since the duration of thermal loading on refractory materials is usually large compared to short-term mechanical loading, on which the plasticity theory is based, it is best to use creep theory based on extended mechanical tests. The authors begin their analysis with an expression for the permissible cooling -- or heating -- velocity in the elastic-viscous state under the condition of full limiting of temperature deformation in one direction, given in terms of the deformation speed under stresses equal to the stability limit, the coefficient of linear expansion, the criterion for thermal stability of the material, the absolute temperature, the elasticity modulus, and the stability limit. Tests were made on fine- and coarse-grained materials made of zirconium

USSR

DAUKNIS, V.I., et al, Ogneupory, No 6, 1971, pp 31-35

and magnesium oxide developed at the Ukrainian and Eastern Refractory Materials Institutes. Tables of the characteristics of these materials are given. A sketch of the experimental apparatus is reproduced. The authors conclude that the changes in the amount of admixtures and porosity of the material only slightly affect the temperature dependence of thermal stability.

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USSR UDC 621.362.2

KAZANDZHAN, B. I., SOLOV'YEV, Yu. M.

"Electrical Conductivity of Molten Salts"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1970, vyp. 75, pp 178-184 (from RZh-Elektrotekhnika i energetika, No 1, Jan 71, Abstract No 1A163)

Translation: An advantage of molten salts used as thermoelectric materials is their low cost and the weak dependence of their properties on temperature. The authors study the conductivity σ of melts of 75% CuCl + 2% NaCl, CuCl, KCl, NaCl, AgCl and $PbCl_2$ at temperatures of 700-1230°K. The value of σ ranges from 2.0 to 4.8 $\Omega^{-1}cm^{-1}$. Four illustrations, bibliography of four titles.

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Materials

USSR UDC 621.362.2

KAZANDZHAN, B. I., LOBANOV, A. A., SELIN, Yu. I., TSURIKOV, A. A.

"Electrical Conductivity and Thermoelectromotive Force of Tl_2Te and Tl_2Se in the Molten State"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1970, vyp. 75, pp 163-165 (from RZh-Elektrotekhnika i Energetika, No 1, Jan 71, Abstract No 1A158)

Translation: The conductivity σ and thermoelectromotive force of Tl_2Te and Tl_2Se in the molten state are measured at temperatures from 700 to 1150°K. The width of the forbidden band is 0.75 eV for Tl_2Te and 1.02 eV for Tl_2We. Two illustrations, bibliography of five titles.

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USSR

UDC: 533.6.011

BABENKO, K. I., IVANOVA, V. N., KAZANDZHAN, E. P., KUKARKINA, M. A., RADVOGIN, Yu. B.

"Concerning Nonstationary Flow Around the Head Part of a Blunt Body"

Tr. II Resp. konf. po aerogidromekh., teploobmenu i massoobmenu. Sekts. "Aerodinamika bol'sh. skorostey" (Works of the Second Republic Conference on Aerohydromechanics, Heat Exchange and Mass Exchange. "High-Velocity Aerodynamics" Section), Kiev, Kiev University, 1971, pp 29-43 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B325)

Translation: A numerical solution is found for the problem of unsteady flow at supersonic velocity around the head part of a blunt body which has a plane of symmetry and is located in a flow of ideal gas. A normalizing system of curvilinear coordinates is used in which the region to be calculated has fixed boundaries. A finite-difference method close to the traditional procedure is generalized and developed (Babenko, K. I., Voskresenskiy, G. P., Zh. vychisl. matem. i matem. fiz., 1961, 1, No 6, pp 1051-1060 -- RZhMekh, 1962, 6B123; Babenko, K. I., Voskresenskiy, G. P., Lyubimov, A. N., Rusanov, V. V., Prostranstvennoye obtekaniye gladkikh tel ideal'nym gazom [Three-

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BABENKO, K. I. et al., Tr. II Resp. konf. po aerogidromekh., teploobmenu i massoobmenu. Sekts. "Aerodinamika bol'sh. skorostey", Kiev, Kiev University, 1971, pp 29-43

-Dimensional Flow of an Ideal Gas Around Smooth Bodies], Moscow, "Nauka", 1964, RZhMekh, 1965, 4B270K). The main difference of the proposed method involves calculation of the head shock wave and construction of a well--conditioned system of difference equations. A finite-difference approximation is used for the derivatives together with the corresponding coefficients of the equations. The resultant nonlinear system of difference equations is solved by an iteration method, the overall system being broken down into subsystems which relate to each of the three spatial variables. Indeterminacies are discovered in the difference equations which take place on the zero ray. The algorithm which is developed is used for determining stationary supersonic flow around triaxial ellipsoids and ellipsoids of revolution by the method of adjustment. The results of numerical calculations are given. P. I. Chushkin.

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KAZANDZHAN, E.P.

KAN / R 760 / [illegible] 72 12

Babenko, K. I., V. M. Ivanova, E. P. Kazandzhan, M. A. Kukarkina, and Yu. B. Radvogin. Nonsteady flow around the leading section of a blunt body. In: Trudy II Respublikanskoy konferentsii po aerogidromekhanike, teploobmenu i massoobmenu. Sektsiya "Aerodinamika bol'shikh skorostey". Kiyev, Kiyevskiy universitet, 1971, 29-43. (RZhMekh, 5/72, no. 5B325)

A numerical solution is given for the problem of supersonic flow around the leading section of a blunt body with a plane of symmetry in inert gas flow. A normalizing system of curvilinear coordinates is used, in which the calculated region has fixed boundaries. A finite-difference method is generalized and developed similar to an established one. The principal variation of the proposed method is associated with calculation of the frontal shock wave and the construction of a well-defined system of difference equations. Finite-difference approximation is employed for the derivatives together with the corresponding equation coefficients. The nonlinear system of difference equations obtained is solved by an iteration method, the complete system being divided into subsystems pertaining to each of the three spatial variables. The indeterminate form of the difference equations on the zero radial line is shown. The algorithm developed is used for the determination of steady supersonic flow around triaxial ellipsoids and ellipsoids of revolution. Results of numerical calculations are presented.

USSR

ISPIRYAN, K. A., KAZANDZHYAN, S. T.

"Transition Radiation and the Optical Properties of Substances in the Vacuum Ultraviolet Range"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 5, 1973, pp 1551-1555

Abstract: Experimentally measured values of the real and imaginary parts of the dielectric constants of Al, Ge, and RbF were used to calculate the spectra and angular distributions of the transition radiation in the energy range of the primary particles $\gamma = E/mc^2 = 10\text{-}10^4$ in the vacuum ultraviolet range. The optical constants of the substances can be determined by using the transition radiation in this frequency band.

In contrast to the studies of H. Ehrenreich, et al. [Phys. Rev., No 132, 1918, 1963], in which the characteristics of the transition radiation were investigated for different elements in the optical frequency band integrated with respect to angles or with respect to radiation frequencies, in the present paper a study was made of the differential characteristics in the vacuum ultraviolet range inasmuch as in real experiments the detectors record the radiation for narrow angular and frequency intervals. The proposed method is especially valuable for determining the reflectivity of substances for which direct measurements of the reflectivity is complicated.

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USSR

UDC: 8.74

KAZANGAPOV, A. N.

"On a Method of Computing Functions in Systems of Residual Classes"

Izv. AN KazSSR. Ser. fiz.-mat., 1972, No 5, pp 82-83 (from RZh-Kibernetika, No 5, May 73, abstract No 5V752 by the author)

Translation: The paper gives a method of computing a function in a system of residual classes represented by complete polynomials by using residues of powers of a given value of the argument and correction coefficients.

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USSR UDC 546.55-547.24

KAZANKOVA, M. A., MALYKHINA, I. G., TERENINA, M. B., and LUTSENKO, I. F., Moscow State Institute imeni M. V. Lomonsov

"Generation of Copper Hydride and its Complexes With Compounds of Trivalent Phosphorus"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2133-2137

Abstract: In order to improve on the purity of the copper hydride obtained from the Wurtz reaction, cuprous bromide was reacted with triethyltin in absolute tetrahydrofuran at -25°, giving pure copper hydride. The degree of purity of the product was determined by comparing its reaction with triisopropylphosphine with that of copper hydride obtained by the Wurtz method. The stabilizing influence of triisopropylphosphine was suggested to be due to the formation of pi bonds with the d orbitals of the metal, and therefore hexamethyltriaminophosphine was predicted to show an even stronger stabilizing influence. Various stoichiometric complexes of cuprous halides or copper hydride with hexamethyltriaminophosphine were prepared. These hydrides had higher melting points than the corresponding triisopropylphosphine complexes. The halide complexes were also reduced to the corresponding hydrides and pure copper hydride with triethyltin. It was shown that the

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KAZANKOVA, M. A., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2133-2137

thermal stability of the complexes is inversely proportional to the number of ligands on a copper molecule. All reactions were carried out under dry argon.

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UDC 547.241

USSR

MALYKHINA, I. G., KAZANKOVA, M. A., and LUTSENKO, I. F.

"Preparation of Copper Hydride Complexes With Trivalent Phosphorus Compounds"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2103-2104

Abstract: Copper hydride obtained by reduction of copper sulfate with hypophosphorous acid is known to form stable complexes with trialkyl(aryl) phosphines and trialkyl phosphites. The presence of impurities in copper hydride specimens impairs the synthesis of corresponding complexes with trivalent phosphorus compounds. This study concerns fundamentally another method of obtaining copper hydride complexes involving the reduction of a corresponding copper halide complex with phosphines or phosphites using a suitable reducing agent. Triethylstannane was found to be most suitable agent. The reaction takes place readily at 0°C. If triisopropyl phosphite is used as the ligand, the copper hydride-to-ligand ratio in the complex obtained by reduction is 1/1. If, however, hexamethyltriamidophosphite is used as the ligand, then the complex shows 2 ligand molecules per 3 of copper hydride. It appears that coppper hydride complexes may be produced in various compositions depending on the method of synthesis. The yields are given.
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KAZAKOV, V.M.

STR: 5903

6-73

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XII-2. THE CHARACTERISTIC FEATURES OF GROWTH OF AUTOEPITAXIAL SILICON LAYERS IN A DEVICE WITH A HORIZONTALLY ARRANGED REACTOR

(Article by Yu. I. Sotnov, V. P. Gaydayenko, V. M. Kazakov, I. S. Kondrat'yeva, M. A. Belov, Leningradskiy Novostroitel'nyy Zavod Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 11-17 June 1972, p 165)

A study was made of the effect of the growth conditions on the electrophysical parameters (the thickness and specific resistance) of autoepitaxial layers of silicon. In order to measure the thickness and specific resistance, the infrared method and the method of spreading resistance were used. It was demonstrated that the autoepitaxial layers grown in the device with a horizontally arranged reaction chamber have specific characteristics of distribution of the thickness and specific resistance. Recommendations are made with respect to the application of the technological procedures and measurements for growing epitaxial layers which are uniform with respect to thickness and specific resistance.

