

USSR

UDC 531.768.068.9

KURZNER, A. B., ~~SINEL'NIKOV, A. YE.~~ CHELPANOV, I. B., Leningrad

"Systematic Errors of Pendulum Accelerometers for Random Vibration of the Base"

Novosibirsk, Avtometriya, No 3, 1971, pp 22-26

Abstract: During operation of a pendulum on a vibrating base its angle of deflection from the vertical contains along with the variable component, a constant component (drift) defined both by the nature and the parameters of the vibrations and the characteristics of the pendulum itself. The appearance of drift implies additional errors estimated here in the example of a pendulum compensation accelerometer. An approximate method of considering the dynamic properties of the pendulum is described, and the general expression for the drift angle is obtained. A number of limiting and specific cases are considered as an example. The results obtained can be used to estimate the errors and efficiently select the accelerometer parameters for operation under defined vibration conditions.

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GALKIN, A. A., ZAVADSKIY, Z. A., SINEI'NIKOV, B. Ya., Donetsk Physicotechnical Institute, Academy of Sciences UkrSSR

"Characteristics of Magnetic Transformation in Chromium Telluride"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 1, Jan 72, pp 157-162

Abstract: The electrical and magnetic properties and the lattice parameters of single-crystal samples of chromium telluride were investigated using magnetic fields up to 12 ke and hydrostatic pressures up to 12 kbar over the temperature range 67-400°K. It is noted that the thermodynamic theory developed by Bean and Rodbell indicates that the transition from the ferromagnetic state to the paramagnetic state may be a first-order phase transition in a ferromagnetic if the compressibility is sufficiently great and the Curie temperature is strongly dependent on pressure. It follows from this theory that this transition should have certain characteristics of a first-order transition; in particular, anomalies in the thermal expansion in the Curie temperature region should be observed and deviations in the temperature dependence of the magnetization from Brillouin should be observed that are caused by the change in the interatomic distance. These deviations should intensify with the growth of temperature and it can be stated that in any ferromagnetic

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GALKIN, A. A., et al., Fizika Tverdogo Tela, Vol 14, No 1, Jan 72, pp 157-162

under a pressure exceeding a certain critical value the transition from ferromagnetism to paramagnetism will be a first-order transition. It was found that anomalies in the crystal lattice parameters, the specific volume, and the coefficient of temperature expansion and compressibility are observed at all pressures in the region of the Curie temperature. These anomalies are more clearly evident with the growth in temperature. The Curie temperature  $T_c$  varies linearly with pressure so that  $\partial T_c / \partial P = -6$  deg/kbar. Analysis of the experimental results on the basis of the thermodynamic theory of Bean and Rodbell shows that the transition from ferromagnetism to paramagnetism in CrTe at a pressure of the order of 32 kbar must be a first-order phase transition. It is noted that even in a ferromagnetic with a relatively low phase transition coefficient there arise very considerable distortions in the lattice that lead to a deviation of this transition from second-order phase transformations. These deviations are accompanied by changes in the temperature dependence of spontaneous magnetization which are quite considerable, but they need not be considered in any ferromagnetic with a known dependence of the Curie temperature on pressure.

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USSR

UDC 531.789.1.087.92.088

SINEL'NIKOV-MURYLEV, G. A., YANOVSKIY, V. YA.

"Effect of Centrifugal Forces on the Performance of Torque Pickups"

V sb. Vibratsionno-chastotn. preobrazovatel'i Ch. 1 (Vibration-Frequency Converter--collection of works), Part 1, Moscow, "Energiya", 1970, pp 104-112 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 8, Aug 70, Abstract No 8.32.311)

Translation: The vibration-frequency pickups for measuring torque and axial forces, mounted on rotating shafts, are subjected to the action of considerable centrifugal forces. Description is given of several designs of torque and axial force pickups and the effect of centrifugal forces on the metrological characteristics of two types of pickups are considered. Formulas are given for the quantitative estimate of centrifugal errors and description of the method of compensation of some forms of errors. 5 ill., 1 bibl. entry.  
Resumé

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USSR

UDC 621.039.623

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ALEKSIN, V. F., BIRYUKOV, O. V., GEORGIYEVSKIY, A. V., KILAYEVSKIY,  
L. KH., KOMAR, YE. G., LOGINOV, A. S., MALYSHEV, I. P., MONOSZON, N.  
A., POPKOVICH, A. V., ROZHDESTVENSKIY, B. V., SAKSAGANSKIY, G. L.,  
~~SINEL'NIKOV, the late K. D.,~~ SOKOLOV, YU. A., SUPRUNENKO, V. A.,  
TOLOK, V. T., CHURAKOV, G. F., and SHABEL'NIKOV, L. A.

"The Experimental Thermonuclear Device 'Uragan'"

Moscow, Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 22-28

Abstract: An urgent task of stellarator research is a definitive elucidation of the reasons for anomalous diffusion in a stellarator, as well as the effect of the shear and magnetic well on the confinement of a hot and dense plasma. These questions will be studied on the "Uragan" stellarator. Construction of the "Uragan" stellarator was begun at the suggestion of I. V. KURCHATOV and completed in 1967. The physical substantiation and technical assignment of developing and constructing the complex were developed at the Physicotechnical

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ALEKSIN, V. F., et al., Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 22-28

Institute of the Academy of Sciences Ukrainian SSR under the direction of K. D. SINEL'NIKOV, who took an active part in the solution of theoretical and technical questions. Organizations taking part in the development of the project and the construction of the complex included the Scientific Research Institute of Electrophysical Equipment imeni D. V. Yefremov, the Elektrosila Electrical Engineering Combine, the Khar'kov Polytechnic Institute imeni V. I. Lenin, the Electromechanical Plant and NIIElektroapparat [Scientific Research Institute of Electrical Equipment] in Khar'kov. A considerable amount of work on the development, manufacture, and adjustment of the systems and components of the "Uragan" was done at the Physicotechnical Institute of the Academy of Sciences Ukrainian SSR.

The principal feature of the "Uragan" is high shear (of the order of 0.02 and 0.1) at a high level of magnetic field strength

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ALEKSIN, V. F., et al., *Atomnaya Energiya*, Vol 28, No 1, Jan 70, pp 22-28

$H_0$  (35 and 10 koe respectively). The stellarator is in the shape of a racetrack and uses a high-shear triplex helical field. The vacuum chamber of the trap consists of two semi-tori with an average radius  $R = 1100$  mm and two rectilinear sectors, each 1725 mm long. The internal diameter of the chamber is 200 mm. On the outside of the chamber on the toroidal sectors are two helical windings and longitudinal magnetic field coils, distributed evenly along the device. The maximum strength of the magnetic field is 10 koe under steady-state conditions and 35 koe under pulsed conditions. Three windings are used; viz., longitudinal magnetic field, helical, and transverse magnetic field. All metallic elements are made of low-magnet steel 1Kh18N9T. The toroidal sectors of the vacuum chamber and part of the rectilinear sectors are made of stainless nonmagnetic alloy EP-125. The article gives a detailed description of the windings, cooling system, electric power supply system, vacuum system, and plasma diagnostic and heating system.

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USSR

UDC 613.693

MARKARYAN, S. S. and SINEL'NIKOV, I. A.

"The Etiology and Prophylaxis of Vestibular Disorders in Flight Personnel"

Moscow, Voenno-Meditsinskiy Zhurnal, No 12, Dec 73, pp 56-59

Abstract: Three methods for training flight personnel using a complex afferent system to increase the stability of the vestibular analysors to acceleration are described. The first, or active, method involves gymnastic exercises which include tilting the head while rotating the body with open eyes. The second, mixed active-passive, method uses a rotating chair with the subject tilting his head during rotation with closed eyes. The third, passive, method employs apparatus which both rotates and tilts, such as swings and cylinders. Success of the training is determined by the disappearance or weakening of vestibular-vegetative reactions such as rocking sensation, flush, perspiration and nausea.

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USSR

UDC 669.14.018.8:539.37

SINEL'NIKOV, M. I., and YERSHOVA, L. S., Zaporozh'ye

"Effect of Reciprocal Crystallographic Phase Orientation on the Plastic Deformation of Corrosion-Resistant Steels"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 3, May-Jun 71, pp 126-129

Abstract: Results are presented of an investigation of slip processes in ferrite-austenite steel and determination of the reciprocal ferrite and austenite lattice orientations which may determine the stress level necessary for excitation of dislocation motions in the adjacent phase. The deformation mechanism of Kh21N5T steel in which the two-phase structure is conserved up to 1100°C with approximately equal ferrite and austenite content, was studied on the IMASH-5s vacuum installation at 1100°C and 4080%/hour deformation rate. Samples with structure obtained by hot plastic deformation and with Widmanstat structure resulting from recrystallization were tested at the same time. The results show that a fine crystal textured austenite with a crystal lattice regularly oriented with respect to the ferrite crystal lattice is formed as a result of (  $\alpha \rightarrow \gamma$  ) transformation in two-phase ferrite-austenite steels. The regular phase lattice orientation obtained as a result of ferrite-austenite steel recrystallization facilitates the plastic flow on the interphase boundary and increases the plasticity of two-phase steels.

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USSR

UDC 621.777:669.715

BATURIN, A. I., SINEL'NIKOV, S. I., MUKHIN, G. G., and NIKIFOROV, L. D.

"Experimental Study of the Temperature Field in a Deformable Volume When Extruding Aluminum Alloys"

Moscow, Kuznechno-Shtampovochnoye Proizvodstvo, No 3, Mar 71, pp 6-8

Abstract: This article contains a discussion of the results of an experimental study of the temperature field when extruding an ingot of aluminum alloy by recording temperatures at the melting points of the pure metals, the eutectics, metal compounds, and peritectic mixtures. The essence of the method is use of miniature steel capsules inside which samples of defined shape made of the corresponding sensor metals are placed. The sensor metals are selected so that their melting points are within the investigated extrusion temperature range of 350-500°C with 5-15° intervals.

The procedures used to select the shape and size of the capsules and sensor metals and to determine the melting points of the sensor metals are described. An experiment is described in which several cycles of extruding bars of aluminum alloy on a horizontal 1,500 ton-force press were carried out.

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BATURIN, A. I., et al., Kuznechno-Shtampovochnoye Proizvodstvo,  
No 3, Mar 71, pp 6-8

Experimental isotherms for the temperature distribution with respect to the deformable volume are presented. These isotherms were constructed from the experimental results after analyzing the state of the eutectics in the capsules located at various points in the billet and extrusion product with averaging of all the extrusion cycles. It is pointed out that the method does not permit exact data to be obtained on the actual temperature at a defined point of the deformable volume, but it gives a qualitative representation of the temperature field. The work was carried out under the direction of B. V. ROZANOV, Doctor of Technical Sciences. V. A. SHCHERBATOV participated in the investigation.

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USSR

UDC:669.184.244.66

KVITKO, M. P., SERGEYEVA, T. K., FILATOV, Yu. V., SINELNIKOV, V. A., and  
USTYUZHANIN, V. D.

"Study of the Oxygen-Fuel Process"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of  
Works], No 75, Metallurgiya Press, 1970, pp 133-142

Translation: The possibility of increasing the thermal balance of a converter  
by preliminary heating of the scrap by burning of natural gas and oil in pure  
oxygen is studied on a 10 T converter. The expenditure of scrap melted using  
the fuel is 21.3-34.2% of the mass of the charge metal. The losses of heat  
due to chemical incompleteness of burning are estimated for various versions,  
and the effectiveness of the use of various types of fuel is considered.  
The utilization factor for natural gas is 24.0-86.0%, for oil 34.0-63.0%.  
11 figures; 3 tables; 6 biblio. refs.

