

Plant Pathology

USSR

UDC 632.4:633.11:582.285.2(47+47)

LESOVOY, M. P., FEDOROVA, V. A., SHKOLENKO, V. I. TERESHCHENKO, B. A.,
SHOPINA, V. V., IBRAGIMOV, G. R., AIGMEDOV, S. A., YEROGORVA, H. I.,
MAMONTOVA, A. N., PERESYPKIN, V. F., BOYKO, Yu. I., SHAVARINA, Z. A.,
CHUMAKOV, A. Ye., YAROSHENKO, Z. I., PACHAYZE, L. V., and EL'CHIBAYEV, A. A.,
All-Union Institute of Plant Protection, Ukrainian Institute of Plant
Protection, Ukrainian Agricultural Academy, Azerbaydzhan Institute of Agricul-
ture, Central Asian Institute of Plant Pathology, and Kazan' Institute of
Plant Protection, Georgian Institute of Plant Pathology

"Race Formation in *Puccinia triticina* Eriks. and *P. striiformis* West. in the
USSR"

Leningrad, Mikologiya i Fitopatologiya, No 6, 1972, pp 423-434

Abstract: Study of the causative agents of orange leaf and stripe rusts of
wheat in different parts of the Soviet Union and some other European countries
showed that, despite the great variety of races, only a few are responsible for
epiphytotics. The main races are fairly constant from year to year. This
stabilization is due to the fact that more than 90% of all the regionalized
wheat varieties in the USSR are susceptible to all races of the pathogens. The
racial composition of the pathogens in the USSR is similar to that occurring
elsewhere in Europe because of the exchange of original forms and use of the
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LESOVOY, M. P., et al., Mikologiya i Fitopatologiya, No 6, 1972, pp 428-434

same components in breeding wheat varieties. The appearance of new races and biotypes and changes in their virulence are the result of mutation, heterokaryosis, resistant varieties, and sexual hybridization.

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USSR

UDC 633+632.938

SMIRNOVA, L. A., ANFILOKOVA, L. K., SOLOV'YEVA, A. I. (Deceased), RUDANOVSKAYA, Ye. A., RASSADINA, Ye. G., CHUMAKOV, A. Ye., and MOSTOVOY, V. A., All-Union Scientific Institute of Plant Protection, Leningrad, North Caucasian Scientific Research Institute of Plant Pathology, Krasnodar, and Central Asian Scientific Research Institute of Plant Pathology, Tashkentskaya Oblast

"Face Formation in *Puccinia graminis* Pers. f. sp. *tritici* in the USSR"

Leningrad, *Mikologiya i Fitopatologiya*, No 6, 1971, pp 494-499

Abstract: Besides discussing the current status of the problem of the race composition of stem rust of wheat, the article synthesizes the latest data embodied in reports sent to the journal *Mikologiya i Fitopatologiya* for publication. More than 100 races are now known, many discovered in the last 10 years. During this time the main races of *P. graminis* were fairly stable, with changes occurring only in their quantitative correlations in different years and geographic zones. Despite their great variety, only a few are found in almost all zones, i.e., 11, 17, 21, and 34. The sexual process, heterokaryosis, and mutations play a major role in the origin of new races of the agent of stem rust of wheat. The factor most responsible for the formation of new virulent races is the presence of resistant wheat varieties grown for a long time over large areas.

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BIOLOGY
Agriculture

USSR

UDC 576.8.01:632.42/49 A/z

CHUMAKOV, A. YE., and MINKEVICH, I. I., All-Union Institute of Plant Protection, Leningrad

"Basis for the Territorial Type of Long-Range Forecasting of Plant Diseases"

Leningrad, Mikologiya i Fitopatologiya, Vol 5, No 1, 1971, pp 55-62

Abstract: Long-range forecasts of plant diseases over a number of years can be made with respect to the time at which the diseases will appear and the territories that will be affected. Forecasts of both epiphytotic and enphytotic diseases can be made; the enphytotic type of forecast is of particular practical importance. Territorial prognoses make it possible to determine in advance the damage from a disease, taking into consideration changes in the system of agriculture in various regions of the country. Determination of potential new areas over which a disease may spread is of particular importance in connection with changes in the method of growing (e.g., introduction of crop irrigation) and introduction of crops into new areas. To obtain the necessary data for long-range forecasts from the phytopathogeographic standpoint, the following studies should be conducted: determination of the location of foci of a disease; study of the extent of the area affected by the disease with annual mapping; differentiation of zones with respect to intensity
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CHUMAKOV, A. YE., and MINKEVICH, I. I., Mikologiya i Fitopatologiya, Vol 5, No 1, 1971, pp 55-62

of the disease; differentiation of zones with respect to the frequency of epiphytotic outbreaks; estimation of the probability of epiphytotic outbreaks taking into account agrobiological data on the relationship between the pathogenic organism and the host, climatic conditions, and other factors. The procedures to be followed in arriving at forecasts of this type are illustrated by examples of Fusarium wilt of cabbage, downy mildew of sunflowers and of cabbage, leaf rust of barley, and root rot of winter wheat. Maps showing the extent of these diseases in the USSR are included.

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USSR

UDC 621.787

SYSOYEVA, V. S., and CHUMAK, G. A., Moscow

"Residual Stresses at Strain Hardening of High-Strength Steels"

Kiev, Problemy Prochnosti, No5, May 73, pp.79-84

Abstract: The changes of residual stresses, of fatigue strength at asymmetric cycle of load ($\tau_{\min} = 5 \text{ kg/mm}^2$), and of elastic properties on twisting of specimens, 12 mm in diam., of medium-carbon and medium-alloy steels 40Kh1NVA and 45 KhNEFA, were investigated for the case of hardening by rolling and complex hardening by rolling and fivefold twisting of ready made specimens through an angle φ_{tw} , which considerably exceeded the angle φ on the proportionality limit of the material. The investigation results at static and cyclic twisting are reported and the changes of fatigue strength, torsional strength, proportionality limit, and residual stresses at various hardening schemata are discussed by reference to diagrams. The strain hardening is considered a determinant permitting an effective use of high-strength steel for heavily stressed machine parts and providing their reliable operation. The increase of the supporting power of high-strength steels by strain hardening is determined by the common action of residual stresses and self-hardening of the material. Five figures, two tables, three bibliographic references.

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Pesticides

USSR

UDC 631.81

SAIBOVA, M. T., IVANOV, R. N., BORUKHOV, I. A., and CHUMAKOV, F. P., Institute of Chemistry, Academy of Sciences, Uzbek SSR

"Effect of Magnesium Admixtures on the Physicochemical Properties of Ammophos"

Tashkent, *Uzbekskiy Khimicheskiy Zhurnal*, No 4, 1972, pp 23-25

Abstract: Ammophos is produced by the Almalyk Chemical Plant in Uzbekistan from Karatau phosphorites and their flotation concentrates containing up to 3.5% MgO. The presence of ammonium-magnesium phosphate exhibiting varying degrees of saturation with crystal hydrate moisture does not have a significant effect on the physical properties of ammophos which possesses a substantial moisture capacity. However, when the latter is mixed with ammonium nitrate or urea to obtain balanced fertilizers, the low hygroscopic point of dried ammophos may impair the quality of the fertilizer. For example, a mixture of granulated ammophos from apatite with ammonium nitrate and a moisture content of 0.6% has a hygroscopic point of 54 to 56%, compared with 38 to 42% for a mixture of ammophos from Karatau phosphorites with ammonium nitrate and the same moisture content. The optimum moisture content of a mixture of Karatau ammophos with ammonium nitrate or urea should not be less
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SAIBOVA, M. T., et al., *Uzbekskiy Khimicheskiy Zhurnal*, No 4, 1972, pp 23-25

than 2 to 2.5% thereby preserving good physical properties along with the highest hygroscopic point (52 to 54%). Further drying of these fertilizers would be economically undesirable and also sharply increase their hygroscopicity.

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USSR

UDC 632.95

SEMENOVA, L. N., IVANOV, R. N., ~~CHUMAKOV, F. P.~~, and ZAGRANICHNAYA, V. A.

"Study of the Possibility of Combining Karatau Ammophos with Insecticides"

V sb. Khimiya tekhnol. mineral'n. udobr. (The Chemistry and Technology of Chemical Fertilizers -- collection of works), Tashkent, "Fan," 1971, pp 107-109 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N473 by T. A. Belyayeva)

Translation: Three component pesticide-fertilizer mixtures are obtained by "gamma" applying rogor (I) and γ -HCCN (mixture A) or rogor and chlorophos (II) (mixture B) to the surface of granulated ammophos by means of an CSKh-2 machine. There was no change in the concentration of I and γ -HCCN during storage of mixture A for two months. In mixture B II rapidly decomposes and I is slowly hydrolyzed. Addition of a 40% emulsion concentrate of I and commercial γ -HCCN improves the physicochemical and physicommechanical properties of chemical fertilizers (hygroscopicity, moisture capacity, caking capacity).

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USSR

UDC 631.89+632

IVANOV, R. N., SEMENOVA, L. N., PAVLOVA, A. I., ~~CHUMAKOV, E. P.~~, Chemistry
Institute of the Uzbek SSR Academy of Sciences

"Properties of Ammophos Granules with a Dalapone Shell"

Tashkent, Uzbekskiy, Khimicheskii Zhurnal No 3, 1972, pp 5-6

Abstract: An apparatus with a fluidized bed was used to obtain a combined fertilizer made of ammophos with a 0.1-0.2 mm thick shell of the herbicide, dalapone. The structural and operating characteristics of the unit with an output capacity of 1,500 kg/hour with a 1 m² screen are described. The hygroscopic point of the fertilizers determined by the exsiccator method [N. Ye. Pestov, et al., ZhKhP, No 12, 1951] corresponded to 59-61%. In all cases ammophos with dalapone absorbed moisture faster than pure ammophos. The results of field testing by the Scientific Research Institute of Plant Protection demonstrate that the compound does not lower the germination of cotton seed but suppresses weeds. The cotton harvest was improved by 2-2.5 centners/hectare.

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CHUMAKOV, M.

ECON

ANALYSIS OF RESEARCH, SOCIAL SECURITY IV 2587
[Article by Candidate of Economic Sciences, M. Chumakov, "State Science on Science and Sociocultural Purposes in the Economy of Modern Capitalism," Moscow, Voprosy SSSR, Moscow, No 1, 1972, pp 85-91]

Like all expenditures of a reproductive state, the expenditures on sociocultural purposes are not essential. However, the expenditures on growth rate, capitalization and the form of the capitalization, the production of expenditures which are not directly aimed at the reproduction of production and capital accumulation has direct bearing on the rate of this reproduction from which the reproduction of social capital, in general, and the reproduction of the national economy, in particular, are determined. Aside from the purely economic side, it is also determined by the character of the national economy and its reproduction. It is essential to note their particular characteristics.

The amount and dynamics of sociocultural expenditures, changing according to the character of the national economy, are determined by the character of the national economy. They depend, on the one hand, on the character of the national economy, which is determined by the character of the national economy, and on the other hand, the character of the national economy is determined by the character of the national economy. The character of the national economy is determined by the character of the national economy.

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The role of sociocultural expenditures of a reproductive state in the reproduction of the national economy is determined by the character of the national economy. It is determined by the character of the national economy, which is determined by the character of the national economy. The character of the national economy is determined by the character of the national economy.