USSR UDC 621.315.592.546.28

BELOV, N. A., ERLIKH, R. N., KAZANOV, V. M., and KONDRAT'YEVA, T. S.

"Properties of Autoepitaxial Silicon Layers"

Elektron. prom-st'. Nauchno-tekhn sb (Electronic Industry--scientific and technical collection of works), 1970, No 1, 99-100 (from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G388)

Translation: The layers were grown by the method of hydrogen reduction of $SiCl_4$ in a unit with vertically and horizontally distributed radiation chambers. Under the conditions of decreasing temperature in the process of growing (down to $\sim 1170^{\circ}$), autoepitexial layers were obtained with good reproducibility of results and a mirror-smooth surface (density of growth figures and packing defects $\leq 10\ cm^{-2}$), and the width of the concentration transition sublayer-autoepitexial layer was reduced to 2-3 μ. During growth under constant low temperature conditions, the production of layers with perfect structure was hindered owing to the necessity of rigid stability of the parameters of the process. (From RZh A i R)

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USSR

UDC 539.3+534.231.1

NOVIKOV, V. V., KAZANOVA, G. T.

"On the Effect of the Finite Dimensions of Plates and Bands on the Stressed State Around a Curved Opening"

V sb. Kratk. tezisy dokl. k Konf. po povrezhdeniyam i ekspluat. nadezhnosti sudovykh konstruktsiy, 1972 (Brief Subjects of Papers at the Conference on Breakdown and Operational Reliability of Ship Designs, 1972 -- Collection of Works), Vladivostok, 1972, pp 98-103 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V103)

Translation: The paper is a supplement to an experimental study conducted by photooptical methods to explain the actual limits of the use of theoretical solutions valid for infinite plates for rectangular openings located at the band of the plate. Actual experimental data and the technique for conducting the experiments are not given. 10 ref. B. P. Kishkin.

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USSR

UDC 591.513+591.488.4

GORGILADZE, G. I. and KAZANSKAYA, G. S., Institute of Biomedical Problems, Moscow,

"Effect of Immobility on Habituation of the Vestibular Apparatus"

Moscow, Doklady Akademii nauk SSSR, No 4, 1973, pp 1,005-1,008

Abstract: A group of rabbits kept immobilized in special cages for 30 days were rotated once counter-clockwise, then 20 times clockwise at 5-minute intervals, and once again counter-clockwise. The nystagmic reaction of the control animals (maintained under normal vivarium conditions) varied in all the parameters examined. The rate of the slow phase, amplitude, frequency, total number of nystagmic movements, and duration of the reaction gradually decreased from rotation to rotation. In the case of the experimental rabbits the nystagmic reactions were the same as in the control during the first 7 tests, but thereafter remained at the same level, unlike the control where the intensity of the nystagmus progressively diminished. There was no perceptible weakening of the reaction of the hypokinetic animals according to all the parameters measured. The reason for the disappearance of habituation may be the marked lowering of adrenergic function following prolonged hypokinesia.
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USSR

UDC 612.822.3

GORGILADZE, G. I., and KAZANSKAYA, G. S.

"Study of the Process of Habituation of the Vestibular Apparatus to Momentary Caloric Stimulation of Labyrinths in Rabbits"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlova, Vol 20, No 5, Sep/Oct 70, pp 1,086-1,088

Abstract: Caloric tests consisting of an application of 5 ml of water at 20°C for 1.5-2 seconds, carried out in one labyrinth during the prehabituation period, produced a nystagmic eye reaction which varied considerably from animal to animal. Some of the animals exhibited a rapid habituation process (14-20 applications), while others were slower (70-90 applications). Addition of an extra stimulus (pain, sound) led to dehabituation and a return of the original reaction. Tests carried out to determine the degree of preservation of habituation showed that within 24 hours the animals failed to show a nystagmic reaction to caloric stimulation. When contralateral labyrinths were stimulated to check the transfer of habituation from one vestibular apparatus to another, some animals showed a weaker nystagmic reaction and others a stronger one. The rabbit vestibular

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GORGILADZE, G. I., and KAZANSKAYA, G. S., Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlova, Vol 20, No 5, Sep/Oct 70, pp 1,086-1,088

apparatus is thus clearly capable of habitatuion to caloric stimulation of the labyrinths.

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USSR

UDC: 612.743

GORGILADZE, G. I., and KAZANSKAYA, G. S.

"Dynamics of Nystagmus, EEG, and Some Other Reactions Upon Repeated Brief Caloric Irritation of the Labyrinths of Rabbits"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 57, No 1, 1971, pp 45-51

Abstract: Adaptation of the vestibular apparatus to repeated brief caloric (thermal) irritation by the irrigation of labyrinths with water at 20°C was studied on adult rabbits in a state of wakefulness. As shown by the nystagmus reaction indexes, some of the animals became adapted to the irritation after 14-20 irrigations (group I), while others developed adaptation after 70-90 irrigations (group II). Adaptation was retained by the rabbits for a certain length of time, particularly in group II, and was transferred to the contralateral labyrinth. Application of other stimuli (pain, auditory, or olfactory irritation) or intravenous injection of 0.1 ml of a 20% solution of Na caffeinate tended to restore the weakened nystagmus reactions to their initial level. The caloric irritation also produced changes in the EEG (desynchronization in the motor zones) and a drop in arterial pressure. Upon repeated caloric irritation, these changes gradually

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USSR

GORGILADZE, G. I., and KAZANSKAYA, G. S., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 57, No 1, 1971, pp 45-51

disappeared while the nystagmus was still pronounced. It may be assumed that the reticular formation of the brain stem plays a leading role in vestibular adaptation reactions.

USSR

UDC 535.373.2

YERMOLAYEV, V. L., KAZANSKAYA, N. A., MOSHINSKAYA, A. V., KHERUZE, Yu. I.

"Velocity Constants of Intramolecular Energy Transfer in Complex Ions of Rare-Earth Metals With Aromatic Acids"

Leningrad, Optika i Spektroskopiya, No 1, 1972, pp 82-85

Abstract: This article is subtitled "II, Effect of Introducing Insulating Methylene Groups." In the first part of the article, published in the same journal named above (vol 28, 1970, p 1150), the authors determined the velocity constants of the intramolecular energy transfer from the organic part to the rare-earth ion for a large number of complexes of Tb^{3+}, Eu^{3+}, Sm^{3+}, and Dy^{3+}, with the derivatives of benzoic acid, and found that the energy transfer was the result of exchange-resonance interactions. The present, second part of the paper investigates the effect of the introduction of one or two methylene groups (CH_2) between the aromatic group and the carboxyl group on the velocity constant of energy transfer in complex rare-earth ions with aromatic acids.

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USSR

YERMOLAYEV, V. L. et al, Optika i Spektroskopiya, No 1, 1972, pp 82-85

A table of the measured velocity constants is given for various types of acids and rare-earth complexes, and it is found that an exchange-resonance mechanism is involved here as well.

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USSR UDC 535.373.2

KAZANSKAYA, N. A., YERMOLAYEV, V. L., MOSHINSKAYA, A. V., PETROV, A. A., and KHERUZE, YU. I.

"Rate Constants of Intramolecular Energy Transfer in Complexes of Rare Earth Ions With Aromatic Acids"

Leningrad, Optika i Spektroskopiya, Vol 28, No 6, Jun 70, pp 1150-1158

Abstract: The triplet-triplet transfer method was used to determine the rate constants for radiationless energy transfer (k_t) from an organic ligand to rare earth ions in complexes of Tb^{3+}, Eu^{3+}, Sm^{3+}, and Dy^{3+} with benzoic acid and its derivatives in methanol at 293° K. The absorption spectra of the rare earth ions in the complexes and the phosphorescence spectra of complexes with Gd^{3+} were measured, and evaluations were made of the integrals for the overlapping of the spectra for the energy donor by those of the acceptor (rare earth ion). It was found that the introduction of electron-donor substituents increases k_t and

USSR

TRIFONOV, YE. D. (Reviewer), Elementarnaya Teoriya Kolebatel'noy Struktury Primesnykh Tsentrov Kristallov, by K. K. Rebane, Moscow, "Nauka" Press, 1968, 232 pp

tween the theory of electron-vibrational transitions and the theory of the Mössbauer effect. A detailed comparison is made of the parameters characterizing the spectra of inorganic and organic phosphor crystals, on the one hand, and the Mössbauer spectrum, on the other. Chapter Four considers deviation from the Condon approximation, allowance for anharmonicity and for variations in elastic constants in electronic transition, the influence of crystal inhomogeneities.

The book contains few errors. However, some additional sections should have been included, such as one on the group-theoretical analysis of luminescence spectra. The book is written with great skill and a clear and detailed style. An English translation is supposed to appear in the near future, published by Plenum Press, New York.

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USSR

UDC 535.34+535.37

YERMOLAYEV, V. L., KAZANSKAYA, N. A., PETROV, A. A., KHERUZE, Yu. I.

"Charge-Transfer Bands in Complexes of Rare-Earth Ions With Aromatic Acids"

Leningrad, Optika i Spektroskopiya, Vol 28, No 1, Jan 70, pp 208-210

Abstract: The authors studied the electron absorption spectra and luminescence of solutions of complexes of rare-earth ions with aromatic acids (benzoic acid, o-hydroxybenzoic acid, 2,4-dihydroxybenzoic acid, o-methoxybenzoic acid, phthalic acid, anthranilic acid, dimethylanthranilic acid) in methanol at 293° K. The absorption spectra of complexes of europium with salicylic, β-resorcylic, and anthranilic acids and samarium with β-resorcylic acid revealed additional long-wave bands which were absent in the same complexes of terbium. The dependence of the position of the new long-wave absorption bands on the reduction potentials of triply charged ions of the rare-earth elements, their width, and intensity indicate that these bands are due to electron charge-transfer transitions from organic ligands to rare-earth ions. The appearance of the charge-transfer bands is accompanied by disappearance of the luminescence of the complexes.

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YERMOLAYEV, V. L., et al., Optika i Spektroskopiya, Vol 28, No 1, Jan 70, pp 208-210

The authors thank A. V. Moshinskaya for preparing the rare-earth nitrates and salicylates.