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USSR

UDC:669.18:-147:621.746

POLYAKOV, V. V., SHORSHIN, V. N., NEKHAYEV, V. P., KVITKO, M. P., SINEL'NIKOV, V. A., FILATOV, Yu. V., YUGOV, P. I., and USTYUZHANIN, V. D.

"Study of Technology of Melting in an Oxygen Converter and Pouring of Type K-76 Rail Steel in a Continuous Casting Unit"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 123-132

Translation: Results are presented from a study of a new, progressive metallurgical process--the production of railroad rails of high-quality ingots produced by continuous casting in combination with melting of rail steel in an oxygen converter.

It is assumed that the process is promising for further increases in the strength of railroad rails and reduction of the expense of their production. 5 figures; 4 tables; 5 biblio. refs.

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USSR

UDC 615.471:[614.777+628.19]074:543.42.062

SINEL'NIKOV, V. Ye., TIMAKHOV, O. N., ININ, Yu. S., IKONNIKOVA, S. V., GIKKEL',  
A. A., GONCHAROV, A. T., AFONIN, V. I., PERSIYANISEVA, V. B., and SOKOLOV, B. K.,  
Central Design Bureau and Pilot Plant, USSR Academy of Medical Sciences, Moscow  
and Institute of Biology of Inland Waters, USSR Academy of Sciences, Borok,  
Yaroslavl Oblast

"A Multipurpose Spectrofluorimeter to Study Natural and Polluted Water"

Moscow, Gigiyena i Sanitariya, No 1, 1973, pp 65-68

Abstract: The akva-MF spectrofluorimeter developed by the authors can be used for rapid determination of individual organic and mineral compounds present in water, for automatic regulation of fluorescent substances in a stream, for detection in lakes and seas of water masses differing in chemical composition and origin, and for study of the conversion and breakdown of compounds under the influence of biological and physicochemical factors. Analyses can be made in the laboratory, in the field, or on a research vessel. The spectrum of fluorescent compounds can be obtained directly at the sampling site. The apparatus is a single-beam recording spectrofluorimeter designed to function in the visible and UV regions of the spectrum. With the use of interchangeable attachments, it can record spectra of fluorescence, excitation, and phosphorescence in a solution as well as substances separated in chromatographic zones on paper.

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Acc. Nr.: 170046523  
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Ref. Code: ZIR0144  
UDC 681.142.32

GOLUBINTSEV, VLADIMIR OLEGOVICH, Senior Engineer of the Computation Center of Novocherkassk Polytechnical Institute, KUPAYEV, VALERIY MITROFANOVICH, Senior Engineer of the Computation Center of Novocherkassk Polytechnical Institute, SINEL'NIKOV, YE. M.

"Basic Operating Principles and Structure of All-Purpose Digital Computers"

Novocherkassk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika (News of the Institutions of Higher Learning, Electromechanics), No 1, 1970, pp 99-104 (from Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika, No 1, 1970, p 115)

Translation: This article contains a study of the most important characteristic features and principles inherent in the functional structure of all-purpose digital computers and the possibilities of their technical realization. A comparative analysis of the operation of the man-calculator and the digital computer is made. Basic elements and units are described in brief, and the structural diagram of a digital computer is presented. The machine cycle is investigated. There is 1 illustration.

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SINEL'NIKOVA, A. Ye.

POWERFUL DC CONDUCTION PUMP WITH INCREASED OPERATING VOLTAGE

Abstract of a Paper by Ye. A. Gol'dynskiy, ~~in the Proceedings of the 1st International Conference on Magnetohydrodynamicity~~, pp 137-139, ~~1973~~

As is known [1], the dc conduction pump with increased voltage operates in the lead voltage (figure 1).

In the traditional dc conduction pump [1], part of the current flow around the zone of the strong magnetic field through the ends of the pump causing the so-called "boundary effect." On the basis of the characteristic absent; however, there is always a longitudinal useless current reducing the efficiency of the machine.

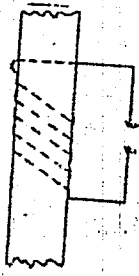


Figure 1.

A comparison of these two types of dc pumps with respect to the reduced electromagnetic efficiency permits evaluation of the conditions under which the negative effect of the boundary effect in one pump and the longitudinal current in the other pump will be of the same order.

The design of a powerful pump by the schematic presented in reference [1] has been developed which insures a flow head characteristic in the reference potassium at a temperature of 700°C:  $(24.5 \cdot 10^5 \text{ m}^2/\text{sec})$ ;  $(0.015 \text{ m}^2/\text{sec})$ ;  $(16.7 \cdot 10^5 \text{ m}^2/\text{sec})$ ;  $(0.03 \text{ m}^2/\text{sec})$  for pumping liquid

(3)

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UDC: 621.313.29:538.4

GOLODNYAK, V. A., SINEL'NIKOVA, A. Ye., and TOLMACH, I. M.

"D-C Power Conduction Pump of Higher Operating Voltage"

Riga, Magnitnaya gidrodinamika, No 1, 1973, pp 117-121

Abstract: This paper is the outgrowth of a patent (I. M. Tolmach, Author's certificate No 232755 from 24/4/1967, Otkrytiya, izobreniya, prom. obrastysy. tov. znaki, No 1, 1969) which proposed a d-c liquid metal conduction pump system having the distinctive feature of higher supply voltage at a reduced operating current. There are two such devices: one in which there is an edge effect, the other in which the edge effect does not exist. These types are compared in the present paper, their relative electromagnetic efficiencies estimated with their respective volumes and pressures considered to be equal. A table is given of the comparative parameters of both types of pump using liquid potassium at 700° C. The results of the comparison indicate that the pump with the edge effect has a higher efficiency than its rival but also has a higher operating current, 56 kA for the first and 14.8 kA for the second. Since this latter fact is a hindrance to the technical realization of the device, the second version is preferred.

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GOLODNYAK, V. A., SINEL'NIKOVA, A. Ye., TOLMACH, I. M.

"A High-Power Direct Current Conduction Pump with High Operating Pressure"

7-ye. Soveshch. po Magnit. Gidrodinamike. T. 1. [Seventh Conference on Magnetic Hydrodynamics, Vol 1 -- Collection of Works], Riga, Zinatnye Press, 1972, pp 137-139, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 B133, by A. E. Mikel'son).

Translation: A description is presented of a pump planned by the author's for liquid potassium with the following parameters:  $p = 17.6 \cdot 10^5 \text{ n/m}^2$ ,  $Q = 0.03 \text{ m}^3/\text{sec}$ ,  $I = 14,870 \text{ a}$ ,  $U = 15.2 \text{ v}$ ,  $B = 0.25 \text{ tesla}$ ,  $\eta = 25\%$ . The total weight of the pump is 2.5 t (1.9 t being the weight of the magnetic system). The pump operates on the principle of successive transmission of current through individual working zones located along a street channel. The pump has practically no edge effect, but a longitudinal parasitic current always exists in the pump, reducing its effectiveness.

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USSR

UDC 621.387.333

KOSMARSKIY, L. N., NITYAYEV, M. V., SINEL'NIKOVA, L. G.

"Energy Losses in Controlled Gas-Discharge Devices"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronic Technology. Scientific-Technical Collection. Gas-Discharge Devices), 1970, Issue 4(20), pp 45-48 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5A168)

Translation: Energy losses were studied in trigatrons filled with various gasses. It is established that the energy losses in the discharge gas are larger the higher the strength [prochnost'] of the filling gas. Summary.

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USSR

UDC 621.3.035.2

PEREVEZENTSEV, V. P., ZHUNDA, A. N., ZEBERIN', A. G., and SIKEL'NIKOVA, L. V.

"On the Utilization of Graphites as Materials for Aluminum Evaporators"

Moscow, Tsvetnyye Metally, No 7, Jul 71, pp 40-43

Abstract: Graphites possess the most satisfactory combination of properties for use as materials for aluminum evaporators. The usefulness of three brands of graphite with different porosities, GZ, MPC6, and V-2(2), the two first produced by electrode technology, the last by thermomechanical processing of the charge, was experimentally investigated. It was found that small boats of graphites with porosities  $< 1\%$ , like graphites of the type V-2(2), are close to industrial small boats of titanium diboride in their performances, but they possess a higher utilization factor. The use of graphites of the type V-2(2) without coating is recommended for parts working in the atmosphere of Al vapors but not having a direct contact with Al, e.g., for heaters. For evaporative parts, graphites of the type V-2(2) with carbide coatings are recommended. Four illustrations, three tables, fourteen bibliographic references.

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USSR

UDC 669.295.053.28

SAMSONOV, G. V., SINEL'NIKOVA, V. S.

"Aluminothermal Reduction of Titanium Oxides"

Metalloterm. Protsessy v Khimii i Metallurgii, [Metallothermal Processes in Chemistry and Metallurgy -- Collection of Works], Novosibirsk, Nauka Press, 1971, p 32-38. (Translated from Referativnyy Zhurnal Metallurgiya, No 3, 1972, Abstract No 3G154 by the authors).

Translation: Results are presented from a study of the conditions of production of Ti aluminides by reduction of Ti oxides with aluminum in a vacuum. Reduction of  $TiO_2$  in a vacuum occurs by means of formation of  $TiO$  and  $Al_2O_3$ . At  $975^\circ$ , aluminides with the compositions  $TiAl$  and  $TiAl_3$  are formed, both in the reduction of  $TiO_2$  and in the reduction of  $TiO$ . At  $1300^\circ$  and higher,  $Al_2O_3$  is reduced by aluminides and separated as  $Al_2O$ . The influence of the temperature, heating rate and excess Al content on the process of production of aluminides is studied. 3 figs; 11 biblio refs.

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USSR

UDC 621.762.2.001:669.293.784

LYUDVINSKAYA, T. A., SINEL'NIKOVA, V. S., KOSOLAPOVA, T. YA., and SERGEYEV, V. P.

"Investigation of a Method of Obtaining Niobium Carbide Powder and Coatings From the Vapor-Gas Phase"

V sb. Tugoplavk. karbidy (The Refractory Carbides -- collection of works), Kiev "Nauk. Dumka," 1970, pp 28-32 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G338 by authors)

Translation: An investigation is made of the possibility of obtaining niobium carbide by the method of precipitation from a vapor-gas mixture in the 1500-1900° range in the form of powder and coatings. The precipitation rate is studied as a function of reagent concentration, substrate temperature, and H<sub>2</sub> feed rate. The maximum rate of niobium carbide precipitation was observed at the optimum 10:1 ratio of H<sub>2</sub> to the sum of chlorides. The authors investigate the possibility of applying the coatings to graphite, tungsten, molybdenum, and niobium. Three illustrations. Two tables. Bibliography with eight titles.

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Single Crystals

USSR

UDC 669-172

SINEL'NIKOVA, V. S., and TIMOFEYEVA, I. I.

"Production of Single Crystals of Niobium by Precipitation from a Vapor-Gas Mixture and Their Study"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 13-16

Translation: Conditions are studied for the production of niobium single crystals by the method of precipitation from a vapor-gas mixture using the reaction of reduction of niobium pentachloride by hydrogen. The optimal temperature of the process and concentration of pentachloride in the reaction space are established for the production of crystals of true form. Epigrams taken from the single crystals are used to establish the direction of growth of the crystals. The microhardness is studied in various crystallographic planes of the crystals produced. 4 Figures; 11 Bibliographic References.