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PPS 25754 23 66723 Economic
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CHUMAKOV, M. M.

automatic control

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23 May 72

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THE FOURTH ALL-UNION CONFERENCE ON THE THEORY OF INVARIANCE AND THE THEORY OF SENSITIVITY OF AUTOMATIC CONTROL SYSTEMS (26-30 APRIL 1971, KIEV) ~~by~~ ~~Academy of Sciences~~ [Report by L. M. Pavlovsk and M. M. Chumakov; Kiev, Avtomatyka, Ukrainian, No. 6, 1971, pp 77-79]

In Kiev, from April 26 to 30 of this year, the Fourth All-Union Conference on the Theory of Invariance and the Theory of Sensitivity of Automatic Control Systems, organized by the Academy of Sciences of the USSR (Department of Mechanics and Control Processes), the Academy of Sciences of the Ukrainian SSR (Cybernetics Institute of the Ukrainian SSR Academy of Sciences), and the Science Association of the Ukrainian SSR (the Kiev structure of the Ukrainian technological propaganda), was held. The conference covered a period since the work of scientists and engineers for the first time. The third All-Union Conference (May-June 1966) and outlined new tasks regarding the development of theory and the application of these important scientific directions in the light of further scientific and technical progress.

Nearly 500 delegates from 154 scientific institutions, enterprises, and colleges of various cities of the nation (Moscow, Leningrad, Kiev, Minsk, Baku, Sverdlovsk, Kharkov, Sevastopol, and others) took part in the conference. Participants heard over 100 reports and papers. The conference was chaired by Academician B. M. Petrov, whose deputies were O. I. Kukharenko and O. G. Ivakhnenko, corresponding members of the Ukrainian SSR Academy of Sciences. The conference began with a plenary session at which Academician B. M. Petrov made an introductory speech and the following reports were read: "Basic rings in the Theory of Automatic Control Systems" by L. M. Boychuk, G. F. Zaytsev, U. G. Ivakhnenko, and P. I. Chyrunev; "The

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UDC 576.858(Kemerovo).097.2

KARMYSHEVA, V. YA., SEMASHKO, I. V., and CHUMAKOV, M. P., Institute of Poliomyelitis and Viral Encephalitis, Academy of Medical Sciences USSR, Moscow

"A Quantitative Study of Antigen Accumulation and the Interaction of Kemerovo Group Viruses by Cytofluorimetry"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 72, pp 397-401

Abstract: Accumulation of Kemerovo, Tribech, Chenuda, and EgAn 1169-61 virus antigens in Syrian hamster kidney cells and the reactions of these viruses to homologous and heterologous antisera were studied by cytofluorimetry. The dynamics of antigen accumulation detected through fluorescein isothiocyanate staining were similar for all viruses. Cellular fluorescence was detected after 6 hours, peaked at 30 hours, and then decreased by 48 hours. Extracellular virus was detected after 18 hours and peaked at 48 hours. Reactions of these viruses to antisera were quantified by the degree of fading of fluorescence in response to the antisera. Assuming fading to be 100% in the reaction of Tribech virus to Tribech antiserum, responses to this antiserum were 83.4-84% for Kemerovo and EgAn 1169-61 viruses and 78% for Chenuda virus. Response of the latter was probably weaker due to ineffectiveness of the antiserum against cells with maximum antigen concentration. These results indicate that

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KARMYSHEVA, V. YA., et al., Voprosy Virusologii, No 4, Jul/Aug 72, pp 397-401

Kemerovo and EgAn viruses are closely allied antigenically to each other and to Tribech virus. Various virological tests confirmed the findings of cytofluorimetry. Thus the methods described are useful in identifying Kemerovo group viruses and quantifying their accumulation and interaction with antisera.

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VIL'NER, L. M., ZEYTLNOK, N. A., CHUMAKOV, M. P., KROPACHEV, V. A., and TRUKHMANOVA, L. B., Institute of Poliomyelitis and Viral Encephalitides, Academy of Medical Sciences USSR, Institute of High-Molecular-Weight Compounds, Academy of Sciences USSR

"Use of Synthetic Copolymers Derived From Vinylpyrrolidone for Interferon Induction and for Increasing Resistance to Viral Infections"

Riga, Fiziologicheski i Opticheski Aktivnyye Polimernyye Veshchestva, "Zinatne," 1971, pp 137-144

Abstract: Antiviral and interferon-inducing activities of copolymers of vinylpyrrolidone (VP) with crotonic acid (CA), crotonic aldehyde (CAL), and maleic anhydride (MA) were studied. Interferon activity was determined by intraperitoneal injection of mice with 0.5 ml. of copolymers of different concentration, followed by blood serum analysis. Analysis results showed that interferon titers were <16, 16, 32-24, 42, 128-155 for VP with CA; and <16, <16, 48, not determined, 188-252 for VP with MA 2, 4, 6, 8, and 24 hrs, respectively, after injection. Effectiveness of these copolymers was high if they were administered to mice prior to infection with tickborne encephalitis virus. However, all of them were ineffective if given to mice 24 hr after infection. Injection of a large group of mice infected with low doses 1/2

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VIL'NER, L. M., et al., Fiziologicheski i Opticheski Aktivnyye Polimernyye Veshchestva, "Zinatne," 1971, pp 137-144

of tickborne encephalitis virus with less than 100 LD₅₀ dose of copolymers tested showed that VP with CA (No 20) and VP with MA (No 2) possessed high antiviral activity (95 and 60% of mice survived). This means that copolymers with polyanionic structure were the most effective. With respect to mol. wt. the most active copolymers were those with 50 ÷ 200,000 mol. wt. and with characteristic viscosity of ~0.24-0.5 in 0.02 N HCl. Thus, in the case of VP with CA and MA a possibility was established of inducing interferon-production in animal blood by chemical means. Results were negative with chicken embryos and with cell cultures of chicken and mouse embryos.

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1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--COMPARATIVE CHARACTERISTICS OF QMSK HEMORRHAGIC FEVER VIRUS STRAINS
ISOLATED FROM DIFFERENT OBJECTS OF A NATURAL FOCUS -U-
AUTHOR--(03)-KORNILOVA, E.A., GAGARINA, A.V., CHUMAKOV, M.P.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY VIROLOGII, 1970, NR 2, PP 232-236
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--HEMORRHAGIC FEVER, VIRUS, TISSUE CULTURE, ANTIGEN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1990/0740 STEP NO--UR/0402/70/000/002/0232/0236
CIRC ACCESSION NO--AP0108946
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108946

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXISTENCE OF STRAIN AND ANTIGENIC DIFFERENCES AMONG STRAINS OF OMSK HEMORRHAGIC FEVER (OHF) VIRUS WAS DEMONSTRATED. THE COMMON BIOLOGICAL PROPERTY OF ALL THE STRAINS CONSISTED IN HIGH PATHOGENICITY FOR LABORATORY ANIMALS AND CAPACITY TO MULTIPLY IN THE MAJORITY OF TISSUE CULTURES. HOWEVER, THE STRAINS DIFFERED SLIGHTLY IN THEIR ANIMAL PATHOGENICITY AND TIME OF MAXIMUM VIRUS INCREASE IN THE CULTURAL FLUID OF CELL CULTURES. THE INHOMOGENEITY OF THE STRAINS WAS CLEARLY DEMONSTRABLE IN THE STUDIES OF HEMAGGLUTINATING PROPERTIES. BY MEANS OF ANTIGENIC ANALYSIS OF THE STRAINS GROUPS WERE FOUND IN WHICH THE EXTENT OF ANTIGENIC SIMILARITY WAS THE GREATEST.

UNCLASSIFIED

USSR

UDC 576.858.25.083.1

POPOV, G. V., RUBIN, S. G., and CHUMAKOV, M. P., Institute of Poliomyelitis and Viral Encephalitides, Academy of Medical Sciences USSR

"Gel Chromatography of Arbovirus Suspensions on Sepharose"

Moscow, Voprosy Virusologii, No 5, 1971, pp 615-620

Abstract: Investigations were conducted to determine the feasibility of gel chromatography of some arboviruses (tickborne encephalitis virus, Japanese encephalitis virus, Omsk hemorrhagic fever virus, West Nile fever virus) on sepharose 4 B; and to combine concentration of arboviruses with polyethylene glycol with subsequent purification on sepharose. The hemagglutinating, precipitating, and infectious properties of purified arbovirus suspensions were also studied. The main columns were 11 to 13 X 300 mm; buffer -- 0.05 M boric acid and sodium hydroxide to pH 8.0 with 0.5 M sodium chloride; amount of suspension analyzed -- 0.5 to 2 ml; flow rate of liquid -- 25 ml/hour; size of fractions -- 0.5 to 2 ml. Native and concentrated viral suspensions obtained in tissue cultures and native brain suspensions were subjected to gel chromatography, which produced high yields of purified, antigenically active and infectious virus. The procedure eliminated hemagglutination inhibitors and other ballast substances. It also freed the peak fractions from 1/2

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POPOV, G. V., et al., Voprosy Virusologii, No 5, 1971, pp 615-620

residues of polyethyleneglycol, thereby increasing the stability of the preparations.

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Epidemiology

USSR

UDC 616.988.25-036.21(474.5)

ChUMAKOV, M. P., MOLEYUNAS, L. I., BYChKOVA, M. V. and VARGIN, V. V., Institute of Polyomyelitis and Viral Encephalitides, Academy of Medical Sciences USSR, Moscow, and Lithuanian Republic Sanitary-Epidemiological Station, Vilnyus

"Study of Natural-Focus Infections in the Lithuanian SSR. I. Rate of Infection of Ixodid Ticks with Uukuniemi and Tickborne Encephalitis Viruses in Different Ecological and Faunal Regions"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 5, 1973, pp 83-87

Abstract: A total of 29 virus strains - 12 tickborne encephalitis and 17 Uukuniemi -- were isolated from about 14,000 adult ticks collected from 1969 to 1971 in 4 of the 5 ecological and faunal regions of Lithuania. (Two Uukuniemi virus strains isolated in 1970 from Ixodes ricinus ticks were the first strains of this virus to be found in the USSR). Tickborne encephalitis virus strains were isolated both from *Ix. ricinus* (11) and from *Ix. persulcatus* (1), while Uukuniemi virus strains were isolated only from *Ix. ricinus*. These arboviruses were isolated almost 3 times as often from ticks collected in June as from those collected in August. The number of individuals immune to Uukuniemi virus in the regions where it was isolated was 4.8 times greater
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USSR

ChUMAKOV, M. P., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 5, 1973, pp 83-87

than in other regions (17.3 and 3.6%, respectively). Thus, the level of immunity to this virus is directly correlated with the infection rate of the ticks.

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UDC: 621.374.2

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UDC: 621.374.2

BRESLAVTSEV, I. D., VENIKOV, N. I., DVORNIKOV, V. D., KULESHOV, I. L., LATUSHKIN, S. T., REZVOV, V. A., CHUMAKOV, N. I., and YUDIN, L. I.

"Use of 'Deviation Grouping' to Obtain Intense Short Neutron Pulses in the IAE Cyclotron"

Moscow, Priboiy i Tekhnika Eksperimenta, No 4, July-August 1972, pp 26-31

Abstract: A system is described for the formation and diagnostics of a beam of neutrons using the method of deviation grouping. Similar to that of Karlsruhe, as described by S. Cierjacks et al (Rev. Scient. Instrum., 39, 1968, p 1279), the system involves a packet of ions cut by a pulsed voltage of an internal deflector and accelerated to the proper energy level. The ions are deflected vertically to a target whose thickness is larger than the ion path, and as a result of the impact of the particles on the target, short intense neutron pulses are obtained. A detector, recording the neutrons' energy spectrum, is placed at a distance of 13.5 m from the target. Unlike the Karlsruhe cyclotron, however, the IAE has two 180° duants, such that it is impossible to place all elements of the system in the space outside them. The setup
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USSR

KOZDOBA, L. A.; CHUMAKOV, V. L. (Institute of Engineering Heat Physics,
Ukrainian Academy of Sciences)

"Use of the Method of a Small Parameter in the Solution of Quasilinear Problems of Nonstationary Thermal Conductivity with Significant Nonlinearities"

Moscow, Teplofizika Vysokikh Temperatur; May-June, 1971; pp 557-62

ABSTRACT: The authors present a method of solving quasilinear problems of nonstationary thermal conductivity by the method of a small parameter when a preliminary approximation of the laws for the variation of the thermo-physical characteristics make it possible to linearize a problem in such a way that a perturbation would be weak for any significant nonlinearities. Such an approach extends the possibilities of the perturbation method to the class of problems with significant nonlinearities. An example is given which illustrates the method and shows that the error in the solution after the first approximation obtained by the perturbation method, compared with the numerical solution, is fully compatible with engineering practice.