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Acc. Nr: AP0045501 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code: UR0051

84536b Charge transfer bands in complexes of rare-earth ions with aromatic acids. Ermolaev, V. L.; Kazanskaya, N. A.; Petrov, A. A.; Kheruze, Yu. L. (USSR). *Opt. Spektrosk.* 1970, 28(1), 208–10 (Russ). The electronic absorption and luminescence spectra of the complexes of rare-earth metal ions (Sm^{3+}, Eu^{3+}, Tb^{3+}, Dy^{3+}, and Yb^{3+}) with benzoic, salicylic (I), 2,4-dihydroxybenzoic (II), 2-methoxybenzoic, phthalic, anthranilic (III), dimethylanthranilic, and other aromatic acids were measured in MeOH contg. MeONa at 293°K. The uv spectra of the complexes of Eu with I–III and of Sm with II contained addnl. long-wavelength bands which were not present in analogous Tb complexes. The long-wavelength bands were characterized as charge-transfer bands. Also the formation of a new short-wavelength band in the uv spectra of the complexes was obsd.; however, these bands were not interpreted. Upon excitation in the ligand absorption-band region, the complexes of Sm, Eu, Tb, and Dy with aromatic acids gave an intense luminescence due to an intramol. energy transfer from the triplet energy level of the complex to the resonance level of the respective ion. No luminescence was obsd. with complexes of Eu and Sm. C. Parkanyi

REEL/FRAME 19780467

1/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--DEACTIVATION OF ELECTRON EXCITATION OF RARE EARTH IONS ON VIBRATIONS OF THE SOLVENT LOCALIZED IN VARIOUS COORDINATION SPHERES -U-

AUTHOR-(02)-KAZANSKAYA, N.A., SVESHNIKOVA, YE.B.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(4), 699-704

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--EXCITATION ENERGY, RARE EARTH COMPOUND, ION, LIGHT EXCITATION, DEUTERIUM, SOLVENT ACTION, LUMINESCENCE, METHANOL, EHTANOL, PROPANOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0718 STEP NO--UR/0051/70/028/004/0699/0704

CIRC ACCESSION NO--AP0126430

UNCLASSIFIED

2/2 029 UNCLASSIFIED

CIRC ACCESSION NO--AP0126430 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LUMINESCENCE LIFETIMES, TAU, FOR SM, EU, TB, AND DY NITRATES IN MEOH, CD SUB3 OH (100PERCENT D), MEOH (96PERCENT D), CD SUB3 OD(99PERCENT D), ETOH, ETOD (93PERCENT D), C SUB2 D SUB5 OD (90PERCENT D), ISO,PROH, PROD (90PERCENT D), H SUB2 O, AND D SUB2 O (99.5PERCENT D) WERE DETD. FOR EXCITATION OF IONS AN IMPULSE LAMP WAS USED, WITH IMPULSE LENGTH 1 MU SEC. LUMINESCENCE QUENCHING FOLLOWED BY OSCILLOGRAPH WAS FOUND TO BE EXPONENTIAL IN ALL THE CASES. THE VALUES FOR SM PRIME3 POSITIVE AND DY PRIME3 POSITIVE IN H SUB2 O WERE APPROX. ONLY, SINCE TAU WAS OF THE SAME ORDER OF MAGNITUDE AS THE IMPULSE LENGTH ITSELF. LUMINESCENCE INTENSITY WAS MEASURED, ALSO, AND THE RATIO I SUBD-I SUBH OF THE INTENSITY INDEUTERATED SOLVENTS AND THAT IN FULLY HYDROGENATED SOLVENT WAS EQUAL TO THE SIMILAR RATIO TAU SUBD-TAU SUBH. AS TAU VALUES FOR EACH OF THE ION IN MEOH, ETOH, AND PROH WERE EQUAL, IT WAS CONCLUDED THE ION SOLVATION SHELL WAS THE SAME IN DIFFERENT ALCS. ALSO FOR DEUTERATED ALCS. EQUAL VALUES WERE OBTAINED AFTER EXTRAPOLATION OF DILN. CURVES TO THE PURE SOLVENT (100PERCENT D). EXTRAPOLATED TAU VALUES ARE GIVEN. EVENTUALLY, AN ADIABATIC APPROXN. OF THE RADIATIONLESS PROCESS WHICH INVOLVE TRANSFER OF THE ELECTRONIC EXCITATION OF THE ION TO THE HIGH FREQUENCY O,H, O,D IN THE 1ST AND C,H OR C,D VIBRATIONS IN THE 2ND SPHERE, WAS GIVEN. THE RATIO ALPHA SUB1-ALPHA SUB2, OF THE VALUE OF INTERACTION OF ELECTRONIC EXCITATION WITH VIBRATIONS IN THE 1ST AND THOSE IN THE 2ND SPHERE WAS EVALUATED. THE STRENGTH OF THESE INTERACTIONS INCREASES IN THE ORDER EU, TB, DY, AND SM.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--EFFECT OF A BISMUTH TELLURIDE IMPURITY ON THE BAND STRUCTURE OF TIN TELLURIDE -U-

AUTHOR-(05)-BOROVIKOVA, R.P., DUDKIN, L.D., YERASOVA, N.A., KAZANSKAYA, O.A., KAYDANOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1) 231

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--BISMUTH, ELECTRICAL CONDUCTIVITY, TIN COMPOUND, TELLURIUM COMPOUND, ACTIVATION ENERGY, ENERGY BAND STRUCTURE, HALL CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0578 STEP NO--UR/0449/70/004/001/0231/0231

CIRC ACCESSION NO--AP0105561

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105561

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCE OF ELEC. COND.; THERMAL EMF., THE HALL CONST., AND THE TRANSERSE NERNST ETTINGSHAUSEN EFFECT WAS STUDIED EXPTL. IN SN SUBI NEGATIVEX BI SUBX TE (0 SMALLER THAN OR EQUAL TO TIMES SMALLER THAN OR EQUAL TO 0.1) SOLID SOLNS. AT 80-500DEGREES K. IN COMPARISON TO PURE SNTE, A DECREASE IN HALL MOBILITY IS NOTICED AND A MAX. APPEARS ON THE TEMP. DEPENDENCE CURVE OF THE HALL CONST. THERE ARE 2 POSSIBLE EXPLANATIONS FOR THESE AND OTHER OBSD. CHANGES: (1) THE ADDN. OF BITE LOWERS THE ENERGY GAP BETWEEN REGIONS OF LIGHT AND HEAVY HOLES; (2) IMPURITY (DONOR) LEVELS OF BI SPLIT INTO AN IMPURITY BAND LOCATED BELOW THE VALENCE BAND. IN BOTH CASES, THE ADDN. OF BI HAS LITTLE INFLUENCE ON THE CONCN. OF HOLES.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--RELATIONSHIP BETWEEN THE LIABILITY OF THE MYOCARDIUM AND ITS CONTRACTILITY AND DURATION OF THE DIASTOLA OF THE VENTRICLES OF THE

AUTHOR-(02)-FROLOV, V.A., KAZANSKAYA, T.A.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, DOKLADY, VOL. 190, FEB. 21, 1970, P. 1498-1500

DATE PUBLISHED--21FEB70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MYOCARDIUM, HEART, MATHEMATIC EXPRESSION

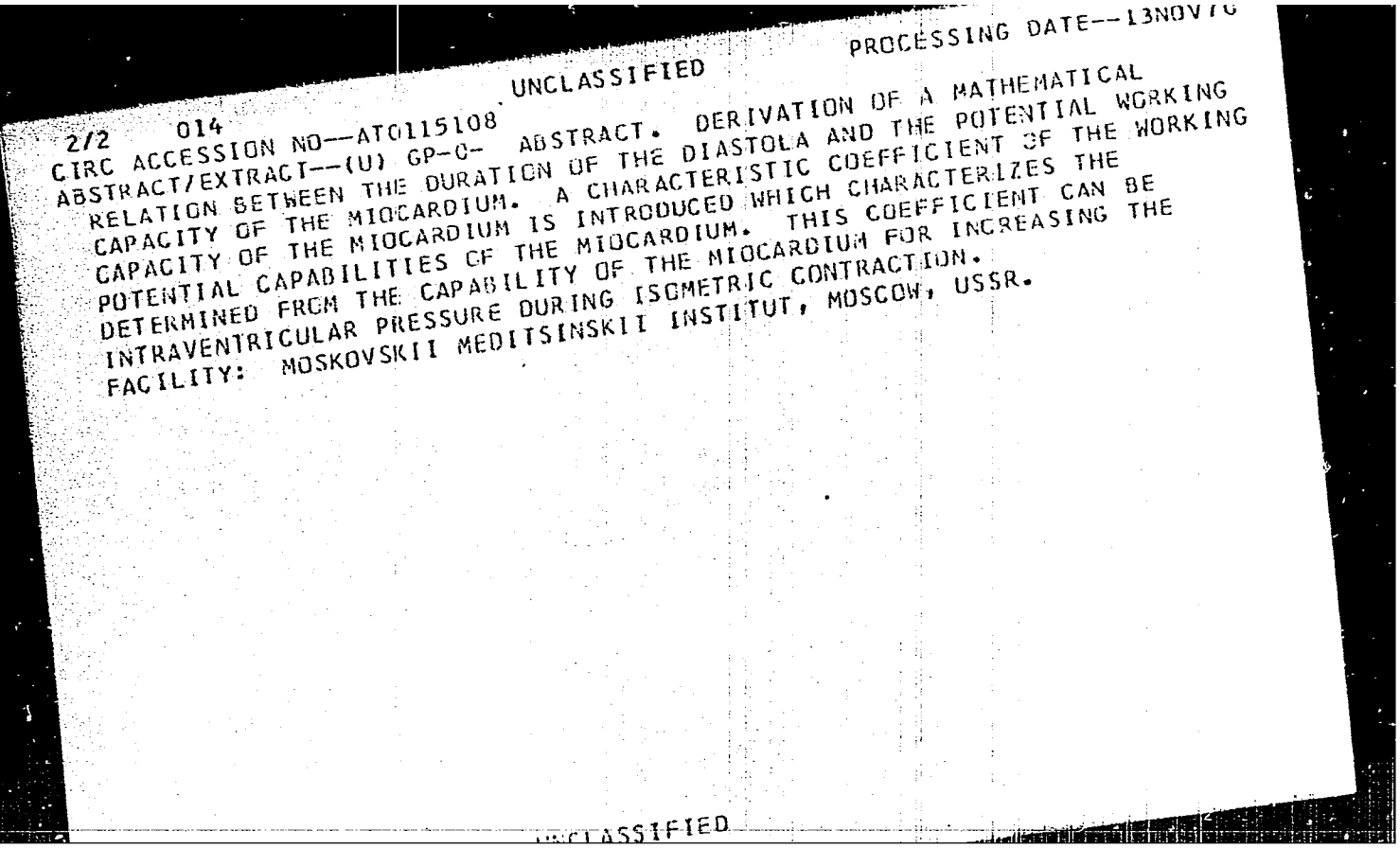
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1089 STEP NO--UR/0020/70/190/000/1498/1500

CIRC ACCESSION NO--AT0115108

UNCLASSIFIED



UNCLASSIFIED

2/2 014 PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0115108

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF A MATHEMATICAL RELATION BETWEEN THE DURATION OF THE DIASTOLA AND THE POTENTIAL WORKING CAPACITY OF THE MIOCARDIUM. A CHARACTERISTIC COEFFICIENT OF THE WORKING CAPACITY OF THE MIOCARDIUM IS INTRODUCED WHICH CHARACTERIZES THE POTENTIAL CAPABILITIES OF THE MIOCARDIUM. THIS COEFFICIENT CAN BE DETERMINED FROM THE CAPABILITY OF THE MIOCARDIUM FOR INCREASING THE INTRAVENTRICULAR PRESSURE DURING ISOMETRIC CONTRACTION.