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USSR

UDC 661.665.2

SINEL'NIKOVA, V. S., and TIMOFEYEVA, I. I.

"The Possibility of Producing Single Crystals of Refractory Carbides"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 16-18

Translation: A method is described for producing single crystals of refractory carbides, based on precipitation from a vapor-gas mixture using the reaction of reduction of chlorides with hydrogen, and its advantages are shown over the ordinary methods, which involve significant technological difficulties. X-ray structural and microstructural studies of single crystals of zirconium carbide produced by the new method are performed. 2 Figures; 19 Bibliographic References.

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Acc. Nr.: **AP0030927**

Ref. Code: UR 0475

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 1, pp 86-90

PHAGOCYTOSIS REACTION IN PULMONARY TISSUES AND MORPHOLOGICAL  
CHANGES OF THE RESPIRATORY ORGANS IN EXPERIMENTAL  
STAPHYLOCOCCAL AEROGENOUS INFECTION

Ye. P. Sinichukova (Kiev)

The activity of macrophages and neutrophils in pulmonary tissue reaches its maximum one hour following aerosol exposure of mice to pathogenous staphylococcus. But a regular decrease of seeding of staphylococcus from the lung begins only after three hours and coincides with intensive coming out of histiocytes into the alveolar lumen and absorption of about 50% of cocci. Inflammatory processes develop only in the respiratory organs of mice contaminated by the aerogenous route with coagulase-positive staphylococcus. Strains on non-toxigenous staphylococcus cause a weaker and less frequent inflammatory reaction as compared with toxigenous strains. Staphylococcal strains producing alpha-hemolysin, DNA-ase, hyaluronidase and lecithinase and those capable of reproducing the Müller phenomenon cause a more acute inflammatory reaction mainly in the lungs, medium-sized and small bronchi.

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USSR

UDC 612.438.014.3:612.6"52"

SINEL'SHCHIKOVA, V. V., Second Moscow Medical Institute imeni N. I. Pirogov

"Changes in the Circadian Rhythm of Mitosis in Thymus and Peripheral Lymph Node Thymocytes After Immunization"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 10, 1971, pp 97-99

Abstract: The purpose of the work was to study the effect of sheep erythrocytes on the mitotic index in mouse thymocytes and inguinal node lymphocytes at various times after injection of the antigen. There was no appreciable response in the above cells two days after immunization. But four days after immunization, the thymocytes were found proliferating during the morning hours while division of the lymphocytes in the inguinal nodes remained inhibited throughout the day. In normal animals, mitotic activity in both thymocytes and lymphocytes is highest from 1000 to 1300 hours and lowest from 2200 to 0400 hours. The mitotic index is 5 to 7 times higher in thymocytes than in lymphocytes.

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USSR

UDC 617.7:611-018]:541.18.047.6-092.9

ZHOKHOV, V. P., SYNGAYEVSKAYA, V. A., IGNAT'YEVA, O. S., and SINENKO, G. F.,  
Doctors, Military Medical Academy imeni S. M. Kirov

"Biochemical Shifts in Eye Tissues Exposed to Laser Radiation"

Odessa, Oftal'mologicheskiy Zhurnal, Vol 26, No 4, 1971, pp 273-277

Abstract: A study was made of biochemical shifts in the tissues of the eye (cornea, anterior chamber, lens, and retina) following irradiation with a pulsed ruby laser. Tests were made on 90 rabbits, while 31 control animals received no radiation. A parallel beam was applied on the cornea with energy of 0.5 joule per square centimeter. With energy densities of 0.6, 0.3, and 0.1 joule per square centimeter on the cornea, an additional optical attachment was placed before the irradiated eye which produced an increased "spot" on the retina (d = 4-5 millimeter). After irradiation, ophthalmoscopy was done on several animals from each series, with the foci measured and fundi photographed. The concentration of sodium and potassium was markedly changed in all eye segments; the level of ascorbic acid shifted markedly in the lens and less so in other segments. Reliable shifts were observed in the SH group content in the lens and retina, and the cholinesterase activity increased

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USSR

ZHOKHOV, V. P., et al., Oftal'mologicheskiy Zhurnal, Vol 26, No 4, 1971, pp  
273-277

with energy density of 0.6 joule per square centimeter x 3 on the retina.  
Test results demonstrated that shifts from the effect of the laser beam may  
be possible not only in the focus of radiation damage, but in adjacent  
sectors.

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Instruments and Equipment

USSR

MIKHAYLOV, R. K., NARUZHNYI, B. V., and SINENKO, S. F., Leningrad "Krasnogvardeyets" Plant

"Multichannel Electronic Diagnostic Apparatus"

Moscow, Meditsinskaya Tekhnika, No 6, 1970, pp 33-35

Abstract: A brief description is given of the following electronic apparatus now under development at the Leningrad "Krasnogvardeyets" Plant, the country's oldest manufacturer and designer of medical equipment: (i) Physiograph (model 068) capable of simultaneous recording of electrocardiograms, phonocardiograms, pulse rate, body temperature, oxyhemograms, tacho-oscillograms, and so forth; (ii) ELKAR electrocardiograph with ink or thermal recording of electrocardiograms, based on the modular-cassette principle, with attachments to permit pneumography, phonocardiography, and plethysmography, stethophone, and oscilloscope for observation of the processes being recorded; (iii) Poligraf (model 071), incorporates the features of many foreign diagnostic machines, with interchangeable units for recording oxyhemograms, plethysmograms, pneumograms, sphygmograms, cardiodesigrams to show total cardiac output), thermograms, pO<sub>2</sub>, and pCO<sub>2</sub>; (iv) bed monitors to record arterial pressure, pulse rate, respiratory rate, and body temperature;

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USSR

MIKHAYLOV, R. K., et al, Meditsinskaya Tekhnika, No 6, 1970, pp 33-35  
(v) devices for recording hemodynamic indices (an arterial oscillograph with  
photorecording is now in production).

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USSR

UDCL 621.375.024(088.8)

ANDREYEV, V. I., SINENKO, V. G.

"A Two-Channel DC Voltage Amplifier"

USSR Author's Certificate No 261465, filed 3 Jul 68, Published 28 May 70  
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D86 P)

Translation: This Author's Certificate introduces a two-channel DC voltage amplifier which contains input and output converters, an AC voltage amplifier and an adder connected in series in one of the channels. To improve accuracy of time coincidence of the amplified pulse fronts in the adder, the other channel of the DC voltage amplifier is based on series-connected AC voltage amplifiers and an output converter which are also connected to the adder. One of the output terminals of the adder is connected through a deep negative feedback circuit between the decoupling resistors of both channels and a common input resistor.

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UNCLASSIFIED

PROCESSING DATE--30OCT70  
AMPLIFIER CONVERTERS

TITLE--DYNAMIC RANGE OF NONREGENERATIVE PARAMETRIC  
-U-  
AUTHOR--(03)-BOBRUV, I.N., VOLKOV, V.M., SINEOK, V.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA, NO 1, 1970, PP 97-98

DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--PARAMETRIC AMPLIFIER, DYNAMIC SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1474

CIRC ACCESSION NO--A0123377

STEP NO--UR/0108/70/000/001/0097/0098

UNCLASSIFIED



2/2 022

CIRC ACCESSION NO--AP0123377

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DYNAMIC PROPERTIES OF A  
NONREGENERATIVE AMPLIFIER CONVERTER ARE ANALYZED. FACTORS DETERMINING  
ITS DYNAMIC RANGE ARE ESTABLISHED.

UNCLASSIFIED

UNCLASSIFIED  
TITLE--REACTIONS OF AZIRIDINES WITH RING EXPANSION -U-  
AUTHOR--(03)-GLADYSHEVA, F.N., SINEOKOV, A.P., ETLIS, V.S.  
COUNTRY OF INFO--USSR  
SOURCE--USP. KHIM. 1970, 39(2), 235-58  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CRYSTALLIZATION, ISOMERIZATION, ETHYLENE OXIDE, INTERMOLECULAR  
COMPLEX, ORGANIC NITROGEN COMPOUND, CYCLIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/1659  
CIRC ACCESSION NO--AP0112653  
STEP NO--UR/0074/70/039/002/0235/0258  
UNCLASSIFIED

212 012

CIRC ACCESSION NO--AP0112653

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 88 REFERENCES THROUGH 1968, DEALING WITH INTERMOL. AND INTRAMOL. CYCLIZATION REACTIONS OF AZIRIDINES, IN TERMS OF REACTIONS WITH CARBONYL COMPS., CO SUB2 AND ITS ANALOGS ISOMERIZATION REACTIONS OF AZIRIDINES AND REACTIONS WITH ETHYLENE OXIDE AND NITRONES.

UNCLASSIFIED

USSR

UDC 534

BANAKH, L. YA., PERMINOV, M. D., PETROV, V. D., SINEV, A. V.

"Methods of Calculating the Rigidity, the Inertia and Damping of Matrices for Complex Three-Dimensional Systems"

V sb. Vibroizolyatsiya mashin i vibrozashchita cheloveka-operatora (Vibration Insulation of Machines and Vibration protection of the Human operator-- collection of works), Moscow, Nauka, 1973, pp 67-81 (from RZh--Mekhanika, No 6, Jun 73, Abstract No 6A154)

Translation: A study was made of the methods of calculating the rigidity, inertia and damping matrices required to construct the solution of natural and forced oscillations of dynamic models of complex three-dimensional mechanical structures. It is proposed that the real structural element is replaced by a spatial system of solid states and lumped masses joined to each other by elastic couplings of the beam element type and joined to the foundation by means of shock absorbers. The formulas were derived which permit definition of the complete rigidity matrix of the system using the rigidity characteristics of individual elastic elements and the coordinate transformation matrices. It is demonstrated that in order to determine the complete damping matrices it is possible to use analogous formulas. Methods of compiling the inertial matrices were analyzed for a spatial system of solid states, and a study was made of the characteristic features of

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USSR

BANAKH, L. YA., et al., *Vibroizolyatsiya mashin i vibrozashchita cheloveka-operatora*  
Nauka, 1973, pp 67-81

calculating the matrices in the absence of inertial properties by a number of  
coordinates. A study was made of the problem of limiting the number of degrees  
of freedom in general case of the three-dimensional system. Several parameters  
of this restriction are presented. The bibliography has 7 entries.

2/2

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USSR

SINEV, A. V., Moscow

UDC: 621.752.2

"Optimum Spectrum Densities of Random Input Excitations With Passive and Active Vibration Isolation Systems"

Moscow, Mashinovedeniye, No 1, Jan-Feb 73, pp 14-20

Abstract: The article analyzes a mass supported on a base by means of a vibration isolation system. The vibrations are excited by the motion of the base. The spectrum densities of the base displacement and acceleration and the optimum transfer function are given for the following vibration isolation systems:  
1. Spring and damper in parallel. 2. Spring and damper in parallel with the second spring in series with the above two elements. 3. One spring in series the other in parallel with the damper. 4. Spring, damper and an active element controlled by the integrated displacement. 5. Consists of system 2 with an active velocity generator in series.

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USSR

MALIK, D. D. and SINGKH, R.