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USSR

UDC 547.962

CHUMAKOV, V. M., IVANOV, V. P., YAGUZHINSKIY, L. S., ROZANTSEV, E. G., and
KALFANSON, A. E., Institute of Virology imeni D. I. Ivanovskiy, Academy
of Medical Sciences USSR; Institute of Chemical Physics, Academy of Sciences
USSR; and Interfaculty Laboratory of Bioorganic Chemistry, Moscow State
University imeni M. V. Lomonosov, Moscow

"An Investigation of Various Iminoxyl Free Radicals in Biological and
Artificial Membranes by the Method of Erythrocyte Sedimentation Rate"

Moscow, Molekulyarnaya Biologiya, Vol 6, No 2, Mar/Apr 72, pp 240-245

Abstract: The structure and function of lecithin micelles and mitochondrial
membranes were investigated by studying their interaction with iminoxyl spin
labels or free radicals I-V. The ESR [erythrocyte sedimentation rate]
spectra obtained from various types of solutions containing the radicals
and the substances being studied were examined. It was discovered that the
ESR spectrum of the interaction of radical I with lecithin micelles and
mitochondria had both a broad and a narrow signal, indicating that the
radical was localized in two different parts of the membranes (the hydrophilic
and hydrophobic parts). The same type of spectrum was observed for radical
IV, but radicals III and V were localized only in the hydrophilic region of
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CHUMAKOV, V. M., et al., Molekulyarnaya Biologiya, Vol 6, No 2, Mar/Apr 72, pp 240-245

the membranes. All five iminoxyls interacted with the respiratory chain of the mitochondria, resulting in iminoxyl decay, the rate of which was significantly lower in the hydrophobic region. Radical I was used to show that when the mitochondria are energized, the spin labels are transferred from the hydrophobic region to the hydrophilic. Radical I was also used to show that the changes which occur in the lipid part of the mitochondria during energization are qualitatively different from those which occur during reduction of the respiratory chain.

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Biophysics

USSR

UDC 577.3

CHUMAKOV, V. M., GRIGORYAN, G. L., SUSKINA, V. I., ROSANTSEV, E. G., and KALMANSON, A. E., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, and Institute of Chemical Physics, Academy of Sciences USSR, Moscow

"Study of Spin Labels in Animal Tissues"

Moscow, Biofizika, Vol 16, No 3, May/Jun 71, pp 564-565

Abstract: The stable free iminoxyl radicals 2,2,6,6-tetramethyl-4-aminopiperidine-1-oxyl and its maleic acid imide derivative were injected intraperitoneally to rats, mice, and frogs in aqueous solutions in a dose of 500-600 mg/kg. Within 2-4 hrs after injection of the solutions, the lyophilized tissues of the animals exhibited EPR spectra indicating the presence of firmly fixed (immobilized) free radicals. Wetting of the tissues with physiological saline solution transformed the EPR signal of firmly fixed free radicals into one typical for radicals with a higher mobility. On treatment of the lyophilized tissues with water vapor and O₂, the concentration of iminoxyl radicals, as indicated by the EPR spectrum, first increased to a maximum and then gradually decreased. The moisture content of the tissue samples in these experiments was brought to only 10% (i.e., only bound water was present), so that the radicals remained in the firmly fixed state. It was shown in earlier work by Chumakov and Kalmanson that

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CHUMAKOV, V. M., et al., Biofizika, Vol 16, No 3, May/Jun 71, pp 564-565

under these conditions the EPR tissue semiquinone signal associated with the semiquinone of coenzyme Q also increases and, on passing through a maximum, finally disappears. In the present work, disappearance of this signal, which contributed to the central component of the iminoxyl radical EPR spectrum, resulted from changes in the tissues spectrum (e.g., rat liver tissue) upon treatment with water vapor and O_2 . A reaction between the iminoxyl and semiquinone radicals in the tissues could be assumed. The fact that the iminoxyl radicals react with semiquinones in a reversible reaction with the formation of hydroxylamines was established in experiments conducted in vitro in which semiquinones derived from benzoquinone, duroquinone, and naphthoquinone were applied. The results obtained indicated that iminoxyl spin labels are convenient redox indicators for the study of processes of electron transfer in the respiration chain of biological oxidation in mitochondria.

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USSR

UDC: 621.3.049.75:774

PASTUKHOV, V. M., LOBOV, V. I., LUTCHENKOV, A. M., CHUMAKOV, Ye. A., SIYANOV, S.A., SHEKHODANOV, M. P., LESKOVSKAYA, N. P., Scientific Research Institute of Technology and Production Organization"

"A Device for Combining Solid Circuits or Semiconductor Devices with Phototemplates"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 3, 1970, pp 51-52, patent No 259975, filed 19 Nov 66

Abstract: This Author's Certificate introduces a device for combining solid circuits or semiconductor devices with phototemplates and exposing the resultant combination. The device contains a table for combining the solid-state circuit with the phototemplate, an illuminator, power supply, control unit and enclosure. As a distinguishing feature of the patent, precision of registration is improved by fitting the combining table with a hemispherical suction device fastened on a rotating column and connected through a piston rod, movable sleeve, cylinder, support bracket and moving carriage in prismatic guides to a fixed plate to which the phototemplate is fastened.

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USSR

UDC 543.544.45.08:662.75:658.382.3

PROTOYEREYSKIY, A. S., BURICHENKO, L. A., CHUMAKOV, Yu. I.

"Miniaturized Gas Chromatograph for Determination of the Content of Aviation Fuels and Toxic Substances in the Air in Production Areas"

Sb. Nauch. tr. Kiev. In-t. Inzh. Grazhd. Aviatsii [Collected Scientific Works of Kiev Civil Aviation Engineering Institute], 1971, No 2, pp 63-67, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 7, 1972, Abstract No 7.32.856).

Translation: The design of the units of a small high temperature gas chromatograph for determination of the concentration of toxic substances directly in the air of production areas is described. The device allows rapid, quantitative determination of small concentrations of volatile toxic substances in the air. 4 Figures; 6 Biblio. Refs.

1/1

- 134 -

1/2 007 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SYNTHESIS OF TETRAHYDROQUINOLINES AND QUINOLINES -U-
AUTHOR-(02)-CHUMAKOV, YU.I., BULGAKOVA, N.B.
COUNTRY OF INFO--USSR
SOURCE--UKR. KHIM. ZH. 1970, 36(5), 514-17
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC SYNTHESIS, QUINOLINE, HETEROCYCLIC OXYGEN COMPOUND,
CYCLOHEXENE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605019/C01 STEP NO--UR/0073/70/036/005/0514/0517
CIRC ACCESSION NO--AP0140913
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140913

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 1,ETHOXYCYCLOHEXENE HEATED IN A SEALED TUBE AT 210DEGREES WITH R PRIME1 CH DOUBLE BOND CRCHO CONTG. 0.1PERCENT P-C SUB6 H SUB4 (OH) SUB2 FORMS DERIVS. (I) OF 6,ETHOXY,5,6,TETRAMETHYLENE,5,6,DIHYDRO,4H,PYRAN. I (0.04 MOLE) BOILED WITH 0.75 ML H SUB2 O AND 1.5 ML HOAC UNTIL HOMOGENEOUS, Poured INTO THE BOILING MIXT. OF 3.1 G NH SUB3 OH IN 25 ML HOAC, AND REFLUXED 1 HR YIELDS 59-76PERCENT 5,6,7,8,TETRAHYDROQUINOLINES (II). II CAN BE DEHYDROGENATED TO THE CORRESPONDING QUINOLINE BY HEATING WITH SE IN PHNO SUB2. I CAN BE CONVERTED TO II IN POORER YIELD BY PASSING A MIXT. WITH NH SUB3 OVER PT-AL SUB2 O SUB3 AT 225-30DEGREES. FACILITY: KIEV. INST. INZH. GRAZHDAN. AVIATS., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 616.155.392-036.11-07:[616.157+616.419]-078

KAGAN, G. Ya., GOLOSOVA, T. V., MARTYNOVA, V. A., CHUMAKOVA, L. P., KOPELOVA, Ye. I., and RASKOVA, T. M., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Sciences USSR, and Central Institute of Hematology and Blood Transfusion

"Isolation and Identification of Microbial Agents From Bone Marrow and Blood of Acute Leukemia Patients"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971, pp 72-76

Abstract: Four types of microorganisms can be isolated directly from blood and bone marrow of acute leukemia patients. Two of them are streptomicrococci and diphtheria-like microbes unlike the classical streptococci and diphtheroids. They are probably altered variants of the patient's microflora. Microbial agents of the third type are either a phase of induction of the L-form in the patient's body or a phase of bacterial reversion from the L-form. Polymorphic agents of the fourth type resemble the Mycoplasmataceae in several respects and they can be tentatively regarded as "mycoplasma-like" organisms.

1/1

USSR

UDC 621.357.7.035.4:669.245'779

AVERBUKH, M. YE., BAKHIDOV, R. S., and CHUMAKOVA, O. K.

"Electrolytic Precipitation of Nickel-Phosphorus Alloys in the Presence of Phosphoric Acid"

Alma-Ata, Khimiya i Khim. technol. (Chemistry and Chemical Technology) No 2, 1971, pp 147-154 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L390)

Translation: The effect of the initial pH of the electrolyte (0.85-1.8) and its concentration of phosphate ions (0-1.53 mole/l) on the electrodeposition of Ni-P alloys was examined. It was shown that with an increase in the pH, the VT_k [expansion unknown] of Ni and P increased, and H_2 decreased; the part of P in the cathode alloy for this was decreased and the microhardness of the alloy increased. The effect of the phosphoric acid is to buffer the electrolyte; the buffering capacity of the solution is increased with the addition of H_3PO_4 . Based on data of the overall VT_k of the cathode products, it was shown that at an initial pH 1.5, cathode Ni-P alloys were formed as a result of electrochemical processes. At a higher initial pH, there was a possibility of simultaneously reducing the Ni chemically.

1/1

USSR

UDC 669.15.24.74:539.379

BOGACHEV, I. N., CHUMAKOVA, L. D., and SHELYAR, R. Sh.,
Sverdlovsk

"Change of the Substructure of Manganese and Nickel Austenitic
Alloys in the Process of Micro-Impact Effect"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 2, Mar-Apr 73,
pp 164-169

Abstract: A study by the method of diffraction microroentgeno-
graphy was made of structural changes on micro-impact loading
arising in austenitic alloys on Fe-Ni and Fe-Mn bases, in order
to explain the causes of their different behavior. Observed chan-
ges in specimens, 10 x 10 x 10 mm, of stable G38 and M40 alloys, sub-
jected to micro-impact action on a magnetostrictive vibrator, are
discussed by reference to microroentgenograms and diagrams showing
the changes of the average size of fragments and of the average
angle of disorientation of subgrains of these alloys. Annealing
at 1200 °C was found to produce a nonuniform structure in Ni and
Mn austenites. An intensive size reduction of fragments and an

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- 65 -

USSR

BOGACHEV, I. N., et al., Izvestiya Akademii Nauk SSSR, Metally, No 2, Mar-Apr 73, pp 164-169

increasing angle of disorientation on micro-impact action is characteristic for austenitic Ni. A more gradual change of these parameters is observed on austenitic Mn. The hardening and the resistance to micro-impact loads of stable austenitic alloys depend on the degree of disorientation, the dimensions of substructural components, and the kinetics of their change in the process of deformation. Five figures, seven bibliographic references.