FACILITY: MOSKOVSKII MEDITSINSKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

UDC: 621.318.13

USSR

REYTER, E. M. and KAZANSKAYA, T. M.

"UHF Ferrite Operation Near the Natural Ferromagnetic Resonant Frequency Region"

Elektron. tekhnika. Nauchno-tekhn. sb. Ferrit. tekhn. (Electronic Engineering, Scientific-Technical Collection, Ferrite Techniques) 1970, No. 4(26), pp 7-12 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3B171)

Translation: The behavior of UHF ferrites at various frequencies with changes in the magnetizing field is examined. Resume

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USSR UDC: 621.372.852.2

KAZANSKAYA, T. M., REYTER, E. M.

"Effect Which the Orientation of Controlling Magnetic Fields has on the Magnitude of Phase Displacement in Mutual Phase Shifters in the Decimeter Wavelength Range"

Elektron. tekhnika. Nauchno-tekhn. sb. Ferrit. tekhn. (Electronic Technology. Scientific and Technical Collection. Ferrite Technology), 1970, vyp. 1(23), pp 90-97 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12B223)

Translation: The authors discuss various methods of controlling mutual phase shifters in the decimeter wavelength range. Conclusions are drawn on the limiting possibilities of each method. A new method of controlling phase displacement is described in which a high-frequency line filled with ferrites is placed in two mutually perpendicular controlling magnetic fields: a longitudinal field which determines maximum permissible losses, and remains constant, and a transverse field which provides phase control. Five illustrations, bibliography of twelve titles. Resumé.

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USSR

UDC 621.315.592

KAZANSKIY, A. G., KOSHELEV, O. G.

"Cyclotron Electron Resonance in Silicon Generated by Impurity Brightening from a CO_2 Laser"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 254-260

Abstract: A study was made of the cyclotron resonance of electrons in silicon in the case of impurity excitation of the free carriers by CO_2-laser emission.

In the case of impurity excitation the relative cyclotron resonance line width ($\Delta\omega$) of the electrons is basically determined by their scattering in the charged impurity. The scattering time in the charged impurity (at n concentration of $6 \cdot 10^{13}$ cm^{-3}) depends weakly on the temperature in the 1.95-4.2° K range. In the vicinity of fields corresponding to a microwave power P > 2 milliwatts, $\Delta\omega \sim P^{0.4}$ was obtained. This function is characteristic of strong heating of the electrons when the pulse scattering takes place by spontaneous emission of acoustic phonons. In this region, as investigation of the line area as a function of P shows, the electron capture coefficient $\alpha \sim \bar{\varepsilon}^{-1.4 \pm 0.2}$ where $\bar{\varepsilon}$ is the mean electron energy.

The redistribution of the electrons between the minima of the conduction band during uniaxial compression was also investigated. When T = 4.2° K, the

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KAZANSKIY, A. G., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 254-260

time of the interline transitions (with zero compression) exceeds the electron lifetime by no more than 4 times.

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UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ROLE OF CYCLOHEXANE IN THE DEHYDROCYCLIZATION OF N-HEXANE ON A CHROMIUM CATALYST -U-

AUTHOR-(05)-ISAGULYANTS, G.V., ROZENGART, M.I., DERBENTSEV, YU.I., DUBINSKIY, YU.G., KAZANSKIY, B.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 600-2

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLOHEXANE, HEXANE, CARBON ISOTOPE, CATALYST, BENZENE, CATALYTIC CRACKING, HEXENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1079 STEP NO--UR/0020/70/191/003/0600/0602

CIRC ACCESSION NO--AT0124736
UNCLASSIFIED

2/2 .009 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124736

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A FLOW METHOD WAS USED TO ANALYZE THE REACTION PRODUCTS OF HEXANE CYCLOHEXANE (TAGGED WITH PRIME14 C) AT 530DEGREES ON AN ALUMINOSILICATE CATALYST. THE CRACKING PRODUCTS WERE ISOHEXANES, HEXANE, HEXENES, CYCLOHEXANE, AND C SUB6 H SUB6; IT WAS SHOWN THAT CYCLOHEXANE IS NOT FORMED IN THE OVERALL PROCESS AND CANNOT BE AN INTERMEDIATE IN DEHYDROCYCLIZATION OF HEXANE TO C SUB6 H SUB6. C SUB6 H SUB6 IS FORMED FROM CYCLOHEXANE SOMEWHAT MORE RAPIDLY THAN IT IS FROM HEXANE. THE ADSORPTION COEFFS. OF CYCLOHEXANE AND HEXANE ON THE CATALYST APPEAR TO BE VERY SIMILAR. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CATALYSTS FOR DEHYDROCYCLIZATION OF N PARAFFINS -U-

AUTHOR-(05)-KAZANSKIY, B.A., SLINKIN, A.A., POLYNIN, V.L., ROZENGART, M.I., DULOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,076

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLIZATION, ALKANE, HIGH TEMPERATURE HEAT TREATMENT, POLYMER, ALIPHATIC KETONE, CHROMIUM OXIDE, CATALYST, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1745 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136985

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 025

CIRC ACCESSION NO--AA0136985

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRODUCT OF THERMAL TREATMENT (400-600DEGREES) OF A POLYMER BASED ON PURE METHYL BETA,CHLOROVINYL KETONE OR WITH AN ADDITIVE CONSISTING OF 0.1-5 WT. PERCENT CR SUB2 O SUB3 IS USED AS A CATALYST FOR DEHYDROCYCLIZATION OF N PARAFFINS.

FACILITY: INSTITUT ORGANICHESKOY KHIMI I IM. N. D. ZELINSKOGO.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--REACTION OF ADAMANTANE WITH OLEFINS -U-

AUTHOR-(03)-KAZANSKIY, B.A., SHOKOVA, E.A., KOROSTELEVA, T.V.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(4), 831-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ADAMANTANE, ALKENE, CHEMICAL REACTION, ALUMINUM COMPOUND, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0689 STEP NO--UR/0020/70/191/004/0831/0834

CIRC ACCESSION NO--AT0124361

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124361

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PASSING GASEOUS OLEFINS (C SUB2 H SUB4, ME SUB2 C:CH SUB2 OR MECH:CH SUB2) INTO A MIXT. OF ADAMANTANE AND EITHER ALCL SUB3 OR ALBR SUB3 IN HEXANE AT NEGATIVE10DEGREES, WITH EXCESS ADAMANTANE ALWAYS PRESENT TO AVOID MUCH POLYALKYLATION, GAVE A VERY COMPLEX SET OF PRODUCTS, THE COMPN. OF WHICH WAS TABULATED FOR VARIOUS PROPORTIONS OF THE CATALYSTS INSOFAR AS IDENTIFICATION WAS POSSIBLE, BUT SOME 50PERCENT OF THE PRODUCTS REMAINED UNIDENTIFIED IN MOST CASES. ALL THE OLEFINS USED GAVE AT LEAST SOME 1,ETHYLADAMANTANE, 1,PROPYLADAMANTANE, 1,ISOBUTYLADAMANTANE AND 1,SEC,BUTYLADAMANTANE, BUT ONLY ME SUB2 C:CH SUB2 GAVE 1,ISOPROPYLADAMANTANE. THE TOTAL YIELDS WERE NOT OVER 22-5PERCENT. THE RESULTS INDICATED THAT ADAMANTANE IS ALKYLATED NOT ONLY BY C SUB2 H SUB4 PER SE BUT ALSO BY ITS DIMERIZATION PRODUCTS, WHILE MECH:CH SUB2 YIELDS MAINLY THE 1,PROPYLADAMANTANE IN YIELDS OF 22-32PERCENT OF THE TOTAL ALKYLATE AND 8-9PERCENT RUE YIELD. PROBABLE SCHEMES FOR FORMATION OF THE IDENTIFIED PRODUCTS WERE SHOWN. ALBR SUB3 CATALYST GAVE UP TO 22PERCENT ALKYLATES, WHILE ALCL SUB3 GAVE NOT OVER 4.5PERCENT. CHROMATOGRAPHICALLY UP TO 20 PRODUCTS WERE DETECTED IN TYPICAL RUNS; EVIDENCE FOR DI AND POLYALKYLATION WAS INDICATED. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

AA0052686 KAZANSKIY B.P.
UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent, 2-70

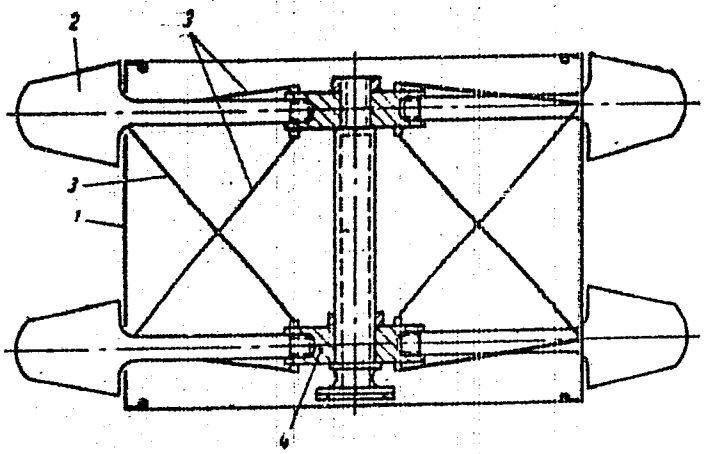
244547 MULTISTAGE VENTILATOR FAN reduces the axial moment of inertia in axial ventilator and turbine fans. In the conventional wheel and blade structures the root of the blade is thickened. In this patent the design of the blade section is improved with rim section 1 having blade 2 with extended root located on hub 4 secured by pins and supported by spokes 3. This design reduces the axial moment of inertia.