UDC: 534.213

"Shock Wave Propagation in a Generalized Roche Model"

Leningrad, Vestnik Leningradskogo Universiteta, Seriya matematika, mekhanika, astronomiya, No. 4, October 1971, pp 78-84

Abstract: The Roche model consists of a massive nucleus of finite dimensions surrounded by a shell of infinitely small weight. The problem of the movement of the gas inside the shell when a point at the center of the shell explodes has been solved for several values of specific heat capacity ratios, but these solutions have left several questions unanswered. Some of these questions are covered in the present article, in which the problem of the Roche model is solved for the specific heat capacity ratio of  $4/3$ . The solution was found by starting with the equations of motion in dimensionless form and obtaining an exact integral similar to that obtained by earlier investigators of the problem. A numerical solution was achieved for two values of shock wave intensity, one at Mach 3.16228 and the other at Mach 10. It is found that the

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USSR

MALIK, D. D. and SINGH, R., Vestnik Leningradskogo Universiteta. Seriya matematika, mekhanika, astronomiya, No 4, October 1971, pp 76-84

radius of the nucleus and the thickness of the shell increase with increasing intensity. Other conclusions differ widely from those found by earlier researchers. The author thanks Dr. Deb Ray of India for his criticism of the article.

2/2

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USSR

UDC 621.373:535/:546.293.128

SEDEL'NIKOV, V. A., SINICHKIN, Yu. P., TUCHIN, V. V.

"Some Characteristics of the Radiation Spectrum of an Ion Laser (Ar<sup>+</sup>)"

Leningrad, Optika i Spektroskopiya, Vol 31, No 5, 1971, pp 761-762

Abstract: The laser used in this experimental work was a sealed-off version of the LG-106 instrument, in which the magnetic field induction was smoothly varied from 0 to 840 gauss with the discharge current varied from 8 to 15 amp. The resonator consisted of a spherical mirror with a radius of curvature of 2 m, a transmission of about 0.2%, and a flat mirror with a transmission of 12.5%. The resonator length was 0.98 m, and the spectrum examined was of a line having a wavelength of 0.48  $\mu$ . A diagram of the equipment is given. The behavior of the level of the beat signals was investigated at several frequencies as a function of the discharge current at magnetic field strengths of 420 and 560 gauss, and it was found that these relationships are linear within discharge current ranges of 8 to 15 amp. Gratitude is expressed to N. V. Cheburkin for his comments.

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USSR

UDC 547.853.7.07:539.183.2

SAVIN, YU. I., SINGIN, A. S., SAZONOV, N. V., KROPACHEVA, A. A., and SAFONOVA T. S., Scientific Research Institute of Medical Radiology, Academy Medical Sciences USSR, Obninsk; All Union Scientific Chemical-Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Synthesis of Phosphorus Tagged Diethyleneimide of Pyrimidyl-2-imidophosphoric Acid [Phosphemide]"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, Sep 73, pp 1251-1253

Abstract: The following synthetic route was selected for the synthesis of diethyleneimide of pyrimidyl-2-amidophosphoric acid [phosphemide] (I). From the reaction of equimolar quantities of 2-aminopyrimidine and phosphorus pentachloride in benzene 2-trichlorophosphazopyrimidine hydrochloride was obtained which was then converted to pyrimidyl-2-amidophosphoric acid dichloride by a reaction with 98% formic acid, which finally could be reacted without purification with ethyleneimine to yield I. Depending on the activity of the starting  $^{32}\text{PCl}_5$  the specific activity of phosphemide- $^{32}\text{P}$  was 5-10  $\mu\text{c}$  per gram.

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UDC 621.43.011:533;621.5:533

USSR

SINGURETSEV, Yu. V.

"Approximation Method for Solving Problems of Gas Jets at  $M \leq 1$ "

Aerodinamika. Mezhvuz. sb. (Aerodynamics. Intervuz Collection), 1972, No. 1(4), pp 100-104 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B406)

Translation: A method is proposed for solving problems on gas jets flowing at subsonic and near-sonic velocities. This method is based on an approximate calculation of a function satisfying the S. A. Chaplygin differential equation and consisting of the ratio of two hypergeometric functions. Two asymptotic expansions of this function are used. Two examples of the application of the approximation formula in calculating the function mentioned above are discussed. The first example refers to a calculation of jet flow over a thin wedge. A formula is given for calculating the resistance coefficient. The second example considers a calculation of the coefficient of compression of a jet flowing through a slit from a half-plane. Yu. F. Dityakin.

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USSR

UDC 615.371:576.851.49].074

SINILOVA, N. G., PERSHINA, Z. G., DUPLISHCHEVA, A. P., and IVANOV, K. K.,  
Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of  
Medical Sciences USSR

"Biochemical Composition of Preparations From Original Sh. flexneri 550  
Cultures and Mutants With Increased Radioresistance"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, 1971,  
pp 102-107

Abstract: Analysis of the basic chemical composition of preparations from  
Sh. flexneri 550 cultures and mutants obtained by repeated gamma irradiation  
failed to disclose any differences between them with respect to nitrogen,  
phosphorus, and nucleic acids. However, cells of the mutants contained  
smaller amounts of proteins and carbohydrates but more lipids than did cells  
of the original culture. The biochemical composition (according to the  
above indices) of the antigens isolated from the original cultures and mu-  
tants was very similar. All the preparations from the mutants differed  
markedly from the original cultures in qualitative and quantitative compo-  
sition of carbohydrates.

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UDC 547.288

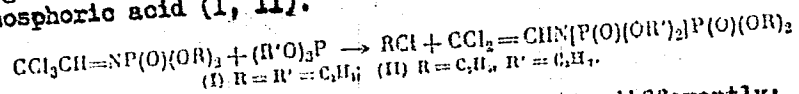
USSR

SINITSA, A. D., and DRACH, B. S.

"Interaction of N-dialkoxy Phosphonyl Chloroalimines with Trialkyl Phosphites"

Leningrad, Zhurnal Obshchey Khimii, Vol XIII (CV), No 1, 9173, pp 211-212

Abstract: The N-dialkoxy phosphonyl chloroalimines react easily with trialkyl phosphites and give with high yields tetraalkyl esters of N- $\beta$ , $\beta$ -dichloro-vinylimido diphosphoric acid (I, II).



N-benzoyl chloroalimine interacts with triethyl phosphite differently: phosphorylation proceeds not with respect to the nitrogen atom but with respect to the carbon atom [K. Burger, et al., Angew. Chem., No 84, 258 1972]. An experimental procedure is presented for obtaining compound (I) with a yield of 82% and compound (II) with a yield of 88%. Compound (II) was obtained by two procedures — under the effect of the tripropyl phosphite on the N-diethoxy phosphonyl chloroalimine and also under the effect of triethyl phosphite on N-dipropoxy phosphonyl chloroalimine.

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1/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--CORRELATION BETWEEN THE STRUCTURE AND THE ACTIVITY OF  
N,ACYLCHLORALIMINES -U-  
AUTHOR--(03)-DRACH, B.S., SINITSA, A.D., KIRSANOV, A.V.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 934-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--MOLECULAR STRUCTURE, ACYL RADICAL, CHLORINATED ORGANIC  
COMPOUND, IMINE, MERCAPTAN, ORGANIC PHOSPHORUS COMPOUND, CHEMICAL  
REACTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/1515 STEP NO--UR/0079/70/040/004/0934/0935  
CIRC ACCESSION NO--AP0135176  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135176

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ETSH REACTS WITH CCL SUB3 CH:NA IN DIOXANE IN A 2ND ORDER REACTION THAT MAY BE FOLLOWED IODOMETRICALLY; THE FOLLOWING RATE CONSTS. AT 20DEGREES WERE DETD. (K IN L.-MOLE HR) FOR INDICATED A GROUPS: PHCH SUB2 CO, 226; ETCO, 77; ETO SUB2 C, 14.6; AND (ETO) SUB2 PO, 4.7. THE REACTION RATE DECLINES WITH REDN. OF ELECTRONEGATIVITY OF THE ACYL GROUP. IF THE REACTION SOLN. IS LEFT 1 DAY, EVAPN. GAVE CCL SUB3 CH(SET)NHR:PHCH SUB2 CO, M. 137-8DEGREES; ETCO, M. 103-4DEGREES; AND ETO SUB2 C, M. 78-9DEGREES. FACILITY: INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

USSR

KULISH, Ye. N., SINITSA, M. A.

"Sampling Operational Testing Considering Significance and Reliability of Objects"

Kibernet. i Vychisl. Tekhn. Resp. Mezhd. Sb. [Cybernetics and Computer Equipment. Republic Interdepartmental Collection], 1972, No 18, pp 81-83  
(Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V584, by the authors).

Translation: The problem of optimization of a procedure of sampling testing of groups of objects of different importance and reliability is studied. Usability testing is studied with rigid limitations on test equipment and servicing time. An algorithm is described for solution of the problem by computer using the method of dynamic programming.



USSR

UDC 621.525.6

GINOVKER, A.S., GUZEV, A.A., KON'KOV, V.P., KURYSHEV, G.L., MISHIN, A.I.,  
SINITSA, S.P., TEPMAN, B.G.

"Integrated Circuit With Programmed Structure Using MIS Memory Transistors"

Radiotekhnika i elektronika, Vol XVII, No 7, July 1972, pp 1551-1552

Abstract: The integrated circuit is described of an all-purpose element fulfilled with conventional MIS [metal-insulator-semiconductor] transistors and MIS transistors with a memory (memory transistors). The integrated circuit realizes the following logical function:

$$z(t + \delta) = \bar{v}a_i x_i \quad (i = 1, 2, 3, 4),$$

where  $x_i$  is the input logical variables;  $a_i$  is the state characterizing the  $i$ -th memory transistor;  $z$  is the output variable; and  $\delta$  is the delay. The circuit can be used for construction of a specialized array for fulfillment of logical, switching, and memory functions and also for construction of all-purpose structurally-uniform logical nets, which makes it possible for each problem to organize a specialized computing device by a programmed adjustment of its elements. 1 fig. 5 ref. Received by editors, 16 June 1971.

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USSR

SINITSIN, I. N.

"On a Generalization of the Statistical Linearization Method"

Probl. Upr. i Teorii Inform. [Problems of Control and Information Theory], 1972, Vol 1, No 2, pp 117-121 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V229, by the author).

Translation: A method is suggested for investigation of the accuracy of nonlinear systems, based on statistical linearization by means of canonical representations of random functions.

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USSR

SINITSIN, I. N.

"Natural Oscillations of a System with Distributed Parameters Under Random Perturbations"

Moscow, Nelineynyye i Optimal'nyye Sistemy, 1971, pp 340-344

Abstract: The influence of additive random perturbations on the parameters of the basic single-mode oscillating mode is studied using a distributed natural-oscillating system as an example. It is shown that the influence of higher oscillating modes can be replaced by the equivalent noise. The analysis showed that additive noise causes forced random oscillations of the string in a string-type generator used as an example in all modes, suppressing oscillations in the main mode without influencing frequency. With sufficiently high noise, it may cause complete suppression of natural oscillations.