2/2

1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--CALCULATION AND STUDY OF THE INFRARED ABSORPTION SPECTRUM OF
THIOHYDANTOIN -U-
AUTHOR--LEBEDEV, R.S., CHUMAKOVA, R.P., YUKHIMETS, V.N., YAKIMENKO, V.I.
C
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(1), 29-33
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--IR SPECTRUM, IMIDAZOLE, FREQUENCY VIBRATION, HYDROGEN BONDING,
DIELECTRIC CONSTANT, ORGANIC SULFUR COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--1988/0172 STEP NO--UR/0139/70/013/001/0029/0033
CIRC ACCESSION NO--AT0105248
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AT0105248

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRUM (400-3500 CM PRIME NEGATIVE) OF THIOHYDANTOIN (I) WAS MEASURED; THE FREQUENCIES OF NORMAL VIBRATIONS WERE CALCD. ON THE BASIS OF A MECH. MODEL (SYM. WITH REGARD TO THE RING PLANE, GIVING 18 SYM. A PRIME AND 9 ANTISYM. A DOUBLE PRIME VIBRATIONS) AND COMPARED WITH THE EXPTL. ONES. THE FREQUENCIES AND ASSIGNMENTS TOGETHER WITH THE KINEMATIC COEFFS. OF I ARE TABULATED. THE FREQUENCIES OF ALL INTENSE LINES IN THE SPECTRUM OF I ARE COMPARABLE WITH THE CALCD. ONES. THE BANDS AT 3231 AND 3118 CM PRIME NEGATIVE (WHICH WERE NOT CALCD.) WERE ASSIGNED TO THE INTRA OR INTERMOL. INTERACTIONS. THE EXISTENCE OF AN INTERMOL. H BOND INCREASES IN THE SERIES I, RHODANINE, AND HYDANTOIN. ON THE BASIS OF A COMPARISON OF THE DIELEC. CONSTS. EPSILON AND THE FREQUENCIES OF CH SUB2 SCISSORING VIBRATIONS OF I (EPSILON EQUALS 3), RHODANINE (EPSILON EQUALS 3.06), AND 2,THIO,2,4,OXAZOLIDINEDIONE (EPSILON EQUALS 3.28), THE BAND AT 1412 CM PRIME NEGATIVE WAS ASSIGNED TO THE CH SUB2 SYM. DEFORMATION VIBRATIONS. THE IR SPECTRUM OF I CAN BE INTERPRETED BY CONSIDERING A C SUBS SYMMETRY TOGETHER WITH A SLIGHT THE WHOLE AND AN APPROX. C SUB2V SYMMETRY TOGETHER WITH A SLIGHT EFFECT OF D SUB5H SYMMETRY FOR THE RING.

UNCLASSIFIED

USSR

UDC 669.661.42.295

SOROKIN, I. P., STREMILOVA, N. N., MIKHEYEVA, V. V., CHUMARNYY, V. I.

"Reprocessing Sinters From Mine Chlorinators"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol VI, 1970, pp 140-142

Translation: Research was conducted on dechlorinating sinters of mine chlorinators using damp air in a boiling medium. The effect of the process temperature, length of the process, and expenditure of dampened air on the degree of sinter dechlorination was studied. On the basis of laboratory experiments, it was demonstrated that at a process temperature of 300-400°C using blasts of dampened air in a boiling medium, it is possible to achieve 75-80% dechlorination of sinters from mine chlorinators. Reprocessing sinters containing 20-30% titanium dioxide makes it possible to raise the extraction of titanium during the production of titanium tetrachloride by 2-2.5%. Two illustrations and one table.

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USSR

UDC 669.295.046.4

SOROKIN, I. P., STREMILOVA, N. N., MIKHEYEVA, V. V., and CHUMARNYY, V. L.

"Processing the Sinter From Shaft-Type Chlorators"

Sb. tr. Vses. n.-i. i proyektn. in-t titana, [Collected works of All-Union Scientific-Research and Planning Institute for Titanium], 6, 1970, 140-142, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No.1 G181 by the authors).

Translation: Studies are presented on dechlorination of shaft-type chlorinator sinter by moist air in a fluidized bed. The influence of temperature and duration of the process and consumption of moist air on the degree of dechlorination of the sinter is studied. When the process is performed at a temperature of 300-400° using blowing of moist air through the fluidized bed, 75-80% dechlorination can be achieved. Processing of sinter containing 20-30% TiO₂ allows the extraction of Ti in the production of TiCl₄ to be increased by 2-2.5%. 2 figures; 1 table.

1/1

A.N. CHUMAYEVSKAYA

Acc. Nr: AA0051019 Abstracting Service: CHEMICAL ABST. 5-7c

Ref. Code: UK0000 4

101534u Plastic antifriction material. Korschak, V. V.; Virogradova, S. V.; Slonimskii, G. L.; Gribova, I. A.; Chumayevskaya, A. N.; Kuznetsov, A. P.; Fomina, Z. Ya.; Askaniiskii, A. A. (Institute of Heteroorganic Compounds, Academy of Sciences, U.S.S.R.) Brit. 1,179,400 (Cl. C 10m), 28 Jan 1970, Appl. 29 Jun 1967; 3 pp. Antifriction materials with little self-adhesion and low coeff. of friction were prepd. by compression molding polyesters contg. >3% P with 30-70% MoS₂ and powd. Cu fillers. Thus, a 0.5-0.5-1.0 isophthaloyl dichloride-MePOCl₂-phenolphthalein mixt. was polycondensed in a chlorinated diphenyl solvent at 220° and 4.0 g of the polyester obtained was blended with 6 g MoS₂ and 4 g powd. Cu for 3-5 min before compression molding at 220-50° and 1000-1500 kg/cm². Polyesters contg. P were also prepd. by condensing terephthaloyl chloride with phenolphthalein and p,p'-methylphosphinyldenebis(benzoyl chloride) and were used either alone or were blended with phenolphthalein-phenol-formaldehyde resins. CQPN

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REEL/FRAME
19811028

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1/3 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--PHOTOINDUCED TRIPLET SINGLET TRANSFER OF ELECTRONIC EXCITATION ENERGY IN THE LIQUID PHASE -U-

AUTHOR--(05)--BERENFELD, V.M., CHUMAEVSKIY, YE.V., GRINEV, M.P., KURYATNIKOV, YU.I., ARTEMYEV, E.T.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3): 678-82

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--EXCITATION ENERGY, FLUORESCENCE SPECTRUM, BROMINATED ORGANIC COMPOUND, ANTHRACENE, LIGHT EXCITATION, AROMATIC HYDROCARBON, ELECTRON SPIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1999/1895

STEP NO--UR/0048/70/034/003/0678/0682

CIRC ACCESSION NO--AP0123682

UNCLASSIFIED

2/3 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123682

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE LIQ. PHASE TRIPLET, SINGLET ENERGY TRANSFER IS AN INTERMOL. RADIATIONLESS TRANSFER OF ELECTRONIC EXCITATION ENERGY FROM THE TRIPLET LEVEL OF THE DONOR MOL. TO THE SINGLET EXCITATION LEVEL OF THE ACCEPTOR MOL. THIS WAS STUDIED IN THE FLUORESCENCE SPECTRUM OF 9,10-DIBROMOANTHRACENE IN BENZENE, SENSITIZED WITH ACPH, EXCITED WITH LIGHT OF 313 NM AT 20 DEGREES. THE CONC. RANGES OF THE ACCEPTOR AND DONOR WERE 2×10^{-5} TO 5×10^{-3} MOLE-1, AND 0.1, 0.5 MOLE-1, RESP. THE CONC. EFFECT ON THE QUANTUM YIELD AND ON THE DECAY TIME OF THE FLUORESCENCE WITH PULSED PHOTOEXCITATIONS WERE STUDIED UNDER STEADY STATE AND NON STEADY STATE CONDITIONS, RESP. WITH INCREASED CONC. OF THE ACCEPTOR, THE QUENCHING RATE OF THE AFTERGLOW BECOMES HIGHER. THE QUANTUM YIELD RATIO INCREASES WITH THE ACCEPTOR CONC. APPROACHING A LIMITING VALUE; SIMILAR 0.3 FOR C IS GREATER THAN 3×10^{-3} MOLE-1. BELOW THAT CONC. THE ENERGY TRANSFER IS COMPETITIVE WITH THE SPONTANEOUS DEACTIVATION PROCESS OF THE TRIPLET ACPH MOL. THE PROCESSES OCCURRING IN THE SOLN. UNDER THE ACTION OF LIGHT ARE DISCUSSED. THE RELATIONS FOR THE INTENSITY OF THE FLUORESCENCE VS. TIME ARE DERIVED IN TERMS OF THE LIFETIME OF THE DONOR TRIPLET MOL., τ_{TD} , τ_{DT} , AS $(3 \pm 10\%) \times 10^{-7}$ SEC. THE VALUE OF THE ENERGY TRANSFER CONST., k_{ST} EQUALS $(5 \pm 0.5) \times 10^{10}$ L.-MOLE SEC IS CLOSE TO THAT OF THE DIFFUSION CONST. INDICATING THAT THE PROCESS IS A DIFFUSION CONTROLLED ONE. THE STUDY OF THE CONC.

UNCLASSIFIED

3/3 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--A0123682

ABSTRACT/EXTRACT--DEPENDENCE OF THE QUANTUM YIELD FOR THE SENSITIZED
FLUORESCENCE UNDER STEADY STATE ILLUMINATION GAVE THE RATE CONST. FOR
THE TRIPLET SINGLET ENERGY TRANSFER, $k_{\text{PRIMETS SUBDA}}$ EQUALS 1.5 TIMES 10^9
PRIME⁹ L.- MOLE SEC. THE RATIO $k_{\text{PRIMETS SUBDA}}/k_{\text{PRIMET T SUBDA}}$ IS
APPROXIMATELY EQUAL TO 0.5 INDICATES A HIGH DEGREE OF SPIN ORBITAL
INTERACTION DUE TO THE HALOGEN ATOMS PRESENT IN THE AROMATIC HYDROCARBON
MOL.

UNCLASSIFIED

USSR

UDC 539.4:624.012

CHILINGARISHVILI, G. I., TSINTSADZE, G. S., ~~CHUMBURIDZE, G. K.~~

"Modeling of Reinforced-Concrete Vault of a Hydroelectric Station Building with Suspended Crane Runway Beams"

Izv. Tbilissk. n.-i. in-ta sooruzh. i gidroenerg. (News of the Tbilisi Scientific Research Institute of Installations and Hydroelectric Power), 1969, 19, pp 205-209 (from RZh-Mekhanika, No 3, March 1970, Abstract No 3V861)

Translation: Problems of modeling the reinforced-concrete vault of the underground building of a hydroelectric station with suspended crane runway beams are examined. A description of the design of a stand for model tests, methods of studying the model, and results of choosing formulations of materials for the model are given. Bibliography: 10 entries.