30.12.66 as 1122523/24-6 K.I. ZHDANOV et al. (8.10.69) Bul. 18/28.5.69. Class 27c, Int. Cl. F 04d.

19821465

AA0052686

Zhdanov, K.I.; Kazanskiy, B.P.; Kalistratov, A.M.



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19821466

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--A COMPARATIVE ASSESSMENT OF THE RESULTS OF SUBTOTAL RESECTION OF THE STOMACH ACCORDING TO SPECIAL CONSIDERATIONS AND PARTIAL RESECTION

AUTHOR-(03)-SITENKO, V.M., SAMOKHVALOV, V.I., KAZANSKY, D.A.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 5, PP 52-55

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SURGERY, STOMACH, CANCER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0136 STEP NO--UR/0531/70/000/005/0052/0055

CIRC ACCESSION NO--AP0129392

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0129392
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A FIVE YEAR SURVIVAL IN A GROUP OF PATIENTS COMPRISING 102 PERSONS SUBJECTED TO SUBTOTAL GASTRIC RESECTION FOR CANCER AMOUNTED TO 47 PER CENT OF CASES. OUT OF 136 PATIENTS WHO SUSTAINED PARTIAL RESECTION 43.3 PER CENT SURVIVED THIS PERIOD. HOWEVER, THIS DIFFERENCE IS STATISTICALLY INSIGNIFICANT. THERE ARE NO DATA WHICH WOULD REVEAL THE ADVANTAGE OF SUBTOTAL RESECTION IN COMPARISON WITH PARTIAL RESECTION DEPENDING ON THE STAGE, ANATOMIC TYPE AND HISTOLOGICAL FORM OF THE TUMOR. FACILITY: KLINIKA FAKUL'TETSKOY KHIRURGII VMOLKA.

UNCLASSIFIED

USSR

UDC: 539.128.2

BALDIN, A. M., BEZNOGIKH, Yu. D., ZINOV'YEV, L. P., ISSINSKIY, I. B., KAZANSKIY, G. S., MIKHAYLOV, A. I., MOROZ, V. I., PAVLOV, N. I., and PUCHKOV, G. P.

"Acceleration and Removal of Deuton Beams from the OIYaI Synchrophasotron"

Moscow, Pribory i Tekhnika Eksperimenta, No. 3, 1971, pp 29-31

Abstract: This article describes the realization of a proposal for accelerating and extracting deutons with existing synchrophasotron systems made in an earlier article (Beznogikh, Yu. D., et al, Reprint OIYaI, 1968, No. R9-4214, Dubna). The basic idea of the proposal was to multiply the linear acceleration by two through halving the velocity of the deutons going into and coming out of the linear accelerator compared to the velocity of the protons. The acceleration in the synchrotron is done in two steps: first, doubling the acceleration; second, reaching the limiting frequency of the accelerating system and then making the transi-

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BALDIN, A. M., et al., Pribory i Tekhnika Eksperimenta, No 3, 1971, pp 29-31

tion to the plateau in the first multiple of the acceleration. By using a debuncher at the accelerator output, the capture of the deutons in first the quasi-betatron and then the synchrotron modes was increased. The authors are associated with the OIYaI (Joint Institute of Nuclear Research, Dubna).

2/2

1/2 036 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--STRUCTURE OF THE POLYMER OF 3,3,3,TRIFLUORO,1,2,EPOXYPROPANE -U-

AUTHOR-(04)-KUMPANENKO, I.V., KAZANSKIY, K.S., PTITSYNA, N.V., KUSHNEREV, M.YA.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 822-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, EPOXY COMPOUND, FLUORINATED ORGANIC COMPOUND, PROPANE, X RAY ANALYSIS, IR SPECTRUM, CRYSTAL LATTICE STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1383 STEP NO--UR/0459/70/012/004/0822/0828

CIRC ACCESSION NO--AP0135057

UNCLASSIFIED

2/2 036 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135057

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. X RAY DATA INDICATED THAT POLY(3,3,3,TRIFLUORO,1,2,EPOXYPROPANE) (I) HAD A RHOMBIC LATTICE WITH THE PARAMETERS: ALPHA EQUALS 11.42 PLUS OR MINUS 0.01ANGSTROM; B EQUALS 6.26 PLUS OF MINUS 0.01 ANGSTROM; C EQUALS 6.26 PLUS OR MINUS 0.01 ANGSTROM; AND Q EQUALS 4. THE IR SPECTRA OF I AND THEIR RELATION TO POLYMER STRUCTURE WERE DISCUSSED. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.396.66(088.8)

KAZANSKIY, L. S.

"A Variometer"

USSR Author's Certificate No 255376, Filed 14 Aug 67, Published 8 Apr 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V419 P)

Translation: This variometer contains a stationary element made in the form of a helix, and a sectional tuning element made in the form of a shield of metal installed between the turns of the coil. As a distinguishing feature of the patent, the tuning factor is increased with a stationary element in the form of a flat helix by making the tuning element in the form of a flat helix as well, the sections of this helix being interconnected by a bridge which covers the turns of the stationary element in the variometer.

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USSR UDC: 534-8

STADNIK, B. N., KAZANSKIY, M. F., BELYY, L. N.

"Effect of Porous Structure on the Propagation of Ultrasound in Capillary Pore Models"

Vliyaniye poristoy struktury na rasprostraneniye ul'trazvuka v model'nykh kapillyarno-poristykh telakh. Redkollegiya "Inzh.-fiz. zh." AN BSSR (cf. English above. Editorial Staff of "Engineering Physics Journal" Academy of Sciences of the BSSR), Minsk, 1971, 7 pp, ill., bibl. of 7 titles (No 3855-71 Dep.) (from RZh-Fizika, No 6, Jun 72, Abstract No 6Zh580 DEP)

Translation: The physical and mechanical properties of capillary porous bodies are very precisely described with the aid of a model system of mutually touching, elastic spherical particles. The speed of propagation of elastic waves along a one-dimensional chain of elastic particles in the absence of attenuation is independent of the sizes of the particles and is determined by the elasticity of the contact between adjacent particles as calculated by the theory of H. Hertz. A one-dimensional chain of particles in a capillary porous body is a mechanical low-frequency filter whose cutoff frequency is directly proportional to the speed of ultrasound and inversely proportional to the sizes of the particles. Measurements of the

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USSR

STADNIK, B. N. et al., Vliyaniye poristoy struktury na rasprostraneniye ul'trazvuka v model'nykh kapillyarno-poristykh telakh, Minsk, 1971

speed of propagation of ultrasound on a frequency of 70 kHz in fractionated quartz sand showed a slight increase (by 24%) in velocity with an appreciable increase (by a factor of 7.6) in the effective dimensions of the particles. Authors' abstract.

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1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--INVESTIGATICN OF CONCRETES WITH DIFFERENT KINDS OF DISPERSE STRUCTURES AND FORMS OF MOISTURE BINDING IN CEMENT STONE -U-

AUTHOR-(04)-SAVVINA, YU.A., KAZANSKIY, V.M., LEYRIKH, V.E., KAZANSKIY, M.F.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 421-426

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CEMENT, STONE, MECHANICAL PROPERTY, POROSITY, MOISTURE MEASUREMENT, CONSTRUCTION MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2164 STEP NO--UR/0069/70/032/003/0421/0426

CIRC ACCESSICN NO--AP0125747

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125747

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COMBINED STUDY HAS BEEN MADE OF HYDROPHILIC, PHYSICAL AND MECHANICAL PROPERTIES OF CEMENT STONE WITH DIFFERENT KINDS OF DISPERSE STRUCTURES. BY MEANS OF THE METHODS OF THERMOGRAMS AND ENERGOGRAMS OF DRYING, IT IS POSSIBLE TO CHARACTERIZE THE MOISTURE DISTRIBUTION NOT ONLY ACCORDING TO THE FORMS OF BINDING, BUT ALSO ACCORDING TO POROSITY AND SURFACE AREA. THE RELATIONSHIP HAS BEEN CONSIDERED BETWEEN THE PHYSICAL AND MECHANICAL PROPERTIES OF CONCRETES WITH DIFFERENT CEMENT STONE STRUCTURES AND THE AMOUNTS OF MOISTURE IN THEM WITH DIFFERENT FORMS OF BINDING. THE GAS AND WATER PERMEABILITY OF CEMENT STONE AND CONCRETE IS MAINLY DETERMINED BY THE PRESENCE IN THEIR POROUS STRUCTURE OF MACROPORES WITH R LARGER THAN 10 PRIME NEGATIVE5 CM AND DEPENDS LITTLE ON MICROPORIUS STRUCTURE. FACILITY: NII BETONA I ZHELEZOBETONA, MOSCOW, KIEV. TEKHNOLOGICHESKIY INST. LEGKOY PROMYSHLENNOSTI. FACILITY: VNII MAGISTRAL'NYKH TRUBOPROVODOV, MOSCOW KIEV. INZHENERNO-STROITEL'NYY INSTITUT.

UNCLASSIFIED

USSR

UDC 621.316.722.1(088.8)(47)

BOGDANOV, V.V., KAZANSKIY, R.A.

"Device For Conversion Of A-C Voltage Into D-C"

USSR Author's Certificate No 248057, Filed 9 July 62, Published 5 Jan 70 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8B471P)

Translation: A regulated rectifier is described which contains a power supply, a charging choke, a charging semiconductor diode, a controllable element (thyratron), an energy storage device (artifical long line), a pulse transformer, and a high-voltage rectifier. In order to guarantee automatic stabilization of the output voltage, a charging choke is provided with an additional winding which is connected via the controlled resistances and a RC-circuit to the output of the device. The controlled resistance is made in the form of two electron tubes, the anodes of which are subconnected to the ends of the additional winding, the cathodes are connected among themselves, and the control grids are connected among themselves and connected to the RC-circuit. 1 ill. N.S.

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UNCLASSIFIED PROCESSING DATE--13NOV70

1/2 017

TITLE--A.C. TO D.C. CONVERTER -U-

AUTHOR-(02)-BOGDANOV, V.V., KAZANSKIY, R.A.