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1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70  
 TITLE--USE OF AN OMEGATRON DURING A STUDY OF THE PHOTOLYSIS OF SOLID  
 COMPOUNDS -U-  
 AUTHOR--(04)-ZAKHAROV, YU.A., KISLIN, G.A., KLESHINA, X.X., SINITSIN, V.A.  
 COUNTRY OF INFO--USSR  
 SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 532-3  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--CHEMISTRY  
 TOPIC TAGS--OMEGATRON, MASS SPECTROMETER, CHELATE COMPOUND, ELECTRIC LAMP,  
 SODIUM COMPOUND, CHLORATE, NITRATE, LEAD COMPOUND/(U)RM04S LAMP  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--3008/0889 STEP NO--UR/0076/70/044/002/0532/0533  
 CIRC ACCESSION NO--AP0137917  
 UNCLASSIFIED

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2/2 022

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137917

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITIES OF USING AN OMEGATRON MASS SPECTROMETER FOR DETG. THE COMPN. OF ULTRASMALL AMTS. OF PHOTOLYSIS PRODUCTS, THE SPECTRAL BOUNDARY, AND THE SPECTRAL SENSITIZATION OF THE PROCESS WERE STUDIED. THE CONNECTION OF THE OMEGATRON WITH OIL PUMPS PRODUCES UNSTABLE READINGS EVEN IN THE CASE OF USING TRAPS WITH LIQ. N. MORE EXACT RESULTS ARE OBTAINED WITH A REACTION CELL AND AN RMO 4S LAMP WITH A TI SORPTION PUMP USING AN INSULATION WITH THE AID OF IN,GA PLUGS. THE OMEGATRON CAN BE USED FOR STUDYING THE COMPN. AND DECOMPN. OF PHOTOCHEM. STABLE PRODUCTS LIKE METAL CHLORATES AND NITRATES. THE PRINCIPAL PRODUCT OF NACLO SUB3 DECOMPN. IS O. THE INCREASE IN THE FLUX OF IONS WITH THE MASS NOS. OF 44 AND 28 IS DUE TO AN INCREASE IN O CONC. AND THE BURNING OF THE CATHODE OF THE RMO 4S LAMP. THE OMEGATRON IS USEFUL FOR DETG. THE SPECTRAL BOUNDARY OF THE BEGINNING OF PHOTOCHEM. DECOMPN. THAT TAKES PLACE AT AVERY LOW RATE. THE BOUNDARY OF PHOTOACTIVE LIGHT IS DETD. FOR PBN SUB6. THE OMEGATRON CAN ALSO BE USED FOR OBTAINING INFORMATION ON THE SPECTRAL AND CHEM. SENSITIZATION OF SOLID SALTS WITH THE AID OF DYES. FACILITY: TOMSK. POLITEKH. INST. IM. KIROVA, TOMSK, USSR.

UNCLASSIFIED

UDC 665.55

USSR

ISHCHUK, YU. L., SOKOLOVA, T. G., SINITSIN, Y. V., and GOSHKO, N. S.,

"The Effect of Viscosity and the Degree of Purification of a Dispersion Medium on the Properties of Complex Calcium Lubricants"

Kiev, Neftyanaya i Gazovaya Promyshlennost', No 6, Nov-Dec 70, pp 37-39

Abstract: The viscosity of dispersion medium and the extent to which heavy aromatic materials have been removed from it have practically no effect on the stability of KCa-lubricants; presence of resinous materials lowers their stability. The effective viscosity of KCa-lubricants in positive temperature range drops with increased degree of oil purity and is hardly affected by the dispersion medium. Resinous substances lower the condensing action of the complex calcium soap. Changing the viscosity of dispersion medium or its purity exhibits no effect on the compressibility of oil from KCa-lubricant. Lubricants made of highly purified oils tend to harden at high temperatures. In general the use of high purity distillation oils lowers the mechanical stability of KCa-lubricants.

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USSR

SINITSIINA, A. D. and BONDAREV, G. I., *Gigiyena Truda i Professional'nyye Zabolevaniya*, No 7, Jul 70, pp 42-44

On exposure to vibration at 10 Hz and 0.04 mm amplitude, together with a noise level of 80 db, a tendency toward reduction in ACTH production of the hypophysis was observed.

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USSR

UDC 612.432+612.543].014.45

SINITSIINA, A. D., and BONDAREV, G. I., Institute of the Hygiene of Water Transport, Moscow

"Round-the Clock Combined Effect of Low-Frequency Vibration and Noise on the Function of the Hypophysis-Adrenal Cortex System"

Moscow, *Gigiyena Truda i Professional'nyye Zabolevaniya*, No 7, Jul 70, pp 42-44

Abstract: Adaptation of the organism to the action of various unfavorable factors in the environment is accompanied by a change in the state of the hypophysis-adrenal cortex system. The functional state of the adrenal cortex under the influence of the noise and vibration encountered in certain jobs was studied using 240 white rats. All-day exposure to vibrations (10-Hz, 0.02 and 0.04 mm amplitude; or 6 Hz 0.03 mm amplitude), together with a noise level of 75-80 db for 12-18 days produced a drop in the functional state of the adrenal cortex, manifested as a reduction in the corticosterone content in blood plasma. Exposure to a noise level of 75-80 db alone has a similar effect, but this effect occurs later than that under the combined action of noise and vibration. The effect of vibration alone requires further study.

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"APPROVED FOR RELEASE: 09/17/2001

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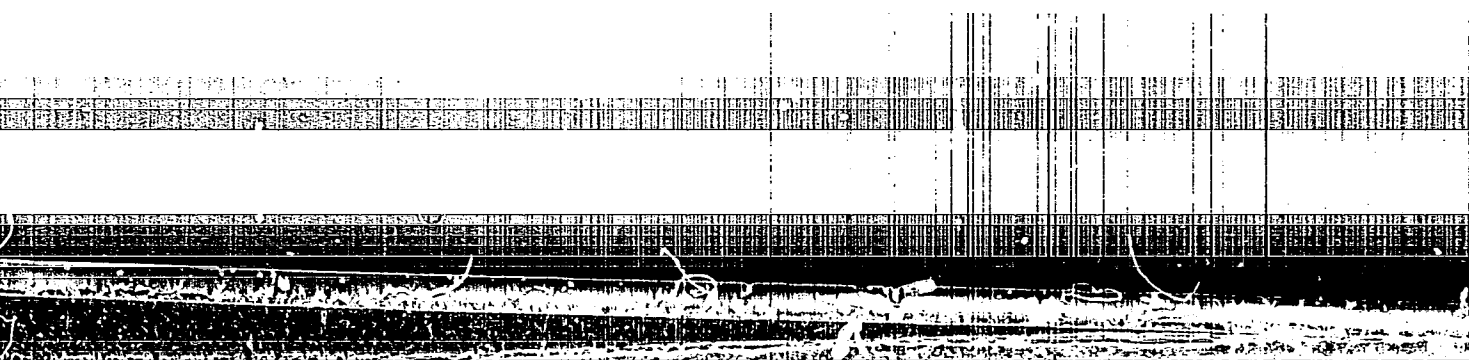
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CIA-RDP86-00513R002203020012-9



APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002203020012-9"

USSR

UDC 621.325.6



GINOVKER, A.S., GUZEV, A.A., KON'KOV, V.P., KURYSHEV, G.L., MISHIN, A.I.,  
SINITSA, S.P., TEPMAN, B.G.

"Integrated Circuit With Programmed Structure Using MIS Memory Transistors"

Radiotekhnika i elektronika, Vol XVII, No 7, July 1972, pp 1551-1552

Abstract: The integrated circuit is described of an all-purpose element filled with conventional MIS [metal-insulator-semiconductor] transistors and MIS transistors with a memory (memory transistors). The integrated circuit realizes the following logical function:

$$z(t + \delta) = \bar{v}a_i x_i \quad (i = 1, 2, 3, 4),$$

where  $x_i$  is the input logical variables;  $a_i$  is the state characterizing the  $i$ -th memory transistor;  $z$  is the output variable; and  $\delta$  is the delay. The circuit can be used for construction of a specialized array for fulfillment of logical, switching, and memory functions and also for construction of all-purpose structurally-uniform logical nets, which makes it possible for each problem to organize a specialized computing device by a programmed adjustment of its elements. 1 fig. 5 ref. Received by editors, 16 June 1971.

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USSR

SINITSIN, I. N.

"On a Generalization of the Statistical Linearization Method"

Probl. Upr. i Teorii Inform. [Problems of Control and Information Theory],  
1972, Vol 1, No 2, pp 117-121 (Translated from Referativnyy Zhurnal Kiber-  
netika, No 6, 1973, Abstract No 6V229, by the author).

Translation: A method is suggested for investigation of the accuracy of  
nonlinear systems, based on statistical linearization by means of canonical  
representations of random functions.

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USSR

SINITSIN, I. N.

"Natural Oscillations of a System with Distributed Parameters Under Random Perturbations"

Moscow, Nelineynyye i Optimal'nyye Sistemy, 1971, pp 340-344

Abstract: The influence of additive random perturbations on the parameters of the basic single-mode oscillating mode is studied using a distributed natural-oscillating system as an example. It is shown that the influence of higher oscillating modes can be replaced by the equivalent noise. The analysis showed that additive noise causes forced random oscillations of the string in a string-type generator used as an example in all modes, suppressing oscillations in the main mode without influencing frequency. With sufficiently high noise, it may cause complete suppression of natural oscillations.

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1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--USE OF AN OMEGATRON DURING A STUDY OF THE PHOTOLYSIS OF SOLID  
COMPOUNDS -U-  
AUTHOR--(04)-ZAKHAROV, YU.A., KISLIN, G.A., KLESHINA, K.X., SINITSIN, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 532-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--OMEGATRON, MASS SPECTROMETER, CHELATE COMPOUND, ELECTRIC LAMP,  
SODIUM COMPOUND, CHLORATE, NITRATE, LEAD COMPOUND/(U)RM04S LAMP  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3008/0889 STEP NO--UR/0076/70/044/002/0532/0533  
CIRC ACCESSION NO--AP0137917  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137917

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITIES OF USING AN OMEGATRON MASS SPECTROMETER FOR DETG. THE COMPN. OF ULTRASMALL AMTS. OF PHOTOLYSIS PRODUCTS, THE SPECTRAL BOUNDARY, AND THE SPECTRAL SENSITIZATION OF THE PROCESS WERE STUDIED. THE CONNECTION OF THE OMEGATRON WITH OIL PUMPS PRODUCES UNSTABLE READINGS EVEN IN THE CASE OF USING TRAPS WITH LIQ. N. MORE EXACT RESULTS ARE OBTAINED WITH A REACTION CELL AND AN RMO 4S LAMP WITH A TI SORPTION PUMP USING AN INSULATION WITH THE AID OF IN,GA PLUGS. THE OMEGATRON CAN BE USED FOR STUDYING THE COMPN. AND DECOMPN. OF PHOTOCHEM. STABLE PRODUCTS LIKE METAL CHLORATES AND NITRATES. THE PRINCIPAL PRODUCT OF NACLO SUB3 DECOMPN. IS O. THE INCREASE IN THE FLUX OF IONS WITH THE MASS NOS. OF 44 AND 28 IS DUE TO AN INCREASE IN O CONCN. AND THE BURNING OF THE CATHODE OF THE RMO 4S LAMP. THE OMEGATRON IS USEFUL FOR DETG. THE SPECTRAL BOUNDARY OF THE BEGINNING OF PHOTOCHEM. DECOMPN. THAT TAKES PLACE AT A VERY LOW RATE. THE BOUNDARY OF PHOTOACTIVE LIGHT IS DETD. FOR PBN SUB6. THE OMEGATRON CAN ALSO BE USED FOR OBTAINING INFORMATION ON THE SPECTRAL AND CHEM. SENSITIZATION OF SOLID SALTS WITH THE AID OF DYES. FACILITY: TOMSK. POLITEKH. INST. IM. KIROVA, TOMSK, USSR.