Resume

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USSR

UDC 539.4:624

CHUMBURIDZE, G. K. C

"Calculation of Liners of Unpressurized Round Tunnels for Limiting States"

Izv. Tbilissk. n.-i. in-ta sooruzh. i gidroenerg. (News of the Tbilisi Scientific Research Institute of Installations and Hydroelectric Power), 1969, 19, pp 191-204 (from RZh-Mekhanika, No 3, March 1970, Abstract No 3V838)

Translation: A review of works on determining the upper limit of the bearing capacity of nonpressurized tunnels. The failure mechanism is examined under plane deformation conditions. These conditions include the formation of four equi-backspaced plastic hinges. Sections in the hinges in this mechanism are eccentrically compressed. It is assumed that the rock surrounding the lining functions in the elastic stage and makes its corresponding contribution to the performance of internal forces for the failure mechanism under consideration. For the case when the tunnel lining is made of reinforced concrete, two cases of the eccentric compression of sections in the plastic hinges have to be examined separately. In all the cases under consideration finite formulas were obtained that define the allowance stressed state of the lining. Bibliography: 15 entries. M. I. Reytmán

1/1

1/2 033 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--A RELATIVE OF GLASS AND STEEL -U-
AUTHOR--CHUMICHEV, V. C
COUNTRY OF INFO--USSR
SOURCE--STROITEL, NAYA GAZETA, JULY 8, 1970, P 3, COLS 1-2
DATE PUBLISHED--08JUL70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--REFRACTORY MATERIAL, METALLURGIC SLAG, MOLDING MATERIAL, METAL
CASTING, SITALL GLASS, PROTECTIVE COATING, GAS, PYROCERAM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0073 STEP NO--UR/9024/70/000/000/0003/0003
CIRC ACCESSION NO--AN0113052
UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AN0113052

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THEORETICAL RESEARCH INTO SITALL, SOVIET EQUIVALENT OF PYROCERAM, WAS INITIATED IN THE SOVIET UNION BY I. I. KITAYGORODSKIY AND K. T. BONDAREV. THE COMPOSITION OF A SITALL MADE FROM METALLURGICAL SLAG WAS DEVELOPED BY A TEAM OF ASSOCIATES OF THE NII OF THE "AVTOSTEKLO" HEADED BY K. T. BONDAREV, A. V. STREKALOV, THE PRESENT DIRECTOR OF THE "AVTOSTEKLO" PLANT IN KONSTANTINOVKA, A. G. MINAKOV, DEPUTY DIRECTOR FOR RESEARCH, AND T. YE. GOLIVS AND V. A. MINAKOV, LABORATORY HEADS. ANOTHER TEAM OF EXPERTS, HEADED BY M. I. KOZ'MIN, CHIEF ENGINEER OF THE "AVTOSTEKLO" PLANT, FOUND A UNIQUE WAY OF PROTECTING REFRACTORIES OF THE MELTING FURNACE AND DEVELOPED A NEW GAS MOLD. THE FIRST SLAG SITALL WAS PRODUCED AT THE PLANT ON DECEMBER 24, 1966. THE WEIGHT OF SITALL APPROXIMATES THAT OF ALUMINUM, ITS BEND STRENGTH IS 700 KGS PER SQUARE CM., AND ITS COMPRESSIVE STRENGTH IS 5000 KGS. IT HAS MUCH HIGHER DIELECTRIC PROPERTIES THAN MANY OTHER MATERIALS.

UNCLASSIFIED

USSR

UDC: 539.108

CHUMICHEV, V. B.

"A Radiochemical Method of Determining Low Levels of Strontium-90 Concentration in Samples of the Ambient"

Tr. In-t eksperim. meteorol. Gl. upr. gidrometeorol. sluzhby pri Sov. min. SSSR (Works. Institute of Experimental Meteorology. Main Administration of the Hydrometeorological Service Affiliated With the Council of Ministers of the USSR), 1972, vyp. 25, pp 161-165 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 6, Jun 72, Abstract No 6.32.1273)

Translation: The paper gives a detailed description of a radiochemical procedure for determining Sr⁹⁰ from 10 liters of sea water by using a low-background radiometric unit (background 4-6 pulses per hour) designed for measuring the β -emission of the daughter Y⁹⁰. The procedure has appreciably facilitated the collection and preliminary processing of sea water samples, cut down on the expenditure of such reagents as soda and hydrochloric acid, eliminated the use of ammonium chloride, and increased the relative yield of strontium. The productivity of carbonate concentrate analysis has been increased by a factor of three over analysis of the concentrate from a 100

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USSR

CHUMICHEV, V. B., Tr. in-t eksperim. meteorol. Gl. upr. gidrometeorol. sluzhby pri Sov. min. SSSR, 1972, vyp. 25, pp 161-165

liter sample. It is pointed out that Sr⁹⁰ could be determined in two-liter samples of sea water without using a flame photometer. The procedure was also used for analyzing ocean sediments with determination of the Sr⁹⁰ concentration at the 10⁻¹² Ci level. Bibliography of 8 titles. Resumé.

2/2

- 109 -

USSR

UDC 615.214.2.015.45:612.26

VYSOTSKAYA, N. B., ZAKUSOV, V. V., OSTROVSKAYA, R. U., and CHUMINA, Z. N.,
Laboratory of the Pharmacology of the Nervous System, Institute of Pharmacology,
Academy of Medical Sciences USSR, Moscow

"The Effect of Sodium Oxybutyrate on Oxidative Processes in Brain Tissue During
Hypoxia"

Moscow, Byulleten' Eksperimentalnoy Biologii i Meditsiny, No 4, 1970, pp 70-72

Abstract: Experiments with mice demonstrated the ability of sodium oxybutyrate to increase the intensity of oxidative processes in the cerebral cortex and the spinal cord under conditions of normal respiration. The ability of sodium oxybutyrate to prevent the development of inhibition of tissue respiration in animals under conditions of hypoxia was also shown. It was demonstrated that, in this respect, sodium oxybutyrate differs from typical narcotics and tranquilizers. Neither nembutal nor aminazin reduced the degree of inhibition of tissue respiration caused by hypoxia.

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1/2 032 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--EFFECT OF SODIUM OXYBUTYRATE ON OXYDATION IN BRAIN TISSUE UNDER
HYPOXIA -U-
AUTHOR--(04)-VYSOTSKAYA, N.B., ZAKUSOV, V.V., OSTROVSKAYA, R.U., CHUMINA,
Z.N.
COUNTRY OF INFO--USSR C
SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
NR 4, PP 70-72
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--OXIDATION, BRAIN, HYPOXIA, RESPIRATION, RAT, NARCOTIC,
TRANQUILIZER, SODIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REFL/FRAME--1988/1582

STEP NO--UR/0219/70/069/004/0070/0072

CIRC ACCESSION NO--AP0106328

UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106328

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABILITY OF SODIUM OXYBUTYRATE TO INCREASE THE INTENSITY OF OXIDATION IN BRAIN CORTEX AND BRAIN STEM UNDER CONDITIONS OF NORMAL RESPIRATION AND TO PREVENT INHIBITION OF TISSUE RESPIRATION DEVELOPING IN ANIMALS UNDER HYPOXIA WAS ESTABLISHED IN EXPERIMENTS ON RATS. IT WAS DEMONSTRATED THAT SODIUM OXYBUTYRATE IN THIS RESPECT DIFFERS FROM TYPICAL NARCOTICS AND TRANQUILISERS. NEITHER NEMBUTAL, NOR AMINAZINE REDUCED THE DEGREE OF INHIBITION OF THE TISSUE RESPIRATION CAUSED BY HYPOXIA.

UNCLASSIFIED

USSR

UDC 681.39.621.317.3

GRISHAKOV, G. I., CHUNAYEV, V. S., Moscow

"Principles of Constructing a Stroboscopic Digital System for Automating Investigations of Electric Circuits Operating with Signals in the Nanosecond Range"

Novosibirsk, Avtometriya, No 2, 1972, pp 3-9

Abstract: The principles of constructing an automated measuring system investigated in this article are based on the application of a digital computer to realize compensation digital stroboscopic conversion of the instantaneous values of the investigated signal. In a signal of this type the digital computer participates directly in the control of the stroboscopic device with respect to two feedback channels, and it can simultaneously perform primary processing of the results by defined algorithms which permits still another increase in accuracy and measurement rate. A block diagram of the system is presented, and its operating characteristics are described. An example of an experimental study performed by means of the stroboscopic digital signal meter is presented. The meter was used to measure the voltages of a test pulse and the mean deviations for various numbers of measurements. The results of these measurements are plotted. A functional schematic of the arithmetic module of the digital computer unit of the meter which executes the investigated measurement algorithms and performs the primary data processing without digital correction of the scanning nonlinearity is presented.

1/1

USSR UDC 619.611.9-022.6 + 636.1 + 636.2 + 636.4 + 636.52/.58

ONUFRIYEV, V. P.; DUDNIKOV, A. I.; MURAVYEV, V. K.; SHVETSOV,
Yu. F.; ~~CHUDAYEV, Yu. V.~~; KRAVCHENKO, V. M.; ZAKHAROV, V. M.;
PRONIN, I. A.; NIKITIN, A. Y.

"Diatelic Immunization of Cows with Foot-and-Mouth Disease and
Prospects for Obtaining Immune Milk"

Vladimir, V sb. Yashchur. T. 1 (Foot-and-Mouth Disease, Vol 1 --
Collection of Works), 1970, pp 160-172 (from RZh-58. Zhivotno-
vodstvo i Veterinariya, No 4, Apr 71, Abstract No 4.56.573)

Translation: Diatelic immunization of cows with foot-and-mouth
disease antibodies provides lactoserum and immunolactone with a
high concentration of foot-and-mouth disease antibodies. The
foot-and-mouth disease immunolactone has pronounced preventive
properties in research with baby mice, guinea pigs, bull calves,
and suckling pigs. Polyvalent foot-and-mouth disease immuno-
lactone has a more pronounced virus-neutralizing activity with
respect to heterologous strains of foot-and-mouth disease virus

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USSR

ONUFRIYEV, V. P., et al, V sb. Yashchur. T. 1, 1970, pp 160-172

than the monovalent one. The high specific activity of the foot-and-mouth disease lactone, obtained under biological production conditions by immunization of cows with inactivated foot-and-mouth disease virus, indicates a promising use of the diatelic immunization method under industrial conditions.

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USSR

LEBEDEV, D. P., CHUNCHENPAK, I. M.

"Optimization of Water Distribution in Irrigation System by Network Flow Method"

Tr. In-ta Elektron. Upravl. Mashin [Works of the Institute of Electronic Control Machines], 1972, No 17, pp 4-12 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V609, by Ye. Gabovich).

Translation: The problem of minimization of the loss resulting from flow shortage is studied for a network, the lines of which are irrigation canals. It is stated that with the hypothesis of linearity of the loss functions, this problem is a specific problem on the flow of minimum cost in the network. For more complex loss functions, it is suggested that they be replaced with piecewise-linear approximations and that the problem of minimization of the loss from water shortage be solved by using the Ford-Kulkerson algorithm suggested in (RZhMat, 1966, 4V367K). Going beyond simple reference to this monograph, the authors, in order to explain the essence of their suggested complication of the Ford-Fulkerson algorithm, dedicate a large portion of

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USSR

Lebedev, D. P., Chunchenpak, I. M., Tr. In-ta Elektron. Upravl. Mashin., 1972, No 17, pp 4-12.

their article to a detailed description of the Ford-Fulkerson algorithm itself, borrowed from a monograph by the authors of the algorithm (RZhMat, 1966, 4V367K). The operation of these two algorithms is illustrated by calculations using a simplified irrigation network from the Zeravshan River valley for the case of a linear model and a model with two-stage piecewise-linear approximation of the loss function. The discretion interval used in the problem is the decade. The calculations were performed for two or three decades. The network had not over 26 lines. For the actual irrigation network and a time section of 20 decades, the number of lines is estimated at 700-1000. It is concluded that the Ford-Fulkerson algorithm and its modification as required for consideration of the specific features of the problem can be effectively used to solve the problem of water distribution in a large irrigation network.