COUNTRY OF INFO--USSR

SOURCE--USSR 248057

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI, NR 23

DATE PUBLISHED--05JAN70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., ENERGY CONVERSION (NON-PROPULSIVE)

TOPIC TAGS--PATENT, CODE CONVERTER, VOLTAGE STABILIZATION, THYRATRON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0306 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0131017

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0131017

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. A.C. TO D.C. CONVERTER INCLUDES AUTOMATIC STABILIZATION OF OUTPUT VOLTAGE. ENERGY STORAGE UNIT (5) FORMS A RESONANT CIRCUIT WITH CHOKE (2) AND IS CHARGED FROM POWER SUPPLY (1). AS THYRATRON (4) IS TRIGGERED, THE STORAGE UNIT IS DISCHARGED THROUGH (4) AND THE PRIMARY WINDING OF HIGH VOLTAGE PULSE TRANSFORMER (6). THE OUTPUT PULSES ARE RECTIFIED BY (7) INTO A HIGH DIRECT VOLTAGE. PART OF THIS VOLTAGE IS FED TO THE CONTROL GRID OF VALVES (10, 11) VIA VOLTAGE DIVIDER (12, 13) AND RC NETWORK (14). AN OUTPUT VOLTAGE DEVIATION FROM THE STABILIZED LEVEL CAUSES THE OPERATING CONDITIONS OF VALVES (10, 11) TO CHANGE BY WHICH THE RESONANT CIRCUIT LOSSES ARE AFFECTED. AS A RESULT, THE ENERGY CONTENT OF THE STORAGE UNIT AND THE OUTPUT VOLTAGE LEVEL ARE INFLUENCED.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--INVESTIGATICN OF CONCRETES WITH DIFFERENT KINDS OF DISPERSE STRUCTURES AND FORMS OF MOISTURE BINDING IN CEMENT STONE -U-

AUTHOR-(04)-SAVVINA, YU.A., KAZANSKIY, V.M., LEYRIKH, V.E., KAZANSKIY, M.F.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 421-426

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CEMENT, STONE, MECHANICAL PROPERTY, POROSITY, MOISTURE MEASUREMENT, CONSTRUCTION MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2164 STEP NO--UR/0069/70/032/003/0421/0426

CIRC ACCESSICN NO--AP0125747

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125747

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COMBINED STUDY HAS BEEN MADE OF HYDROPHILIC, PHYSICAL AND MECHANICAL PROPERTIES OF CEMENT STONE WITH DIFFERENT KINDS OF DISPERSE STRUCTURES. BY MEANS OF THE METHODS OF THERMOGRAMS AND ENERGOGRAMS OF DRYING, IT IS POSSIBLE TO CHARACTERIZE THE MOISTURE DISTRIBUTION NOT ONLY ACCORDING TO THE FORMS OF BINDING, BUT ALSO ACCORDING TO POROSITY AND SURFACE AREA. THE RELATIONSHIP HAS BEEN CONSIDERED BETWEEN THE PHYSICAL AND MECHANICAL PROPERTIES OF CONCRETES WITH DIFFERENT CEMENT STONE STRUCTURES AND THE AMOUNTS OF MOISTURE IN THEM WITH DIFFERENT FORMS OF BINDING. THE GAS AND WATER PERMEABILITY OF CEMENT STONE AND CONCRETE IS MAINLY DETERMINED BY THE PRESENCE IN THEIR POROUS STRUCTURE OF MACROPORES WITH R LARGER THAN 10 PRIME NEGATIVE5 CM AND DEPENDS LITTLE ON MICROPORIUS STRUCTURE. FACILITY: NII BETONA I ZHELEZOBETONA, MOSCOW, KIEV. TEKHNOLOGICHESKIY INST. LEGKOY PROMYSHLENNOSTI. FACILITY: VNII MAGISTRAL'NYKH TRUBOPROVODOV, MOSCOW KIEV. INZHENERNO-STROITEL'NYY INSTITUT.

UNCLASSIFIED

USSR

KAZANSKIY, V. V.

"One Method of Investigation of the Effectiveness of a Digital Detection Algorithm"

Vychisl. Tekhnika [Computer Technology -- Collection of Works], No 2, Leningrad, Energiya Press, 1972, pp 54-61 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V702, by the author).

Translation: A method is described for experimental investigation of the effectiveness of a radio signal detection algorithm. The theoretical foundation is laid for the possibility of conduct of experiments. Individual stages in the preparation and conduct of experiments, as well as processing of experimental results, are described. It is concluded that it is necessary to develop the structure of the digital detector to be universal from the standpoint of realization of detection algorithms including various criteria.

USSR

UDC 537.581:535.211

ARIFOV, U. A., KAZANSKIY, V. V., LUGOVSKOY, V. B., KAYUMOVA, Z. A.

"Integral and Subpulse Emissions Caused by Laser Radiation"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No. 3, Mar 71, pp 599-602

Abstract: The nature of the emission of charged and neutral particles under the action of solid-state laser radiation on metal targets is investigated. It was found that the emission is determined both by the properties of the irradiated material and by the characteristics of the laser pulse. When a laser is operating in a free generation mode, the emission varies with an increase in the power of the radiation incident on the target. Initially, subpulse emission associated with the characteristics of the space-time structure of the radiation arises at small values of the power density. This appears in the form of short (0.1-1 μsec) current pulses which coincide in time with the laser subpulses. As the power is increased, an integral emission appears along with the subpulse emission that is caused by the total action of a large number of subpulses. The integral emission is in the form of an extended (0.1-2 μsec), continuous pulse with a characteristic

USSR

ARIFOV, U. A., et al, Izvestiya Akademii nauk SSSR, Seriya Fizicheskaya, No. 3, Mar 71, pp 599-602

displacement relative to the maximum of the laser radiation. The emission pulses were divided into four types, depending on the form of their dependence on time: (1) subpulses of apparent thermoelectron origin; (2) short symmetric pulses with maxima coinciding with the maximum values of the laser intensity; (3) subpulses of complex form apparently formed through the superposition of pulses of the first and second types; (4) asymmetric pulses with a single undisplaced maximum (it is possible that these subpulses or some of them belong to the third type).

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UDC 621.378.535

USSR

ARIFOV, U. A., KAZANSKIY, V. V., and LUGOVSKOY, V. B., Institute of Electronics, Academy of Sciences Uzbek SSR

"Light Flux Fluctuations in the Bounded Region of the Cross Section of a Laser Beam"

Tashkent, Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-matematicheskikh Nauk, No 2, 1970, pp 53-56

Abstract: A previous article by the authors noted the possible influence which peculiarities of the spatial distribution of the radiation intensity of a ruby laser have on the character of charged particle emission. The authors studied power density fluctuations in individual radiation spikes of a laser working in a free oscillation mode. In an arbitrarily chosen region of the cross section of a laser beam fluctuations in the light flux may be due to the character of the time dependence of the radiation power, as well as to variations in the form of the spatial intensity distribution during a laser pulse. It is assumed in the article that in each spike the radiation intensity is rep-

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USSR

ARIFOV, U. A., et al., Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-matematicheskikh Nauk, No 2, 1970, pp 53-56

resented as the product $X_i(x,y)\cdot T_i(t)$, where T_i characterizes the time dependence of the radiation power in the i-th spike, given invariable spatial distribution X_i. In this case the quantity $\eta_i(x_k, y_k)$ equal to the ratio of flux I_{iD}, bounded by the diaphragm D, to total flux I_i will be defined as

$$\eta_i = \frac{X_{iD}}{X_i} \cdot \frac{S_D}{S}$$

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USSR

ARIFOV, U. A., et al., Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-matematicheskikh Nauk, No 2, 1970, pp 53-56

The following four possible cases of the spatial distribution of laser radiation intensity are considered:

1. The radiation is uniformly distributed in region S and identical for all spikes.

2. The intensity distribution is identical for all spikes but is a function of certain coordinates.

3. The radiation in each spike is distributed uniformly in the bounded region $S_1 < S$.

4. The radiation in the spikes is not identically distributed.

It is possible to establish the type of radiation character and to evaluate fluctuations in the flux density of individual spikes according to the form of an experimentally obtained distribution. The article describes such an experiment and discusses the results.

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UDC 621.38

USSR

ARIFOV, U. A., KAZANSKIY, V. V., LUGOVSKOY, V. B., and MAKARENKO, V. A., Institute of Electronics, Academy of Sciences Uzbek SSR

"Integral and Spike Emission From Tungsten Produced by Ruby Laser Radiation"

Tashkent, Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-matematicheskikh Nauk, No 2, 1970, pp 81-84

Abstract: The article describes an experiment undertaken to detect integral emission from a tungsten target irradiated by the focused light of a ruby laser. Oscillograms of the emission currents are shown, tracing the character of the change in the emission with a growth in the power density. At first only spike emission can be seen, corresponding to the maximum laser intensity; then integral emission can be seen along with the spike emission; then the integral emission becomes more pronounced, and a characteristic shift in its maximum relative to the maximum radiation intensity can be seen. Target tem-

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USSR

ARIFOV, U. A., et al., Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-matematicheskikh Nauk, No 2, 1970, pp 81-84

perature variation curves are also shown, one of the curves being constructed according to the integral emission current from the Richardson equation, the other curve calculated from a solution of the heat-conduction equation according to the form of the laser pulse. A qualitative study of the resultant oscillograms indicates a decrease in the contribution of spike emission with an increase in the initial target temperature. The results indicate that integral emission is satisfactorily described within the limits of heat conduction theory and the Richardson equation.

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UDC 621.378.525

USSR

ARIFOV, U. A., KAZANSKIY, V. V., LUGOVSKOY, V. B.

"Fluctuations of the Radiation Power Density of a Solid State Laser Near the Focal Plane of the Collecting Lens"

Tashkent, Izvestiya Akademii Nauk Uz SSSR, Seriya Fiziko-Matematicheskikh Nauk, No 3, 1970, pp 59-62

Abstract: This article contains a description of a device which offers the possibility of isolating individual pinches from the total laser pulse and simultaneously recording their basic characteristics: power, energy, and magnitude of the effective area $S_{i_{eff}}$ in which the basic portion of the radiation energy is concentrated. The results of experiments run using this device are also discussed.

Cases with 1, 2, 3, 4, and 5 pinches were selected and their energy and time characteristics measured by oscillograms. These data were used to find the relative area $x_i = S_{i_{eff}}/S_0$, the relative power density $\gamma_i = (P_i/\bar{P}_i)\ (1/x_i)$, and the relative energy

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USSR

ARIPOV, U. A., et al, Izvestiya Akademii Nauk Uz SSSR, Seriya Fiziko-Matematicheskikh Nauk, No 3, 1970, pp 59-62

density $\gamma'' = (\mathcal{E}_i/\bar{\mathcal{E}}_i)\ (1/x_i)$ (here $S_i = 1.1$ mm^2 is the total area of the focal point obtained without a Kerr cell; P_i is the peak radiation power in the pinch; $\mathcal{E}_i$ is its energy; $\bar{P}_{ii}$ and $\bar{\mathcal{E}}_i$ are the mean values of the corresponding variables).