UNCLASSIFIED

UDC 665.55

USSR

ISHCHUK, YU. L., SOKOLOVA, T. G., SINITSIN, V. V., and GOSHKO, N. S.,

"The Effect of Viscosity and the Degree of Purification of a Dispersion Medium on the Properties of Complex Calcium Lubricants"

Kiev, Neftyanaya i Gazovaya Promyshlennost', No 6, Nov-Dec 70, pp 37-39

Abstract: The viscosity of dispersion medium and the extent to which heavy aromatic materials have been removed from it have practically no effect on the stability of KCa-lubricants; presence of resinous materials lowers their stability. The effective viscosity of KCa-lubricants in positive temperature range drops with increased degree of oil purity and is hardly affected by the dispersion medium. Resinous substances lower the condensing action of the complex calcium soap. Changing the viscosity of dispersion medium or its purity exhibits no effect on the compressibility of oil from KCa-lubricant. Lubricants made of highly purified oils tend to harden at high temperatures. In general the use of high purity distillation oils lowers the mechanical stability of KCa-lubricants.

1/1

- 71 -

UDC 612.432+612.543].014.45

USSR

SINITSINA, A. D., and BONDAREV, G. I., Institute of the Hygiene of Water Transport, Moscow

"Round-the Clock Combined Effect of Low-Frequency Vibration and Noise on the Function of the Hypophysis-Adrenal Cortex System"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, Jul 70, pp 42-44

Abstract: Adaptation of the organism to the action of various unfavorable factors in the environment is accompanied by a change in the state of the hypophysis-adrenal cortex system. The functional state of the adrenal cortex under the influence of the noise and vibration encountered in certain jobs was studied using 240 white rats. All-day exposure to vibrations (10-Hz, 0.02 and 0.04 mm amplitude; or 6 Hz 0.03 mm amplitude), together with a noise level of 75-80 db for 12-18 days produced a drop in the functional state of the adrenal cortex, manifested as a reduction in the corticosterone content in blood plasma. Exposure to a noise level of 75-80 db alone has a similar effect, but this effect occurs later than that under the combined action of noise and vibration. The effect of vibration alone requires further study.

1/2



USSR

SINITSINA, A. D. and BONDAREV, G. I., Gigiyena Truda i Professional'nyye  
Zabolevaniya, No 7, Jul 70, pp 42-44

On exposure to vibration at 10 Hz and 0.04 mm amplitude, together with a noise  
level of 80 db, a tendency toward reduction in ACTH production of the hypo-  
physis was observed.

2/2

Public Health, Hygiene and Sanitation

USSR

UDC 612.432+612.453].014.45

BONDAREV, G. I., Candidate of Medical Sciences, SINITSINA, A. D., and YEFIMOV, I. N.  
Scientific Research Institute of Water Transport Hygiene

"The Combined Effect of Low-Frequency Vibration and Noise on the Hypophyseal  
Adrenocortical System"

Moscow, Gigiyena i Sanitariya, No 5, 1970, pp 106-108

Abstract: The effect of vibration (10 and 20 hz) combined with noise (80 and 84 db) on the weight of the adrenals and the blood corticosterone level of rats was studied after exposure for 3 hours daily for 20 days. The weight of the adrenals remained unchanged throughout the experiment. The corticosterone level tended to increase on the 7th and 17th days of exposure to vibration and noise, whereas noise alone produced the same changes on the 17th and 21st days. But on the first day after the experiment, the corticosterone level fell sharply and on the second day it was the same as in controls. The shifts appeared earlier when higher frequency vibration was applied, i.e., the initial increase in corticosterone content began to decrease on the 12th day, and by the 20th day was significantly below the control. Injection of ACTH on the 20th day increased the secretion of corticosterone two- to three-fold. Thus, the combined action of vibration and noise lowered the blood corticosterone level and decreased the adrenocorticotropic activity of the hypophysis.

1/1

USSR

NOVIKOV, S. A., and SINITSINA, L. M., Moscow

"The Effect of Impact Pressure on the Magnitude of Critical Shear Stresses in Metals"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, Nov-Dec 70, pp 107-110

Abstract: An investigation is reported on the critical shear stress magnitude  $\sigma_*$  behind the shock wave front in aluminum at 300 and 650 kbar, in copper at 240 and 550 kbar, and in lead at 460 kbar. Theoretical and experimental data on pressure attenuation on the shock wave front due to unloading were compared. The phenomenon of pressure attenuation on the front of a shock wave produced by impact of a plate on a sample made of the same material was investigated, and it is shown that pressure on the shock front decreases in stepwise fashion. The flow behind a shock wave front was calculated by taking into account the interaction of the shock wave with the elastic unloading wave, on the basis of a known equation of state, for aluminum at 650 kbar and for lead at 460 kbar. The results are compared with experimental data. They show that the role of strength is  $1/2$ .

USSR

NOVIKOV, S. A., and SINITSINA, L. M., Zhurnal Prikladnoy Mekhaniki i  
Tekhnicheskoy Fiziki, No 6, Nov-Dec 70, pp 107-110

very important for aluminum at up to 680 kbar and for copper at up to 860 kbar.  
A comparison of the effects of pressure and temperature on critical shear  
stress shows that at an impact pressure corresponding to metal fusion the  
value  $\sigma_*$  is practically equal to zero, and thus the function  $\alpha_* = \sigma_*(\rho)$   
must have a maximum at impact pressure.

2/2

- 93 -

USSR

UDC 595.771.421/576.8.06

SAUBENOVA, O. G., SADOVNIKOVA, T. P., DUBNITSKIY, A. M., and SINTSINA, L. P.,  
Institute of Zoology, Academy of Sciences, Kazakh SSR, Alma-Ata

"Effect of Microbial Preparations on Mosquito Larvae of the Genus Culex in  
Southeastern Kazakhstan"

Leningrad, Parazitologiya, No 3, 1973, pp 227-230

Abstract: Five microbial preparations -- entobacterin, insectin, boverin, dendrobacillin, Bac. thuringiensis exotoxin -- were tested for their insecticidal effect on Culex modestus and Culex pipiens larvae in the laboratory and under field conditions (desert, semidesert, mountain). Insectin, boverin, and dendrobacillin proved to be ineffectual both in the laboratory and in the field. Entobacterin in a 1% suspension killed 79.5% of the larvae under desert and semidesert conditions, but the high cost of the preparation is disproportionate to the results obtained. And it exhibited much lower insecticidal activity in the mountains. Bac. thuringiensis exotoxin was the most effective in laboratory experiments. At a 0.1% concentration it killed 86% of the Culex pipiens larvae. Further testing of both entobacterin and exotoxin is suggested.

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- 4 -

1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--PROTEASES OF LEUKOCYTES -U-  
AUTHOR--(02)-PALMIN, V.V., SINITSINA, V.D.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. YSSH. UCHEB. ZAVED., PISHCH. TEKHNOL. 1970, (1), 29-31  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--LEUKOCYTE, FREEZING, THAWING, PROTEOLYTIC ENZYME  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/1178 STEP NO--UR/0322/70/000/001/0029/0031  
CIRC ACCESSION NO--AP0126780  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125780

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BOVINE ERYTHROCYTES WERE DESTROYED BY DECREASING THE OSMOTIC PRESSURE. LEUKOCYTES WERE WASHED AND HB REMOVED. ISOLATED LEUKOCYTES WERE DISINTEGRATED BY REPEATED FREEZING AND THAWING. WATER SOL. (PH OPTIMUM 4-5) AND NA CL SOL. (PH OPTIMUM 7-8) ENZYME FRACTIONS WERE EXT'D. AND THEIR PROTEOLYTIC ACTIVITY WAS DETD. THE ACTIVITY OF THE NA CL SOL. ENZYME WAS CONSIDERABLY HIGHER. TO CHARACTERIZE THE ENZYME THE EFFECT TO ACTIVATORS (0.04M NA SUB2 S, 0.04M NA SUB3, 0.04M NA SUB2 S, GLUTATHIONE, CYSTEINE) AND INHIBITORS (0.04M IGDACETAMIDE) WAS STUDIED. IT WAS CONCLUDED THAT THE ENZYMES CONTAIN SH GROUPS IN THE ACTIVE CENTERS. FACILITY: MOSK. TEKHNOL. INST. BYAS. MOLOCH. PRGM., MOSCOW, USSR.

UNCLASSIFIED

1/2 019  
 TITLE--IODINE IN THE WATERS OF THE ZEYA BUREYA PLAIN -U-  
 UNCLASSIFIED  
 PROCESSING DATE--18SEP70  
 AUTHOR--SINITSKAYA, G.I.  
 COUNTRY OF INFO--USSR  
 SOURCE--AGROKHIMIYA 1970, (1), 126-31  
 DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES  
 TOPIC TAGS--IODINE, CHEMICAL COMPOSITION, WATER, GEOGRAPHIC AREA, GOITER,  
 SOIL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--1989/0776

STEP NO--UR/0485/70/000/001/0126/0131

SESSION NO--AP0107318

UNCLASSIFIED



UNCLASSIFIED

PROCESSING DATE--18SEPT70

2/2 019

CIRC ACCESSION NO--AP0107318  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE SYSTEMIC SURVEY OF I CONTENT IN WATERS FROM 18 4-10 M DEEP WELLS, WATER LINES, 13 RIVERS AND PEATY-GLEY-BOGGY, MEADOW, FLOODED MEADOW, MEADOW BROWN, AND BROWN FOREST SOILS OF THE ZEYA BUREYA PLAIN SHOWED THE GENERAL LACK OF I, ESP. IN WATERS OF NORTHERN AND EASTERN PARTS OF THE PLAIN CONTG. ONLY 0.3-1.05 MU G I-L. BECAUSE OF CONSIDERABLE OCCURRENCE OF GOITER (250 FROM 1000 INHABITANTS) THE NECESSITY IS DISCUSSED OF AGROTECH., ZOOTECH., AND VETERINARY TREATMENTS DIRECTED TO INCREASE THE I CONTENT IN SOILS, FORAGE, AND AGRICULTURAL PRODUCTS OF THE ZEYA BUREYA PLAIN.

UNCLASSIFIED

USSR

UDC: 773.533.83

GARNOV, V. V. and SINITSKAYA, N. M., Institute of Physics of the Earth and  
O. Yu. Schmidt, Academy of Sciences, USSR

"A Miniature High-Speed Raster Camera on the Basis of a Standard Photographic  
Camera"

Moscow, Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematofotografii, Vol I,  
No 1, Jan-Feb 72, pp 17-21

Abstract: The article deals with screen (raster) cameras with mechanical image scanning. Note is taken of their particularities, and consideration is given of their favorable qualities and drawbacks. Proceeding from an analysis of the existing screen cameras with mechanical scanning, it is proposed that a new form of recording behind the screen lenses be employed; this permits the dimensions of the disks to be decreased by a factor of 5-10. The combination of a miniature disk with an air turbine makes it possible considerably to decrease the dimensions of the instrument and to simplify the scanning mechanism to the greatest possible extent. On the basis of this scanning mechanism, the Institute of Physics of the Earth, Academy of Sciences, USSR has constructed the miniature high-speed screen camera Moskva-R, developed on the basis of the design of the industrially produced wide-size camera "Moskva." Any other  
1/2

- 151 -

"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002203020012-9

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002203020012-9"

USSR

NOVIKOV, S. A., and SINITSINA, L. M., Moscow

"The Effect of Impact Pressure on the Magnitude of Critical Shear Stresses in Metals"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, Nov-Dec 79, pp 107-110

Abstract: An investigation is reported on the critical shear stress magnitude  $\sigma_c$  behind the shock wave front in aluminum at 300 and 650 kbar, in copper at 240 and 550 kbar, and in lead at 460 kbar. Theoretical and experimental data on pressure attenuation on the shock wave front due to unloading were compared. The phenomenon of pressure attenuation on the front of a shock wave produced by impact of a plate on a sample made of the same material was investigated, and it is shown that pressure on the shock front decreases in stepwise fashion. The flow behind a shock wave front was calculated by taking into account the interaction of the shock wave with the elastic unloading wave, on the basis of a known equation of state, for aluminum at 650 kbar and for lead at 460 kbar. The results are compared with experimental data. They show that the role of strength is 1/2

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002203020012-9

Public Health, Hygiene and Sanitation

USSR

UDC 612.433-612.4531.024.45

BOGDAREN, G. I., Candidate of Medical Sciences, ...