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USSR

UDC 632.954:576.8

CHUNDEROVA, A. I., ZUBETS, T. P., and SOFINSKIY, A. M., Northwestern
Scientific Research Institute of Agriculture

"Effects of Herbicides on the Soil Microflora on Systematic Application Under
Conditions of Crop Rotation"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 9, No 7, 1971, pp 47-50

Abstract: Fields on which crops were rotated in the order peas + oats, winter rye, potatoes, barley with an undersow of perennial grasses, during a period of five years were treated with the herbicides 2,4-D, DNOK, neburon, 2M-4Kh, prometrin, monuron, pyramine, propazine, and 2M-4KhM in various rotations. The soil microflora, as indicated by counts of bacteria, fungi, actinomycetes, and nitrifying bacteria, was not reduced in any instance; there was even an increase in the amounts of bacteria and actinomycetes. The nitrification capacity of the soil did not decrease under the action of the herbicides; it increased in the range of 35-43% in some cases. As shown by determinations of protease, urease, phosphatase, and invertase in the soil, the activity of hydrolytic enzymes that convert organic matter into inorganic compounds in the soil was practically unaffected during 3-4 yrs of application of the herbicides, but
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USSR

CHUDEROVA, A. I., et al., Khimiya v Sel'skom Khozyaystve, Vol 9, No 7, 1971, pp 47-50

then showed a tendency to drop in the 5th year. The decrease in enzyme activity was apparently due to a reduction in the number of weeds. The most favorable conditions with respect to both the soil microflora and biochemical processes in the soil, as indicated by the activity of enzymes were observed after applications of herbicides in the sequence 2,4-D for four years; then 2M-4KhM; or 2M-4Kh, 2,4-D, pyramin, 2M-4Kh, 2M-4KhM. The least satisfactory state of the soil in regard to biochemical activity resulted after the sequence no herbicide in the first year, 2,4-D, propazine, 2M-4Kh, 2M-4KhM.

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USSR

UDC 519.44

CHUNIKHIN, S. A., Academician of the Academy of Sciences Belorussian SSR,
Gomel' Laboratory, Institute of Mathematics, Academy of Sciences Belorussian
SSR

"Nilpotent and Supersolvable Subgroups of Exact Order of Finite Groups"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 542-545

Abstract: The basic idea of a series of previous articles by the author was to find subgroups of a finite group such that their order would be the products of certain indexes of given subgroups of the group considered. In the present article tests are obtained for the existence of nilpotent and supersolvable subgroups in a finite group.

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- 7 -

USSR

UDC 519.44

~~CHUNIKHIN, S. A.~~ Academician of the Byelorussian SSR Academy of Sciences,
Gomel'skaya Laboratory of the Institute of Mathematics, Belorussian SSR
Academy of Sciences

"Block Properties of Finite Groups"

Moscow, Doklady Akademii Nauk SSR, Vol 198, No 5, 11 Jun 71, pp 1032-1035

Abstract: The author finds the property of finite groups associated with the concepts of a composition block and a unified block order divisor. He gives his definitions and then proceeds to discuss two theorems which he then proves. Theorem 1. Let $\mathcal{F} \triangleleft G$ and $\mathcal{F} \leq \Phi(G)$. Then G inherits from G/\mathcal{F} each of the properties $s(m)$, $n(m)$, and $sn(m)$. Theorem 2. Let G be an arbitrary finite group and let $|G| = a_0 a_1 \dots a_r$, $r \geq 0$, be a certain unified block expansion Γ of its order. Let $\mathcal{U} \triangleleft G$, and $|\mathcal{U}| = |G|/a_0$. Then G will contain self-normalizing Γ -expandable subgroups of orders divided by a . All of these that are Γ -subgroups of G , are abnormal and are conjugated in pairs of G . In theorem 2 all a_i can be assumed as blocks of G . If \mathcal{U} is resolvable, then when $i > 0$, all a_i components of G will be its Sylow subgroups and the situation is found that was described by A. V. Romanovskiy in theorem 13 from

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USSR

CHUNIKHIN, S. A., Belorussian SSR Academy of Sciences, Doklady Akademii Nauk
SSR, Vol 198, No 5, 11 Jun 71, pp 1032-1035

reference [4]. It is obvious that all of Romanovskiy's subgroups will be Γ
s-subgroups. Therefore, according to theorem 2, they will be conjugate. The
article contains a bibliography of 8 titles.

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USSR

UDC 519.44

CHUNIKHIN, S. A., Academician, Belorussian SSR Academy of Sciences

"Nilpotent and Supersoluble Subgroups of Finite Groups"

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 6, 1970, pp 1255-1258

Abstract: After defining a special or nilpotent group as a finite group in which all Sylow subgroups are invariant, the author announces that the second of two theorems he developed in 1929 was reformulated by G. Pazderski (Arch. Math., 10, 331 (1959)) who was apparently unaware that the mathematical statement he worked out was thirty years old. In the present paper the author applies the basic arithmetic idea of his early work (Matem. sborn. (Mathematical Collection), 36, No 2, 135, 1929), in combination with his work in finding subgroups whose orders are the products of the indices of some subgroup series, to the detection of nilpotent and supersoluble subgroups in a finite group. The first of these early theorems is: If for each prime divisor $\delta > 1$ of the order of the commutant for a finite group of order g the condition $(\delta - 1, g) = 1$ is satisfied, the group is special. The second is: If for each prime divisor $\delta > 1$ of a natural number g the condition $(\delta - 1, g) = 1$ is satisfied, all groups of order g are special.

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USSR

YAKUBOV, Sh. Kh., SEMENOV, B. F., MAKUMOV, S. S., KARASEVA, P. S., SADIKOVA, V. D., and CHUNIKHIN, S. P., Institute of Poliomyelitis and Viral Encephalitis Academy of Medical Sciences USSR; and Uzbek Scientific Research Institute of Epidemiology, Microbiology, and Infectious Diseases

"Serological Data on the Circulation of Virus of the Tachina Fly (Larvaevoridae) in the Uzbek SSR"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 4, 1971, pp 27-30

Abstract: A serological study was carried out to determine the possible foci of the Tachina virus in Uzbekistan. Human and domestic animal sera were collected in Tashkentskaya, Surkhandar'yinskaya, Samarkandskaya and Kashkadar'inskaya Oblasts, and in the Karakalpak Autonomous Soviet Socialist Republic. Virus-neutralizing antibodies were found in all areas studied in 16.7% of the human population and 15.5% of animals with titers of 1:10-1:80. Immunity was lower in people inhabiting mountainous and foothill regions than in the plains, except for Kashkadar'yinskaya oblast', where the percentage of antibodies in the plains was lowest probably because of weakly developed irrigation and resultant lesser number of flies. Statistically, immunity was higher among older inhabitants. The presence of antibodies proved that the virus

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USSR

YAKUEOV, SH. Kh., et al, Meditsinskiy Zhurnal Uzbekistana, No 4, 1971,
pp 27-30

does circulate within Uzbekistan, as it apparently also does in other southern regions of the USSR, where investigations showed similar results.

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USSR

UDC: 621.315.3

CHUNIN, D. A., BOBYLEVA, T. M., SHMYREVA, M. F., SIVAKOV, P. M.

"Investigation of the Stability and Heat Resistance of Microwires"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 1, pp 66-76 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V417)

Translation: The paper outlines the results of investigations of the stability of electrical properties of microwires during aging under natural conditions and under high-temperature conditions. Empirical relationships are given for the change in parameters. A graphic-analytical method is presented for predicting storage life. Resumé.

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AA 0043441

Y.S. Chumir

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,
241102 CENTRALIZED INTERROGATION OF PNEUMATIC

SENSORS is effected by the proposed device,
which operates on a principle that is virtually non-
air consuming. The diagram, based on three sets of
units, for which in practice there are required as
many as there are points of control, shows: pneumatic
tumblers 1-3; repeaters 4-6; pneumatic valves 7-9;
OR elements 10-12; one pneumatic relay 13, one
setter 14 and one reading instrument 15. Pneumatic
signals from the sensors in the standard range 0.2-
1.0 kg/cm² arrive in the blind chambers of the
respective repeaters. Feed pressure at 1.4 kg/cm²
reaches the tumblers. If none of the tumblers is
switched on, all output pressures of tumblers and
repeaters is 0, and the lower contact of relay 13
places instrument 15 in communication with the
setter at a pressure of 0.2 kg/cm², corresponding to
the zero point. If a tumbler, say 2, is on, feed

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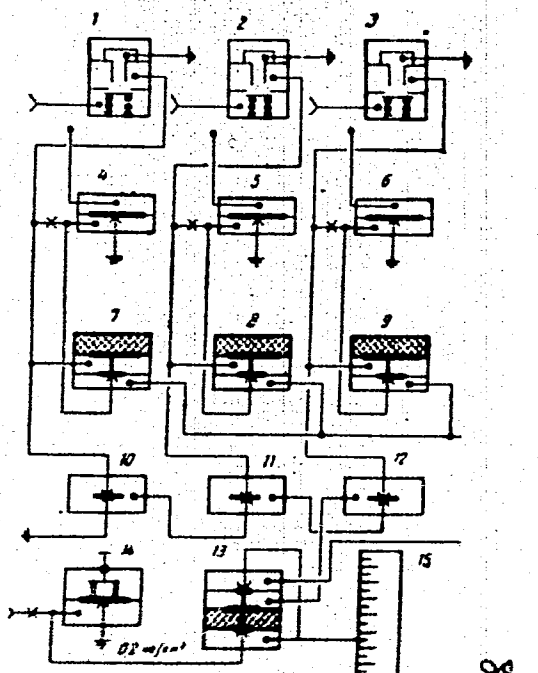
pressure at 1.4 kg/cm² passes it to 8, to 5 via a fixed choke, and to the OR elements 11, 12, hence opening the top valve of 13 and closing the bottom. The output pressure of 5, equal to that on setter 14, passes the open valve 8 via the common collector line to the upper cavity of 13, whence it is reflected on the measuring instrument.

20.12.67 as 1204611/26-24. B.I. GOSTEV & E.S. CHUNIN
(12.8.69) Bul 13/1.4.69. Class 42m². Int. Cl. G 06d.

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19761778

AA0043441



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19761779

USSR

UDC 681.2-52

LAZEBNIK, R. M., CHUPAKHIN, A. YA., All-Union Scientific Research Planning, Design and Technological Institute for Explosion Protection and Mining Electrical Equipment (VNIIVE)

"ATZ-1 Temperature Protection Device"

Moscow, Kholodil'naya tekhnika, No. 9, Sep 71, pp 18-21

Abstract: A multipoint device for temperature protection in mining, the ATZ-1, was developed by VNIIVE. Semiconductor thermistors of the type ST1-19 were used as the sensing elements; the basic advantage of these elements is the large negative temperature coefficient of the resistance and the relatively high ohmic ratings which make the device practically independent of the length of the cable connecting the heat transducer with the supply unit and the auxiliary circuit. The circuit of the ATZ-1 uses the principle of a pulsed supply of a bridge measuring circuit so that the signal strength obtained from the output of the bridge rises considerably. The parameters for the pulse supply of the bridge circuit are: pulse length 20 μ sec, pause time 40,000 μ sec, voltage amplitude 180 v, off-duty factor 2001. The pulse supply for the bridge circuit made it possible to produce a highly sensitive temperature protection

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LAZEBNIK, R. M., CHUPAKHIN, A. YA., Kholodil'naya tekhnika, No. 9, Sep 71,
pp 18-21

device and the parameters were chosen on the basis of the following considerations: the pause length should not exceed the value at which it is possible to achieve an emergency value of the temperature of the controlled object and subsequent lowering of it to normal, while the length should be sufficient for discharge to the cable to the heat transducer; the pulse length should ensure operation of the auxiliary device at the output of the bridge circuit and the pulse energy as determined by its form and area should not exceed the minimum value of the energy at which an explosive gas-air mixture is reached. The device provides temperature protection and control in the range 60-200°C at five points.