Comparison of the values of x and the energy values corresponding to them demonstrated that quite large values of $S_{i_{eff}}$ are observed with insignificant energy in the pinch. In addition, for single pulses the correlation coefficient $\rho_{x,\mathcal{E}} = 0.37$ indicates the existence of a positive statistical relation between the effective area and energy. The correlation coefficients for the effective area and energy density are 0.45 and 0.22 respectively. This indicates a negative relation of these variables, but this relation is not confirmed. The data obtained confirm the assumption of the causes of anomalous emission and low value of threshold energy for which destruction of the target material begins. It is possible that this also explains certain other observed phenomena determined by the pinch structure of laser radiation.

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1/2 058 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--INTEGRAL AND PEAK EMISSION EVOKED FROM TUNGSTEN BY RUBY LASER RADIATION -U-

AUTHOR-(04)-ARIFOV, U.A., KAZANSKIY, V.V., LUGOVSKOY, V.B., MAKARENKO, V.A.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK UZBEKSKOI SSR, IZVESTIIA, SERIIA FIZIKO-MATEMATICHESKIKH NAUK, VOL. 14, NO. 2, 1970, P. 81-84

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--TUNGSTEN, RUBY LASER, EMISSION SPECTRUM, HEAT CONDUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1249 STEP NO--UR/0166/70/014/002/0081/0084

CIRC ACCESSION NO--AP0124901

UNCLASSIFIED

2/2 058 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0124901

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL STUDY OF THE EMISSION CURRENTS EVOKED FROM TUNGSTEN TARGETS IN VACUUM UNDER THE ACTION OF FOCUSED RADIATION FROM A RUBY LASER OPERATING IN THE FREE RUNNING MODE. FOR TIME INTERVALS SIGNIFICANTLY EXCEEDING THE DURATION OF THE LASER EMISSION PEAK BUT SHORTER THAN THE PULSE DURATION, THE TOTAL ACTION OF A LARGE NUMBER OF PEAKS SHOULD CAUSE INTEGRAL HEATING OF THE TARGET SIMILAR TO THAT WHICH WOULD OCCUR IF THE SPATIAL DISTRIBUTION OF INTENSITY IN EACH PEAK WOULD COINCIDE WITH THE DISTRIBUTION FOR THE ENTIRE PULSE. IN THIS CASE, THE TARGET SHOULD EXHIBIT INTEGRAL EMISSION IN ADDITION TO THE PEAK EMISSION CHARACTERISTICS. THE INTEGRAL EMISSION SHOULD CORRESPOND TO THE SOLUTION OF THE HEAT CONDUCTION EQUATION AND IS OBSERVED IN THE FORM OF A CONTINUOUS PULSE WITH A DURATION COMPARABLE TO THE LASER PULSE DURATION. PREVIOUS STUDIES WITH NICKEL TARGETS YIELDED NO INTEGRAL EMISSION BEFORE TARGET VAPORIZATION, AND TUNGSTEN TARGETS WERE USED IN THE PRESENT CASE. EMISSION CURRENTS ARE SHOWN TOGETHER WITH THE LASER PULSES IN REPRODUCED OSCILLOGRAMS, AND IT IS DEMONSTRATED THAT THE INTEGRAL EMISSION CAN BE SATISFACTORILY DESCRIBED IN THE FRAMEWORK OF THE HEAT CONDUCTION THEORY AND THE RICHARDSON EQUATION.

FACILITY: AKADEMIIA NAUK UZBEKSKOI SSR, INSTITUT ELEKTRONIKI, TASHKENT, UZBEK SSR.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--30OCT7(

TITLE--QUASI CROSSLINKED RIGID POLYAMIDES -U-

AUTHOR-(03)-TROSTYANSKAYA, YE.B., KAZANSKIY, YU.N., MIKHASENOK, O.YA.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIA 1970, 12(2), 311-16

DATE PUBLISHED----------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYMER CROSSLINKING, POLYAMIDE RESIN, QUARTZ, PHENOL FORMALDEHYDE RESIN, SURFACE AREA, ELASTIC MODULUS, THERMAL STABILITY, TENSILE STRENGTH, IMPACT STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0674 STEP NO--UR/0459/70/012/002/0311/0316

CIRC ACCESSION NO--AP0124346

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--30OCT7(
CIRC ACCESSION NO--AP0124346
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYAMIDE P 68 (I) (DONOR) WAS FILLED WITH FINELY DIVIDED QUARTZ (II) (SURFACE AREA 0.177-0.887 M PRIME2-G) OR A HARDENED PHENOL HCHO RESIN (III) (ACCEPTOR) (SURFACE ARE/ 0.267-2.342 M PRIME2-G) IN PROPORTIONS YIELDING THE SAME TOTAL SURFACE AREA. THE VISCOSITY OF I MELTS STEADILY INCREASED WHEN FILLED WITH EITHER FILLER UNTIL THE TOTAL SURFACE AREA OF THE FILLER WAS 20 M PRIME2-100 G MIXT.; A HIGHER CONTENT OF III BROUGHT ABOUT A MORE RAPID INCREASE IN VISCOSITY AND FORMATION OF A RIGID STRUCTURE (QUASICROSSLINKED STRUCTURE DUE TO A DONOR ACCEPTOR INTERACTION). SMALL AMTS. OF III CAUSED A SIGNIFICANT INCREASE IN THE MODULUS OF ELASTICITY AND THERMAL STABILITY. THE QUASICROSSLINKING EFFECT BECAME LESS NOTICEABLE WHEN THE III SURFACE AREA WAS 4 M PRIME2-100 G MIXT. THE TENSILE STRENGTH OF II FILLED I GRADUALLY DECLINED WITH INCREASED II CONTENT. THE STRENGTH OF I SAMPLES INCREASED UNTIL THE III CONTENT WAS 2.5PERCENT FURTHER FILLING BROUGHT ABOUT A SHARP DECLINE IN IMPACT STRENGTH. FACILITY: MOSK. AVIATS. TEKHNOL. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.316.722.9

KAZANTSEV, A. D., LUNEV, A. V., and FETISOV, V. I.

"Pulse Supply Source"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, 1970, p 52, Author Certificate No 258397 Class 21a^4.

Abstract: An author certificate has been issued for a pulse supply source, which contains an amplifier, a relaxation master oscillator, and a protection circuit. In order to increase the stability of the output voltage and to decrease its owe intake power, a circuit is provided between the intake terminals, which contains a resistor and a capacitor connected in series. A dinistor is connected between them by its cathode, while its anode is connected to the base of the amplifier input transistor. In addition, the output transistor collector of the amplifier is loaded through the diode on the thyristor control electrode. Aload is connected between thyristor anodes and the bus bar.

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Acc. Nr.: AA0040447 Ref. Code: UR0482

USSR

JPRS 52248

UDC 621.316.722.9

KAZANTSEV, A. D., LUNEV, A. V., and FETISOV, V. I.

"Pulse Supply Source"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, 1970, p 52, Author Certificate No 258397 Class 21a[4].

Abstract: An author certificate has been issued for a pulse supply source, which contains an amplifier, a relaxation master oscillator, and a protection circuit. In order to increase the stability of the output voltage and to decrease its owe intake power, a circuit is provided between the intake terminals, which contains a resistor and a capacitor connected in series. A dinistor is connected between them by its cathode, while its anode is connected to the base of the amplifier input transistor. In addition, the output transistor collector of the amplifier is loaded through the diode on the thyristor control electrode. Aload is connected between thyristor anodes and the bus bar.

Reel/Frame 19741939

USSR

UDC: 539.210.2:537.311

SEVERDENKO, V. P., LABUNOV, V. A., TKHAREV, Ye. Ye., and KAZANTSEV, A. P.

"The Two-Temperature Method for Determining the Parameters of the Potential Barrier in Tunnel Metal-Dielectric-Metal Structures"

Tomsk, Izvestiya VUZ--Fizika, No 5, 1973, pp 145-147

Abstract: This brief communication proposes a method for measuring the height of potential barriers in asymmetrical MDM tunnel structures and for determining the barrier heights at the dielectric-metal junction interfaces. The authors claim the advantages of high precision and short measurement time for their method. A mathematical analysis is given, beginning with the Stratten equation for the voltampere characteristic of tunnel structures (R. Stratten, J. Phys. Chem. Solids, vol 23, p 1177. 1962).

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USSR

UDC 669.14:620.178.74

KAZANTSEV, A. P. and POPOV, K. V.

"On the Criteria of Embrittlement of Steels at Low Temperatures"

Moscow, Zavodskaya Laboratoriya, Volume 6, 71, pp 710-713

Abstract: In the usual method of testing steels for tendency to brittleness at low temperatures (dynamic bending for shock ductility) complex indirect methods must be used to divide the total work done into its components, work expended on plastic deformation and the formation of a ductile crack of the critical dimension, and work expended on the propagation of this crack across the rest of the cross section of the sample. Ignoring some small energy losses, the latter can be subdivided into elastic energy accumulated in the sample-machine system and supplementary energy of ductile propagation.

These subdivisions can be determined directly from oscillographic recordings of shock bending. The oscillograms show the disappearance of the supplementary energy factor as temperature is lowered, followed by the disappearance of the plastic deformation work, until the work of fracture is done completely by elastic energy accumulated in the system, represented as a single sharp peak in the oscillogram. Coordination with studies of the fracture cross section show that

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USSR

Kazantsev, A. P. et alia, Moscow, Zavodskaya Laboratoriya, Vol 6, 71, pp 710-713

the single peak appears when the fracture is totally brittle. There are three important temperature points: the temperature at which some brittle fracture appears, the temperature at which the crack is generated as a ductile fracture but propagates exclusively as a brittle fracture, the temperature at which the entire fracture is brittle. These points can be determined without an oscillograph by examinination of fractures in steels in which brittle fracture has a clearly visible crystalline characteristic. Diagrams in the article relate fracture cross section to oscillograph traces and temperature-work curves.

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Acc. Nr: AP0038045 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 245-252

QUANTUM MODEL OF A LASER WITH NONLINEAR ABSORPTION

A. P. Kazantsev G. I. Surdutovich

Amplitude and phase shift fluctuations in a laser with nonlinear absorption due to spontaneous radiation emission are considered. The noise intensity in such a laser is much greater than that in an ordinary one. Near the hysteresis threshold the fluctuations may lead to instability of generation. The statistical description of the laser radiation in the hysteresis region is equivalent to the picture of a liquid — gas transition near the critical point.

REEL/FRAME
19731088

Acc. Nr: AP0043686 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 677-682

DISLOCATION MOBILITY IN A LATTICE WITH LARGE PEIERLS BARRIERS

Pokrovskiy, V. L.; Kazantev, A. P.