USSR

NOVIKOV, S. A., and SINITSINA, L. M., Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, Nov-Dec 70, pp 107-110

very important for aluminum at up to 680 kbar and for copper at up to 860 kbar. A comparison of the effects of pressure and temperature on critical shear stress shows that at an impact pressure corresponding to metal fusion the value  $\sigma_*$  is practically equal to zero, and thus the function  $\alpha_* = \sigma_*(p)$  must have a maximum at impact pressure.

2/2

- 93 -

USSR

UDC 595.771.421/576.8.06

SAUBENOVA, O. G., SADOVNIKVA, T. P., DUBNITSKIY, A. M., and SINTSINA, I. P.,  
Institute of Zoology, Academy of Sciences, Kazakh SSR, Alma-Ata

"Effect of Microbial Preparations on Mosquito Larvae of the Genus Culex in  
Southeastern Kazakhstan"

Leningrad, Parazitologiya, No 3, 1973, pp 227-230

Abstract: Five microbial preparations -- entobacterin, insectin, boverin, dendrobacillin, Bac. thuringiensis exotoxin -- were tested for their insecticidal effect on Culex modestus and Culex pipiens larvae in the laboratory and under field conditions (desert, semidesert, mountain). Insectin, boverin, and dendrobacillin proved to be ineffectual both in the laboratory and in the field. Entobacterin in a 1% suspension killed 79.5% of the larvae under desert and semidesert conditions, but the high cost of the preparation is disproportionate to the results obtained. And it exhibited much lower insecticidal activity in the mountains. Bac. thuringiensis exotoxin was the most effective in laboratory experiments. At a 0.1% concentration it killed 86% of the Culex pipiens larvae. Further testing of both entobacterin and exotoxin is suggested.

1/1

- 4 -

172 016 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--PROTEASES OF LEUKOCYTES -U-  
AUTHOR--(02)-PALMIN, V.V., SINITSINA, V.D.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. YSSH. UCHEB. ZAVED., PISHCH. TEKHNOL. 1970, (1), 29-31  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--LEUKOCYTE, FREEZING, THAWING, PROTEOLYTIC ENZYME  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/1178 STEP NO--UR/0322/70/000/001/0029/0031  
CIRC ACCESSION NO--AP0126780  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0126780

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BOVINE ERYTHROCYTES WERE DESTROYED BY DECREASING THE OSMOTIC PRESSURE. LEUKOCYTES WERE WASHED AND HB REMOVED. ISOLATED LEUKOCYTES WERE DISINTEGRATED BY REPEATED FREEZING AND THAWING. WATER SOL. (PH OPTIMUM 4-5) AND NA CL SOL. (PH OPTIMUM 7-8) ENZYME FRACTIONS WERE EXTD. AND THEIR PROTEOLYTIC ACTIVITY WAS DETD. THE ACTIVITY OF THE NA CL SOL. ENZYME WAS CONSIDERABLY HIGHER. TO CHARACTERIZE THE ENZYME THE EFFECT TO ACTIVATORS (0.04M NA SUB2 S SUB2 O SUB3, 0.04M NA SUB2 S, GLUTATHIONE, CYSTEINE) AND INHIBITORS (0.04M IODOACETAMIDE) WAS STUDIED. IT WAS CONCLUDED THAT THE ENZYMES CONTAIN SH GROUPS IN THE ACTIVE CENTERS. FACILITY: MOSK. TEKHNOL. INST. NYAS. MOLOCH. PROM., MOSCOW, USSR.

UNCLASSIFIED



1/2 '019

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--IODINE IN THE WATERS OF THE ZEYA BUREYA PLAIN -U-

AUTHOR--SINITSKAYA, G.I.

COUNTRY OF INFO--USSR

SOURCE--AGROKHIMIYA 1970, (1), 126-31

DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IODINE, CHEMICAL COMPOSITION, WATER, GEOGRAPHIC AREA, GOITER, SOIL PROPERTY

CONTROL MARKING--NO PESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0776

STEP NO--UR/0485/70/000/001/0126/0131

CIRC ACCESSION NO--AP0107318

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0107318

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SYSTEMIC SURVEY OF I CONTENT IN WATERS FROM 18 4-16 M DEEP WELLS, WATER LINES, 13 RIVERS AND PEATY-GLEY-BOGGY, MEADOW, FLOODED MEADOW, MEADOW BROWN, AND BROWN FOREST SOILS OF THE ZEYA BUREYA PLAIN SHOWED THE GENERAL LACK OF I, ESP. IN WATERS OF NORTHERN AND EASTERN PARTS OF THE PLAIN CONTG. ONLY 0.3-1.05 MU G I-L. BECAUSE OF CONSIDERABLE OCCURRENCE OF GOITER (250 FROM 1000 INHABITANTS) THE NECESSITY IS DISCUSSED OF AGROTECH., ZOOTECH., AND VETERINARY TREATMENTS DIRECTED TO INCREASE THE I CONTENT IN SOILS, FORAGE, AND AGRICULTURAL PRODUCTS OF THE ZEYA BUREYA PLAIN.

UNCLASSIFIED

USSR

UXX: 773.533.83

GARNOV, V. V. and SINITSKAYA, N. M., Institute of Physics of the Earth named O. Yu. Schmidt, Academy of Sciences, USSR

"A Miniature High-Speed Raster Camera on the Basis of a Standard Photographic Camera"

Moscow, Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematofotografii, Vol I, No 1, Jan-Feb 72, pp 17-21

Abstract: The article deals with screen (raster) cameras with mechanical image scanning. Note is taken of their particularities, and consideration is given of their favorable qualities and drawbacks. Proceeding from an analysis of the existing screen cameras with mechanical scanning, it is proposed that a new form of recording behind the screen lenses be employed; this permits the dimensions of the disks to be decreased by a factor of 5-10. The combination of a miniature disk with an air turbine makes it possible considerably to decrease the dimensions of the instrument and to simplify the scanning mechanism to the greatest possible extent. On the basis of this scanning mechanism, the Institute of Physics of the Earth, Academy of Sciences, USSR has constructed the miniature high-speed screen camera Moskva-R, developed on the basis of the design of the industrially produced wide-size camera "Moskva." Any other  
1/2

- 151 -

USSR

GARNOV, V. V. And SIMITSKAYA, N. K., Zhurnal Nauchnoy i Prikladnoy Fotografii i Kineratofotografii, Vol I, No 1, Jan-Feb 72, pp 17-21

camera with a frame size of not less than 60 x 60 mm may be used. A general view of the camera is shown in the article. Scanning with respect to time is accomplished by the rotation of a miniature air turbine, coaxially situated with the lens opening. The hub of the turbine has one opening, which moves in a circle during rotation of the turbine, and acts as an aperture diaphragm. The camera can photograph up to sixty thousand frames per second. 4 figures. 8 references.

- END -

CSO: 1861-W

2/2

USSR

UDC 669-157.96

VOSKRESENSKAYA, N. L., GRUCHEV, V. S., GUREVICH, M. YE., KRASILNIKOV, V. S.,  
LARIKOV, L. N., RYBALKINA, L. V., and SINITSKIY, N. YE., Institute of Metal  
Physics, Academy of Sciences Ukr SSR

"Physical Nature of the Processes of formation of Complex Mechanical Properties  
During the Tempering of a Hardened Alloyed Structural Steel"

Kiev, Metallofizika, No 40, 1972, pp 53-56

Abstract: Calorimetric, x-ray, volumetric, and mechanical tests were used to study the physical processes which take place in the tempering of a complexly alloyed structural steel (approximately 0.33% C, 3% Cr, 1% Mn, Ni, W, and V). The magnitudes of thermal and volume effects were determined in the tempering stages. The types of processes occurring and their effect on the formation of mechanical properties were analyzed. It was established that the optimum combination of strength and ductile properties, obtained as a result of tempering the investigated steel for an empirically selected mode, was associated with the occurrence of processes of internal stress relaxation, primarily at points of their maximum concentration. The hypothesis was made that this phenomenon is related to the development of processes of diffusion "closing" microcracks which cause brittle failure of the material. 3 figures, 6 bibliographic references.

1/1

USSR

UDC 621.317.725

TUZ, YU. M., TSIDELKO, V. D., NIKIFOROVA, G. A., SERPILIN, K. L., GAPCHENKO, L.K.,  
and SINITSKIY, O. P.

"A Digital Phase-Sensitive Voltmeter"

V sb. Tsifr. vychisl. mashiny (Digital Computing Machinery--collection of works),  
Kiev, 1972, pp 109 - 118 (from RZh Avtomatika Telemekhanika i Vychislitel'naya  
Tekhnika, No 11, Nov 73, abstract No 11 A369)

Translation: The article contains a description of a digital phase-sensitive  
voltmeter in which signals are converted in a single-channel circuit. A block  
diagram of the instrument and a description of its operation are given. The  
advantages of a phase rotator based on a single-channel circuit are noted. A  
logometric voltage-frequency converter is used in the instrument to reduce errors  
due to the effect of the base voltage. The technical characteristics of a  
model of the digital phase-sensitive voltmeter made at the Department of Measure-  
ment Technology of Kiev Polytechnical Institute are given. One illustration,  
seven bibliographic citations.

Abstract by O.M.

1/1

Extraction

USSR

USS 583,411(071.01/10)

SINITSYN, A. V., and YURIOBAYOVA, L. A., Northwestern Geological Administration

"Gold-Bearing Prospects of the Southeastern Part of the Baltic Shield"

Moscow, Razvedka i Okhrana Nedr, No 5, May 70, pp 1-4

Abstract: A schlich map of the southeastern part of the Baltic Shield shows the gold-bearing capacity of the Quarternary deposits of the region. Several zones and clusters with increased gold-bearing capacity can be distinguished. It is concluded that a vein of quartz-carbonaceous albicites which carry sulfide and auriferous mineralization exists within the borders of the Southwestern Slope of the Windy Belt.

1/1

USSR

UDC 515.2/.8

5  
MIKHAILENKO, V. E., SINITSYN, B. L.

"Construction of Shells by the Deformation Method"

Prikl. geometriya i inzh. grafika. Mezhdved. resp. nauchn. sb. (Applied Geometry and Engineering Graphics. Interdisciplinary Republican Scientific Collection), 1969, No 9, pp 77-81 (from RZh-Matematika, No 3, Mar 1970, Abstract No 3A744).

Translation: A shell consisting of the derivative of two given forms is examined. It is proposed to use topological transformation as a means for the construction of such shells. From the author's summary.