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1/2 032

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--DIFFUSIVE TRANSFER OF A SUBSTANCE AND "MEMORY" EFFECT DURING LAYER
BY LAYER MASS SPECTRAL ANALYSIS OF SOLIDS -U-

AUTHOR-(03)-CHUPAKHIN, M.S., VENITSIANOV, YE.V., KAMENDIK, G.I.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 905-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--BORON, SILICON, MASS SPECTROMETER, MASS SPECTROSCOPY, METAL
DIFFUSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1135

STEP NO--UR/0020/70/190/004/0905/0908

CIRC ACCESSION NO--AT0116600

UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0116600

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIFFUSION OF B IN SI WAS STUDIED TO DET. THE DEGREE OF ERROR WHICH IS INTRODUCED IN A MASS SPECTROSCOPIC ANAL. DUE TO A "MEMORY" EFFECT. THE STUDY REVEALS THAT APPARENTLY ALL THE PUBLISHED DATA FOR DETN. OF IMPURITIES IN SOLIDS HAVE AN ERROR DUE TO THIS EFFECT. FACILITY: INST. GEOKHIM. ANAL. KHIM. IM. VERNADSKOGO. MOSCOW, USSR.

UNCLASSIFIED

Semiconductor Technology

USSR

UDC 543.51

CHUPAKHIN, M. S., RAMENDIK, G. I., and YAVRIYAN, A. N., Institute of Geochemistry and Analytical Chemistry Imení V.I. Vernadskiy, Moscow, Academy of Sciences USSR

"A Layer by Layer Mass-Spectroscopic Method of Analysis. Communication 4. In-Depth Resolution During Analysis of Semiconductor Films"

Moscow, Zhurnal Analiticheskoy Khimii, Vol 25, No 7, Jul 70, pp 1301-1308

Abstract: Uniform parallel layers may be taken along the entire sample being analyzed by covering the entire area with identical craters, which in turn, depends on the stability of the interelectrode gap. Random error due to taking the sample layers is less than 30%, and in most cases ranges from 10 to 15%. It was determined that during the study of the distribution of impurities in thin semiconductor films, layers of 1μ thickness may be analyzed by the mass-spectroscopic method with vacuum spark. The authors sincerely thank S. Ya. Fedyukina for measuring the craters and samples, and also A. D. Semenov for his part in setting up the experiments.

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1/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--USE OF CATALYSTS FOR LOWERING THE DRYING TEMPERATURE OF ALKYD
MELAMINE ENAMELS -U-
AUTHOR-(04)-CHUPEYEV, M.A., IVANOV, V.A., BORISOVA, L.D., MOZOLEV, V.P.
COUNTRY OF INFO--USSR
SOURCE--LAKOKRASOCH. MATER. IKH PRIMEN. 1970, (2), 35-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ACID CATALYSIS, ALKYD RESIN, MELAMINE RESIN, ENAMEL, PIGMENT,
HARDNESS, COLOR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1071 STEP NO--UR/0303/70/000/002/0035/0036
CIRC ACCESSION NO--AP0134760
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134760

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF ACID CATALYSTS AND THEIR CONCNS. ON THE HARDNESS AND COLOR OF ALKYD MELAMINE ENAMEL (A) COATINGS DRIED 30 MIN AT 100DEGREES OR AN 130DEGREES WAS STUDIED. (BUO) SUB2 P(O)OH (I), A 1:1 MIXT. OF I AND MALAMINE, HCHO RESIN (II) K,423,02 (IIA), BUOP(O)OH SUB2 (III), P,MEC SUB6 H SUB4 SO SUB3 H (IV), AND PHTHALIC ANHYDRIDE WERE ADDED TO A WHITE PIGMENTED A CONTG. 25PERCENT II (IIA OR K,421,02(IIB)) AND ALKYD RESINS MODIFIED BY CASTOR OIL AND SYNTHETIC FATTY ACID, 21.7PERCENT AND 28.83PERCENT, RESP. WITHOUT CATALYST, A CONTG. IIA DRIED AT 100DEGREES FOR 30 MIN AND 90DEGREES FOR 20 MIN HAD HARDNESSES 0.57 AND 0.34, RESP.; AND A CONTG. IIB, A BUTYLATED II, DRIED SIMILARLY HAD HARDNESSES 0.60 AND 0.14, RESP. ADDING 2-3PERCENT I OR III TO A CONTG. IIA DRIED AT 100DEGREES GAVE HARDNESSES 0.5-0.63. ADDING 4PERCENT I OR III TO A CONTG. IIB. DRIED AT 130DEGREES GAVE HARDNESSES 0.38-0.42. ADDING 3PERCENT III OR IV CAUSED SIGNIFICANT COLOR CHANGES TO WHITE PIGMENTED A DRIED AT 100DEGREES.

UNCLASSIFIED

CHUPIKOV V.N.

5-PR5 59808

6-73

4

VII-5b. OBTAINING HOMOGENEOUS SOLID SOLUTIONS OF $Ca_{1-x}In_x$ FROM A MELT
[Article by V. A. Selivanova, G. A. Shalueva, A. M. Gorchakov, V. N. Chupikov, Tomsk; Kovosolub, III Stepanov po Podluzhskom Bosta i Sluzhba Poluprovodnikov, Krasnoyarsk (Pis'mo), Russian, 12-17 June 1972, p 108]

At the present time studies have been made of the structural and electrical properties of single crystals of the solid solution $Ca_{1-x}In_x$. As depends on the crystallization conditions from the melt it is demonstrated that the structural nonuniformity of solid solutions caused by nonuniform distribution of indium and nonuniform nature of the crystallization and exhibited in faces and other defects, has an essential effect on the electrical properties of the material and is holding up practical use of it in a number of semiconductor devices. As a result of complex studies of the electrical properties and electrical and optical properties of single crystals of solid solutions obtained by various procedures from the melt and subjected to different treatments of temperature annealing, the conditions were determined which permitted that the effect of the alloying dispersion causing electrophysical properties is directly dependent on the crystallization and homogenization conditions of the solid solutions. The basic optical conditions of elimination the disorderliness in the alloy lattice based on A_{11}^1 are presented.

Чурик, В. В.

SPR 5 59208
6-73

XI-13 CHARACTERISTIC FEATURES OF OBTAINING EPITAXIAL FILMS OF SOLID SOLUTIONS OF $Ca_{x}In_{1-x}As$

(Article by V. A. Solov'ova, V. N. Chuprikov, Zhen'kova Novosibirsk, III Sibirskiy nauchnyy tsenter, Institut Poluprovodnikov Khimicheskoy Fiziki, Novosibirsk, Run- sian, 17-17 June 1972, p. 159)

At the present time a study was made of the structural characteristics of epitaxial layers of $Ca_{x}In_{1-x}As$ grown from the solution in the melt. The investigation of indium and gallium in the alloy was investigated by means of a microanalyzer and cathode luminescence and the dislocation distribution. The values of the discontinuity in the interfacial intensity and the physical properties were estimated as a function of the conditions of growing crystals of solid solutions and temperature annealing. It was demonstrated that the uniformity of the epitaxial films and their properties are improved in the process of thermal annealing of solid solutions at high temperatures and especially when combining the latter with the crystallization process. The optimal crystallization conditions and the temperature homogenization of the solid solutions are presented in the paper.

USSR

UDC 62-525:621.375

CHUPRAKOV, Yu. I.

"Fluidics Analogue Amplifier"

USSR Author's Certificate No 282753, Filed 9/06/69, Published 13/01/71,
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, 1971, Abstract No 11 A132 P).

Translation: Fluidics analogue amplifiers are known, containing power supply, amplifier, and output channels. Due to production tolerances, it is practically impossible to manufacture a fluidics analogue amplifier in which the zero of the output differential signal corresponds to the zero point of the input signal. This makes construction of multistage fluidics amplifiers with high gain factors difficult, since a slight imbalance of the amplifier in an early stage may cause saturation of amplifiers in the final stages. The fluidics analogue amplifier suggested contains a supply channel, control channel, and output channels and differs in that in order to simplify zero setting, it contains a flat rectangular chamber located perpendicular to the supply channel, the middle portion of which is connected to the supply channel of the amplifier, while the end points are connected through variable chokes to the main supply line of the amplifier. The fluidics amplifier is adjusted by using the effect of deflection of the
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USSR

UDC 62-525:621.375

CHUPRAKOV, Yu. I., USSR Author's Certificate No 282753, Filed 9/06/69,
Published 13/01/71.

stream flowing from a short fitting: the asymmetrical shape of the channel feeding the air to the aperture causes the flux to the supply nozzle to be fed through two oppositely directed channels in which there are chokes which redistribute the flow arriving at the nozzle. This design of the device allows the zero point of the fluidics amplifier to be adjusted during operation smoothly and over a broad range without changing the external characteristics.

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- 18 -

Acc. Nr: **A70040327**

Ref. Code: *UR 0481*

PRIMARY SOURCE: Eksperimental'naya Khirurgiya i Anesteziologiya,
1970, Nr 1, pp 30-31

THE IMPORTANCE OF THE ANGLE OF DEFLECTION OF THE SUPERIOR
MESENTERIC ARTERY FOR ITS REIMPLANTATION INTO THE AORTA

K. Ya. Chuprakova, V. I. Gorbatyuk

The coefficient of local resistance grows and the deflection angle of the artery increases. The angle of deflection of the artery during its reimplantation into the aorta should not exceed 90°, otherwise the intesting becomes ischaemic and ends in infarction.

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REEL/FRA
19741758

02.10

Acc. Nr: **AP0044019**

Ref. Code: UR 0240

PRIMARY SOURCE: *Gigiyena i Sanitariya*, 1970, Nr 2, pp 22-25

SANITARY-BACTERIOLOGICAL EFFECT OF DECONTAMINATING
SEWAGE SEDIMENTS IN AEROBIC STABILIZATION

L. A. Sergunina, N. Yu. Tugusheva, V. V. Chuprakova

The results of sanitary-bacteriological investigations into the method of aerobic stabilization of sewage sediments under laboratory and pilot field conditions are reported. With aerobic treatment the number of *E. coli* is shown to decrease by 80–99.9% and the saprophytic microflora content – by 50–80%, depending upon the type of the sediments to be processed. Physico-chemical conditions of the environment (pH and Eh) were determined to ascertain the cause accounting for destruction of microorganisms. The pH and Eh values were within limits allowing for vital activity of the microorganisms under study. Exhaustion of the substrate and environmental cumulation of metabolites were, apparently, the main causative factors responsible for the destruction of microorganisms.

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USSR

UDC 669.294.5.293.018.5

ZHIKHAREV, Yu. V., KOVALEV, K. S., NOVIKOVA, S. M., ROMANOVA, N. A., CHUPRIKOV, A. V.

"Study of the Possibility of Replacing Tantalum Foil Used for Manufacture of Dry Electrolytic Condensers With Tantalum-Niobium Alloy Foil"

Nauchn. Tr. N-i. i Proyeckt. In-t Redkomet. Prom-sti [Scientific Works of Scientific Research and Planning Institute for the Rare Metals Industry], 1971, Vol. 32, pp. 66-70. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I783 by the authors).

Translation: The permissible content of Nb in Ta which does not worsen the special characteristics of condenser foil is determined. A possible area of application of foil of Ta-Nb alloys in condensers of various capacities is indicated. The basic electrical characteristics of dry condensers of various capacities made of Ta-Nb alloys are presented. 2 figs; 4 tables; 3 biblio. refs.

1/1

Heat Treatment

USSR

UDC 669.295.018.29.621.785

ZHIKHAREV, V. V., YEVSEYEVA, I. A., CHUPRIKOV, A. V., ROMANOVA, N. A., PAVLUSHINA, G. M., OSADCHIY, V. B.

"Influence of Heat Treatment on Special Properties of Titanium Foil"

Nauchn. Tr. N-i. i Projektn. In-t Redkomet. Prom-sti [Scientific Works of Scientific Research and Planning Institute for the Rare Metals Industry], 1971, Vol. 32, pp. 83-87. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I695 by the authors).