The mobility of dislocations under the action of an applied stress is considered. Activation motion is the major mechanism of motion. Cases of small and large tensions and also of long and short dislocations are investigated in detail. The calculations are compared with the experimentally observed power law dependence of the dislocation velocity on tension.

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REEL/FRAME 19770090

2/ DL

USSR UDC 547.244

KAZANTSEV, A. V., ZHUBEKOVA, M. N., ZAKHARKIN, L. I., Karaganda Pedagogical Institute

"Synthesis of m-Carboranylphosphinous and Phosphonic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1570-1571

Abstract: It was shown that m-carboranylphosphinous acid can by synthesized by reacting lithium-m-carborane with bis(diethylamino)chlorophosphine in an ether-benzene solution with subsequent treatment of the resultant bis(dimethyl amino)-m-carboranylphosphine with dry hydrogen chloride and moist air. m-Carboranylphosphonic acid was synthesized from bis(diethyl amino) m-carboranyl phosphine.

1/1

USSR

UDC 547.244+547.241

KAZANTSEV, A. V., ZHUBEKOVA, M. N., and ZAKHARKIN, L. I.

"Synthesis and Some Conversions of Substituted o-Carboranylphenylchlorophosphines and Bis(o-Carboranyl)chlorophosphines"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2027-2033

Abstract: Described are the synthesis and conversions of the phosphorus derivatives of o-carboranes, including substituted o-carboranylphenylchlorophosphines (I), o-carboranylphenylphosphines, bis(o-carboranyl)-chlorophosphines II, bis(o-carboranyl)phosphines, o-carbonylphenylphosphinic and thiophosphinic acid chlorides (III) and esters of o-carbonylphosphinous acids (IV). The rearrangements of compounds I, II, III and IV are presented, the reactions of all intermediate compounds described and the considerable differences in stability, reactivity and other properties are given.

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100792q Action of lithium carboranes on quaternary ammonium salts. Zakharkin, L. I.; Litovchenko, L. E.; Karantsev, A. V. (USSR). *Zh. Obshch. Khim.* 1970, 40(1), 125–7 (Russ). To a soln. of methyl-*o*-carboranyllithium (I) in Et_2O-C_6H_6 (prepd. from 3.16 g methyl-*o*-carborane and BuLi) was added 5.7 g powd. 1-methylquinolinium iodide and the mixt. kept 1 hr at room temp. to give 82% 1-methyl-2-(methyl-*o*-carboranyl)-1,2-dihydroquinoline, m. 128–9°, which is stable in the solid state in air but develops a red color in soln. when heated. It is easily oxidized by iodine to the quinolinium iodide salt. Similarly was prepd. 76% 1-methyl-2-(*o*-carboranyl)-1,2-dihydroquinoline, m. 139–41°; and 86% 1-methyl-2-(phenyl-*o*-carboranyl)-1,2-dihydroquinoline, m. 155–7°. Dilithium-*m*-carborane gave 64% bis(1-methyl-1,2-dihydroquinoline)-*m*-carborane, m. 139.5–41°. A soln. of I and 1-methylpyridinium iodide similarly gave after brief heating 78% 1-methyl-4-(methyl-*o*-carboranyl)-1,4-dihydropyridine, m. 89–90°; similarly was prepd. 1-methyl-4-(phenyl-*o*-carboranyl)-1,4-dihydropyridine, m. 106–8°. These behaved similarly to the quinoline compds. above.

G. M. Kosolapoff

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TITLE--INJECTION CONDUCTIVITY IN COMPENSATED SEMICONDUCTORS WITH IMPURITY SCATTERING -U-

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AUTHOR-(05)-GRIGORYEV, V.K., KAZANTSEV, O.I., MURYGIN, V.I., RUBIN, V.S., STAFEYEV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA I TEKHN. POLUPROV., JAN. 1970, 4, (1), 116-119

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SUBJECT AREAS--PHYSICS

TOPIC TAGS--GERMANIUM SEMICONDUCTOR, GALLIUM ARSENIDE SEMICONDUCTOR, ELECTRIC PROPERTY, SEMICONDUCTOR IMPURITY

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF CARRIER INJECTION OF THE V-A CHARACTERISTICS AND GENERAL ELECTRICAL PROPERTIES OF COMPENSATED SEMICONDUCTORS SUCH AS GE AND GAAS INCORPORATING IMPURITY SCATTERING IS DISCUSSED THEORETICALLY. A MECHANISM IS PROPOSED IN ORDER TO EXPLAIN THE CREATION OF A NEGATIVE DIFFERENTIAL RESISTANCE IN THE FORWARD BRANCH OF THE V-A CHARACTERISTIC DUE TO THE CHANGE IN SCREENING RADIUS ARISING FROM THE INJECTION. EXPERIMENTAL RESULTS QUALITATIVELY SUPPORT THE THEORY.

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TITLE--DETERMINATION OF THE LIFETIMES OF PRIME2 P SUBONEHALF LEVELS OF CESIUM AND RUBIDIUM ACCORDING TO CROSSINGS IN A ZERO MAGNETIC FIELD -U-

AUTHOR-(02)-ALTMAN, E.L., KAZANTSEV, S.A.

COUNTRY OF INFO--USSR

SOURCE--(USSR). OPT. SPEKTROSK. 1970, 28(4), 805-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--CESIUM ISOTOPE, RHUBIDIUM ISOTOPE, NUCLEAR ENERGY LEVEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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2/2 009
CIRC ACCESSION NO--AP0124437
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HANLE EFFECT WAS UTILIZED TO DET. THE TITLE LIFETIMES. THE LIFETIMES OF THE CS 7 PRIME2 P SUBONE HALF AND PRIME87 RB 6 PRIME2 P SUBONE HALF, 5 PRIME2 P SUBONE HALF, AND 6 PRIME2 P SUB THREE HALVES LEVELS ARE 155 PLUS OR MINUS 5, 131 PLUS OR MINUS 5, 28.5 PLUS OR MINUS 1.1, AND 109 PLUS OR MINUS 7 NSEC, RESP., AND CALCD. FROM THE HANLE SIGNAL HALF WIDTHS DELTAH EQUALS 8.8 PLUS OR MINUS 0.1, 5.2 PLUS 0.1, 24 PLUS 1, AND 1.6 PLUS OR MINUS 0.1 OE., RESP. THE 2 LATTER LIFETIMES WERE COMPARED DIRECTLY WITH LITERATURE DATA, THE 2 FORMER VALUES WERE COMPARED WITH THE SUMS OF THE TRANSITION PROBABILITIES 7 PRIME2 P SUBONE HALF YIELDS 6 PRIME2 S SUBONE HALF, 7 PRIME2 S SUBONE HALF, 5 PRIME2 D SUBTHREE HAVLES, AND 6 PRIME2 P SUBONE HALF YIELDS 5 PRIME2 SUBONE HALF, 4 PRIME2 D SUBTHREE HAVLES, 6 PRIME2 S SUBONE HALF, RESP.; GOOD AGREEMENT WAS OBTAINED.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--MILITARY AND PATRIOTIC EDUCATION OF STUDENTS OF THE MEDICAL INSTITUTE -U-

AUTHOR-(03)-KAZANTSEV, V.V., VARANOVSKIY, YA.M., DYMCHENKO, O.D.

COUNTRY OF INFO--USSR

SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, NO 3, 1970, PP 16-18

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SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--MEDICAL TRAINING, MEDICAL INSTITUTION

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CIRC ACCESSION NO--AP0134178

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2/2 012
CIRC ACCESSION NO--AP0134178
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE PRESENT ARTICLE WE WOULD LIKE TO SHARE EXPERIENCE IN THE MILITARY AND PATRIOTIC EDUCATION OF STUDENTS OF THE LENINGRAD SANITARY HYGIENIC MEDICAL INSTITUTE. THAT WORK IS PLANNED AND ORGANIZED BY THE PARTY AND KOMSOMOL COMMITTEES AND ALSO BY THE TRADE UNION ORGANIZATIONS. A LARGE ROLE IN THE IMPLEMENTATION OF THE TASKS OF MILITARY AND PATRIOTIC EDUCATION BELONGS TO THE CHAIRS OF THE SOCIAL SCIENCES AND ALSO TO A NUMBER OF CLINICAL AND THEORETICAL CHAIRS WHOSE PROGRAM OF INSTRUCTION INCLUDES CERTAIN APPLIED MILITARY AND MAINLY MILITARY MEDICAL ASPECTS.

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USSR

KUDRAVSKIY, YU. P., and KAZANTSEV, YE. I., Ural' Polytechnical Institute imeni S. M. Kirov, Chair of the Metallurgy of Rare Metals

"The Effect of Temperature on the Sorption of Indium Ions Hydrolyzed by the Cation Exchange Resin KU-2X8"

Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol 16, No 9, 1973, pp 1363-1365

Abstract: The behavior of hydrolyzed indium ions on the KU-2X8 cation exchange resin has been studied at 18-20, 50 and 80°. It has been shown that during the sorption process, as a result of additional hydrolysis of indium ions in the resin phase, the composition of the hydroxy complexes absorbed by the cation exchange resin becomes increasingly more complex. It has been established that a temperature increases results in a more complete hydrolysis of the ions in the resin phase, accompanied by higher sorption levels and lower extraction of the metal ions by ammonium nitrate solution. The sorption of indium at 80°C is accompanied by the formation of hydroxide precipitates and basic salts of indium in the intergranular space, a phenomenon not observed in absence of resin.

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USSR

LUPUNOV, I. N., KAZANTSEV, Ye. I., and KOSAREV, V. M., Ural'sk Polytechnic Institute imeni S. M. Kirov

"Chemical Stability of the Carboxyl Cation KB-4 X 7 in N-Form"

Ivanovo, Izvestiya Vysshikh Uchebnykh Zavedeniy, Khimiya i Khimicheskaya Tekhnologiya, Vol XII, No 11, 1970, pp 1,607-1,611

Abstract: One of the requirements placed upon ion-exchange resins in daily use is that they be chemically resistant to the action of bases, acids and oxidizers, and knowledge of such resistance is critical in the choice of ionite for particular problems; but research in this area has been unsystematic and incomplete.

The authors studied the action of solutions of HNO_3, H_2O_2, $(NH_4)_2S_2O_8$, $K_2Cr_2O_7$ and $KBrO_3$ on the carboxyl cation KB-4 X 7 at temperatures of 18, 50 and 80°C.

It was found that the stability of the cation in these solutions depends both upon the nature of the oxidizer and the temperature. In the case of H_2O_2 and $(NH_4)_2S_2O_8$ in an acid medium at 18°C, decarboxylization occurs, resulting in