Translation: The influence of heat treatment on the special properties of Ti foil designed for the production of solid electrolytic condensers is studied. 3 figs; 1 table, 4 biblio refs.

1/1

USSR

UDC: 621.319.4

ZHIKHAREV, Yu. V., KOVALEV, K. S., NOVIKOVA, S. M., ROMANOVA, N. A., CHUPRIKOV, A. V.

"Investigation of the Possibility of Substituting Tantalum-Niobium Alloy Foil for the Tantalum Foil Used in Making Dry Electrolytic Capacitors"

Nauchn. tr. N.-i. i proyekt. in-t redkomet. prom-sti (Scientific Works of the Scientific Research and Design Institute of the Rare Metals Industry), 1971, 32, pp 66-70 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V328)

Translation: The authors consider the possibility of substituting tantalum-niobium alloys for the tantalum used in making capacitor foil. An investigation is made of the effect which the niobium content in tantalum has on the special electrical properties of capacitor foil. It is shown how the heat treatment temperature affects the properties of foil made from tantalum-niobium alloys. The permissible concentration of niobium in tantalum is determined which does not have an adverse affect on the special characteristics of capacitor foil. The potential field of application of foil made from niobium-tantalum alloys in capacitors of various ratings is indicated. The basic electrical characteristics are given for dry capacitors of various ratings made from tantalum-niobium alloy foil. Two illustrations, four tables. Resumé.

1/1

- 157 -

Magnesium

USSR

UDC 669.721:628.334

CHUPRAKOVA, M. V.

"The Effect of Primary Crystals of Intermetallic Compounds on Properties of Magnesium Alloys"

Moscow, Tsvetnyye Metally, No 3, 1973, p 68

Abstract: Primary crystals of intermetallic compounds form segregations consisting of particles 2-50 μm in size and settle down at the bottom of the V-shaped hole of the ingot. After a hot pressure treatment, rolling, or pressing these intermetallic compounds are located usually in the center of a plate, band, or rod. When the ingot is rolled into sheet metal < 3 mm thick the intermetal-
lides are visible on the sheet surface. Study of the rolled and pressed semi-finished items showed that presence of the intermetallics in the longitudinal and transverse directions does not influence the mechanical properties of items but they decrease these properties by 40% (δ_p) and 60% (δ) if intermetallic segregations are present in the height direction. In sheet metal the mechanical properties decreased by 4% (δ) and by 2 kg/mm² (δ_p). The corrosion stability of items with intermetallic segregations on their surfaces depended

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CHUPRAKOVA, M. V., Tsvetnyye Metally, No 3, 1973, p 68

on the presence of nonmetallic inclusions in them. These surface segregations do not form an oxide film that protects items from corrosion. Adhesion of paints and varnishes is also poor to intermetallic segregations. Typical nonmetallic inclusions which cause corrosion of items are magnesium and zirconium chlorides, and iron oxides. The intermetallic crystals themselves are passive with respect to corrosion.

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UDC 548.55:66.046.5:669/85/86

CHUPRIKOV, G. Ye., and YEPIFANOVA, K. I.

"Distribution of Copper and Rare Earth Metals in the Process of Growing Single Crystals of Yttrium by Crucibleless Zone Melting"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 37-42

Translation: The distribution of copper and REM (gadolinium, holmium, dysprosium) in yttrium is studied under actual conditions of czm. The selection of impurities for the study results from their significant influence on the physical properties of yttrium single crystals, the probability of their presence in the initial metal, plus the slight, frequently contradictory information available concerning their behavior during the crystallization process. It was established that during czm, copper can be almost completely eliminated from yttrium.

It is demonstrated that the REM impurities studied are distributed through the length of the zone-melted ingot evenly. The effective and equilibrium distribution factors of these impurities in yttrium are determined. 3 Tables; 6 Figures; 4 Bibliographic References.

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UDC 66.046.5:669.85/86

CHUPRIKOV, G. Ye.

"Distribution of Impurities in the Process of Crucibleless Zone Melting of Metals, Taking Into Account the Evaporation of Impurities and the Base Metal"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals — Collection of Works], Nauka Press, 1971, pp 32-37

Translation: A method is described for the determination, by calculation, of the behavior of an impurity in the process of crucibleless zone melting (1 pass of the zone through the ingot), taking into account evaporation of the impurity and the base metal. Calculation formulas are produced, describing the change in the content of the impurity with fixed conditions of the process. A comparison is made of the possible change in concentration of the impurity through the length of the zone-melted ingot for various cases of melting of metals. A characteristic example is used in studying the distribution of copper through the length of a zone-melted yttrium ingot, taking into consideration the evaporation of the impurity, the base metal, and recrystallization of yttrium. 1 Table; 3 Figures; 5 Bibliographic References.

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USSR

UDC 669-172

PANTELEYEVA, G. V., LYUTOVICH, A. S., CHUPRIKOV, G. Ye., and FROLOV, A. V.

"Structure and Electrophysical Properties of Boron in Crystals Produced by Crucibleless Zone Melting in a Vacuum and in an Atmosphere of Hydrogen"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 95-99

Translation: Results are presented from a study of the little-studied material, boron, which is being used increasingly for the manufacture of heat-resistant, refractory alloys, as well as for semiconductor devices for operation under high temperature conditions. Metallographic investigations by the method of chemical thermal etching were performed on high-purity specimens grown by crucibleless zone melting in various atmospheres. The superiority of the structure of boron grown in a vacuum in comparison to that produced in hydrogen is demonstrated. Certain electrophysical properties of boron crystals are studied. 2 Tables; 4 Figures; 4 Bibliographic References.

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1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SYNTHESIS OF A PROTECTED FRAGMENT, 24-27, OF THE AMINO ACID
SEQUENCE OF CYTOCHROME C -U-
AUTHOR--(04)-YEVSTIGMEYEVA, R.P., LVOVA, S.D., CHUPRIKOVA, O.S.,
PREDBRAZHENSKIY, N.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. PRIR. SOEDIN. 1970, 6(1), 114-16
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY
TOPIC TAGS--BIOLOGIC-PIGMENT, IRON COMPOUND, CHEMICAL SYNTHESIS, AMINO
ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0554 STEP NO--UR/0393/70/006/001/0114/0116
CIRC ACCESSION NO--AP0131177
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0131177
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CARBOBENZOXYGLYCYL-N
PRIMEEPSILON-TOSYL-L-LYSYL-N PRIMEIM-BENZYL-L-HISTIDINYL-N
PRIMEEPSILON-TOSYL-L-LYSINE METHYL ESTER WAS PREPD. BY CONDENSATION OF
TWO DIPEPTIDES. FACILITY: MOSK. INST. TONKOI KIIIM. TEKHNOL. IM.
LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr.: AR0103267

C

Ref. Code: UR0000

JPRS 49937

Evolution of Cloud Vortex of Low-Pressure System

(Abstract: "Analysis of the Development of the Cloud Vortex of a Low-Pressure System from Satellite Data," by N. N. Bel'skaya and S. F. Chuprin; Moscow, Trudy Gidrometeorologicheskogo Nauchno-Issledovatel'skogo Tsentra SSSR, No 56, 1969, pp 111-122)

/From: Moscow, Referativnyy Zhurnal, Geofizika, Svodnyy Tom, No 1, 1970, IB3017

On the basis of the example of a rare case of development of a low-pressure system, the authors examine the reasons for the appearance and disappearance of a cloud vortex visible on satellite photographs at different stages in development of the system. A low-pressure system in the troposphere does not always correspond to a cloud vortex on satellite photographs. The formation of a cloud vortex is dependent on the moisture content of the air entering the low-pressure system. Bibliography of 2 items.

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UDC:620.171.32

KISELEVSKIY, V. N., CHUPRINA, A. F., Kiev

"Experimental Determination of Characteristics of Damage to Heat-Resistant Alloys Upon Thermal Cycling"

Kiev, Problemy Prochnosti, No. 12, Dec 70, pp. 86-90

Abstract: Results are presented from an experimental study of the influence of thermal cycling on the accumulation of damage in heat-resistant materials. It is demonstrated that plastic deformation of a single-phase material leads to formation of additional microplastic deformations during thermal cycling in the area of high temperatures. Multiphase heat-resistant materials are inclined to increased damage during thermal cycling even without plastic deformation.

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USSR

UDC 431.3

GETMAN, A. F., ~~CHUPRINA, A. F.~~

"The Effect of Electrical Polishing Upon the Fatigue Strength of Steels 40Kh, EI612, and Alloy EI437B at Room temperature and at High Temperatures"

Problemy Prochnosti, No 5, May 1970, pp 90-92

Abstract: Many references exist in the literature with regard to the effect of electrical polishing upon fatigue strength. However, these data usually pertain to the fatigue point either at room temperature or at high temperatures. In the present work, the results of tests on specimens after mechanical and electrochemical polishing are presented in the form of fatigue curves obtained at room temperature and at high temperatures; this permits a broader judgment to be formed concerning the effect of electrical polishing upon the fatigue point; in addition, an attempt was made to link the change of the fatigue point of electrically polished samples at room temperature with the parameters of the cold-worked layer that was removed by electrical polishing. It was found that the electrolytic removal of cold-worked surface layers decreases the fatigue point and the longevity in the field of low stresses at room temperature. At

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GETMAN, A. F., et al, Problemy Prochnosti, No 5, May 1970, pp 90-92

high temperatures the difference between the fatigue points of electrically polished specimens and those that were not electrically polished is less than at room temperature; for alloy El437B the fatigue point of electrically polished specimens is higher than that of specimens which were not electrically polished.

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UDC 535.853.23:533.9.07

BACHURINA, L. G., DEVYATKIN, I. I., PERMINOVA, V. M., TSEPKO, N. I., CHUPRINA, L. K.

"Microwave Plasma Solution Analyzer"

Dokl. Vses. sovetsk. Optich. i titrometrich. analizatory zhidk. sred. 1971, Ch. 2 (Reports of the All-Union Conference on Optical and Titrometric Analyzers of Liquid Media, 1971, Part 2), Tbilisi, 1971, pp 130-134 (from RZh--Metrologiya i Izmeritel'naya Tekhnika, No 3, Mar 72, Abstract No 3.32.1052)

Translation: A report is presented on a developed microwave plasma solution analyzer comprising a feed module, a microwave unit including a plasmatron and magnetron oscillator which is attached to the track of the DFS-8 or ISP-30 spectrograph. The microwave discharge is excited in a quartz tube through which argon, helium, nitrogen or air is blown with a flow rate of 8-30 liters/minute. The analyzed solution is introduced into the discharge tube in the form of an aerosol. The analyzer control panel is placed on the face panel of the feed unit. The photometric analysis was run with respect to the strongest spectral lines. The sensitivity of analyzing calcium and copper was determined as $1 \cdot 10^{-4}$ mg/ml, magnesium, strontium, zinc, cadmium, boron, iron and nickel, $1 \cdot 10^{-3}$ mg/ml, and phosphorus and silicon, $1 \cdot 10^{-2}$ mg/ml. There is 1 illustration, 1 table and a 4-entry bibliography.

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1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--RECRYSTALLIZATION PROCESSES IN NI SUB3 AL-NI SUB3 NB ALLOYS -U-
AUTHOR--(02)-ARBUZOV, M.P., CHUPRINA, V.G.
COUNTRY OF INFO--USSR
SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(2), 228-30
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--NICKEL ALLOY, NIOBIUM ALLOY, ALUMINUM ALLOY, METAL
RECRYSTALLIZATION, INTERMETALLIC COMPOUND, METAL DIFFUSION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1943 STEP NO--UR/0185/70/015/002/0228/0230
CIRC ACCESSION NO--AP0118905
UNCLASSIFIED