1/1



1/2 017 UNCLASSIFIED PROCESSING DATE--230CY70  
TITLE--ALGORITHM FOR SELECTING REGULATING ACTIONS IN RESTABLISHING THE  
WRK CAPACITY OF SYSTEMS -U-  
AUTHOR--(02)-ANISIMOV, P.A., SINITSYN, B.S.  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, PRIBORY I SISTEMY UPRAVLENIYA, NO 1, JANUARY 1970, P 6  
DATE PUBLISHED-----70  
SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES  
TOPIC TAGS--ALGORITHM, FACILITY PRODUCTION CAPACITY, AUTOMATIC CONTROL  
SYSTEM, PRODUCTION EFFICIENCY, PRODUCTION ENGINEERING, INDUSTRIAL  
MANAGEMENT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1999/0382 STEP NO--UR/0445/70/000/001/0006/0006  
CIRC ACCESSION NO--AP0122565  
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0122565

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS PROPOSE A METHOD FOR REGULATING AND TUNING COMPLEX SYSTEMS IN THE PRODUCTION PROCESS. THE METHOD HAS THE FOLLOWING ADVANTAGES IN CONTRAST TO EXISTING METHODS: IT MAKES IT POSSIBLE TO ISOLATE THE STATES OF A SYSTEM IN CONJUNCTION WITH WHICH THE SYSTEM CAN BE PUT INTO WORKING ORDER BY REGULATING ACTION. SOLUTIONS ASSOCIATED WITH THE STATES OF A SYSTEM AND THE POSSIBILITIES FOR ITS CONTROL ARE VALIDATED BY USING SUPPLEMENTARY STATISTICAL INFORMATION WHICH INDIRECTLY CHARACTERIZES THE PRODUCTION PROCESS. DEPENDING ON THE QUALITY AND QUANTITY OF THIS TYPE OF INFORMATION, IT IS POSSIBLE TO USE VARIOUS CRITERIA FOR OPTIMIZING THE ACCEPTED SOLUTIONS. THE PROPOSED REGULATING AND TUNING PROCESS IS MULTI STEP. THE PROPOSED METHOD ALSO HAS A GIVEN DEGREE OF FREEDOM IN SELECTING THE ORDER OF REGULATING ACTIONS INTRODUCED INTO THE SYSTEM. THE LATTER ENSURES A GIVEN UNIVERSALITY OF THE METHOD WITH RESPECT TO A CERTAIN CLASS OF SYSTEMS; THIS ALSO MAKES IT POSSIBLE TO CONSIDER THE FUNCTION PECULIARITIES AND NATURE OF REAL SYSTEMS.

UNCLASSIFIED

S

USSR

UIC: 658.564

ANISIMOV, P. A. and SINITSYN, D. S.

"Algorithm for Selecting Regulating Actions in Re-establishing the Work Capacity of Systems"

Moscow, Pribory i Sistemy Upravleniya, No 1, January 1970, p 6

Abstract: The authors propose a method for regulating and tuning complex systems in the production process. The method has the following advantages in contrast to existing methods: It makes it possible to isolate the state of a system in conjunction with which the system can be put into working order by regulating action.

Solutions associated with the states of a system and the possibilities for its control are validated by using supplementary statistical information which indirectly characterizes the production process. Depending on the quality and quantity of this type of information, it is possible to use various criteria for optimizing the accepted solutions. The proposed regulating and tuning process is multi-step. The proposed method also has a given degree of freedom in selecting the order of regulating actions introduced into the system. The latter ensures a given universality of the method with respect to a certain class of systems; this also makes it possible to consider the function peculiarities and nature of real systems.

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USSR

UDC 621.375.9

KARPUSHKO, F. V., RUBANOV, A. S., SINITSYN, G. V.

"Generation of the Internal Modes and Its Effect on the Operation of a Tunable Ruby Laser"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol XVIII, No 5, 1973, pp 813-815

Abstract: Results are presented from studies involving the observation of the kinetics and the spectrum of the internal ring modes in the ruby elements of a laser. In lasers with water cooling of the active cores the generation threshold of the internal types of oscillations is comparable to the generation threshold in the external resonator. A study was made of the effect of the generation of ring modes on the parameters of the tunable ruby laser.

The threshold pumping curves are presented for various cases. The dispersion resonator similar to the one described by F. V. Karpusko, et al. [Opticheskiye kvantovyye generatory v sovremennoy tekhnike, Part 2, Leningrad, Znaniye Press, 36, 1971] was used in the experiment. The selector had a dispersion of  $15 \text{ cm}^{-1}$  and a halfwidth of the transmission circuit of  $\sim 0.05 \text{ cm}^{-1}$ .

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USSR

UDC: 536.24:532.54

BARULIN, Yu. D., VIKHREV, Yu. V., DYADYAKIN, B. V., KOBIYAKOV, A. N.,  
KON'KOV, A., LOKSHIN, V. A., SINITSYN, I. T., Editorial Staff of Inzh.  
fiz. zh., Academy of Sciences of the Belorussian SSR

"Heat Exchange During Turbulent Flow of Water With Supercritical Parameters  
of State in Vertical and Horizontal Pipes"

Teplootdacha pri turbulentnom techenii v vertikal'nykh i gorizonta'nykh  
trubakh vody sverkhkriticheskikh parametrov sostoyaniya (cf. English above),  
Minsk, 1970, 16 pp, ill. (No 2315-70 Dep.) (from RZh-Mekhanika, No 4, Apr  
71, Abstract No 4B739 DEP)

Translation: The paper presents the results of an experimental study of  
heat transfer during rising, descending and horizontal flow of water with  
supercritical parameters of state in circular tubes. The experimental  
values of the coefficients of heat transfer were found in the following  
ranges of working parameters: pressure 225-265 bars; mass flowrates 480-  
5000 kg/cm<sup>2</sup>·s; Reynolds number  $(12.5-450) \cdot 10^3$ ; specific thermal load 0.2-  
6.5 MW/m<sup>2</sup>; flow temperature +50-500°C; wall temperature +60-750°C; inside

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BARULIN, Yu. D. et al., Teplootdacha pri turbulentnom techenii v vertikal'nykh i horizontal'nykh trubakh vody sverkhkriticheskikh parametrov sostoyaniya, Minsk, 1970 (No 2315-70 Dep.)

diameter of the tubes  $(3, 8, 20) \cdot 10^{-3}$  m; relative length up to 300. Experimental data are obtained on the effect which the direction of motion of the liquid flow has on heat exchange in the supercritical region. A study is made of the nature of the change in the coefficient of heat exchange on the initial section and around the perimeter of horizontal tubes. Bibliography of twelve titles. Authors' abstract.

USSR

UDC: 621.311.69

SINITSYN, N. I., SHEVCHIK, V. N., PESOCHINSKIY, Z. I., Scientific Research  
Institute of Mechanics and Physics Affiliated With Saratov State University

"A Supply Device for a Backward-Wave Traveling-Wave Tube"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 7, Mar 72, Author's Certificate No 329648, Division H, filed 13 Oct 70,  
published 9 Feb 72, p 220

Translation: This Author's Certificate introduces a supply device for a  
backward-wave traveling-wave tube with a decelerating system in the form of  
electrodes with openings of alternating transverse dimensions for passage  
of electrons and with periodic electrostatic focusing. The device contains  
several voltage sources. As a distinguishing feature of the patent, the  
current drain on the frequency control circuit is eliminated by connecting  
the source of voltage for electric frequency control by its positive lead to  
the cathode of the tube, and by its negative lead to the electrodes with  
larger electron-passage openings, while the source of voltage applied to  
the electrodes with smaller electron-passage openings is connected to the  
cathode by its negative lead.

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USSR

UDC 621.357.7:669.236(088.6)

BELOV, S. F., GAMOCHKINA, V. A., LAVROV, I. I., SINITSYN, N. N.

"Method of Electrochemical Deposition of Ruthenium"

USSR Author's Certificate No 316752, filed 24 Mar 70, published 22 Dec 71 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L315P)

Translation: A procedure is patented for electrochemical deposition of Ru from an electrolyte based on sulfaminol and the complex salt of ruthenium. The procedure is distinguished by the fact that in order to obtain a uniform fine crystalline film, ammonium nitrosopentachlororuthenate is introduced as the complex Ru salt, and the process takes place at 20-70°, D 0.5-10 amps/dm<sup>2</sup>. The electrolyte contains the following (in grams/liter): sulfaminol 40-50, ammonium nitrosopentachlororuthenate (on the metal) 0.5-4.

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USSR

UDC 546.719-386:542.61

BOL'SHAKOV, K. A., Corresponding Member Academy of Sciences USSR; SINITSYN, N. M., TRAVKIN, V. F., and ANTIMONOVA, L. N., Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov, Moscow

"A Study of the Interaction of Hexahalorhenates (IV) with tri-n-Butylphosphine Oxide in Extraction Processes"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 3, 1971, pp 614-617

Abstract: The extraction with  $\text{Bu}_3\text{PO}$  in  $\text{CCl}_4$  of  $[\text{ReCl}_6]^-$  and  $[\text{ReBr}_6]^-$  from 0.002 M solutions of  $(\text{NH}_4)_2[\text{ReCl}_6]$  and  $(\text{NH}_4)_2[\text{ReBr}_6]$  in HCl was studied at equal volumes of the aqueous and organic phase. The maximum degree of extraction was at an HCl concentration of 3-4 M. With increasing concentrations of  $\text{Bu}_3\text{PO}$  in  $\text{CCl}_4$  from 0.01 to 0.05 M, the coefficient  $D_{\text{Re}}$  of the distribution of Re between the organic and aqueous phase at 1 M HCl increased from 1.5 to 150. This indicated that more than 99% of the Re could be extracted in one operation.  $D_{\text{Re}}$  was higher for the Br than Cl complex. In the extraction of the Cl complex, the composition of the compound extracted was  $(\text{Bu}_3\text{PO})_3(\text{H}_2\text{O})_2[\text{ReBr}_6]$  (II) were synthesized. I and II, a light-green and yellow-brown compound, respectively, dissolved easily in polar organic solvents (alcohols,

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USSR

BOL'SHAKOV, K. A., et al, Doklady Akademii Nauk SSSR, Vol 198, No 3, 1971, pp 614-617

acetone,  $\text{HCCL}_3$ ) and less readily in non-polar solvents (benzene, hexane,  $\text{CCl}_4$ ). These compounds were stable in the air up to  $230-40^\circ$ . The molar electric conductivity of I and II in solutions of various concentrations in MeOH, EtOH, and BuOH was determined. It increased in the order  $\text{BuOH} < \text{EtOH} < \text{MeOH}$ , but there was no complete dissociation into three solvated ions even in MeOH. Solutions of I in benzene did not conduct. The electronic spectra of I and II corresponded to those of the organic phases obtained on extraction of the ammonium hexahalorhenates with  $\text{Bu}_3\text{PO} + \text{HCCL}_3$ . In the IR spectra of I and II, the absorption band of valency oscillations of  $\text{P}=\text{O}$  was displaced towards longer wavelengths vs. that for  $\text{Bu}_3\text{PO}$  because of a redistribution of electron density associated with the formation of the coordination compounds. The results obtained and data from the literature indicated that the following equilibrium is established during the extraction:  $3 \text{Bu}_3\text{PO}_{\text{org}} + (\text{NH}_4)_2/\text{Rhenal}_6/\text{aq} + 2\text{HCl}_{\text{aq}} + (x+2)\text{H}_2\text{O} \rightleftharpoons \{(\text{Bu}_3\text{PO})_3 \cdot (\text{H}_2\text{O})_2(\text{H}_2\text{O})_x \cdot / \text{Rhenal}_6/\}_{\text{org}} + 2\text{NH}_4\text{Cl}$ .

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AUTHOR--(05)-~~SINITSYN, N.M., KORPUSOV, G.V., ZAYTSEV, L.M., LEVIN, V.I.,~~  
SINITSYNA, S.M.

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DEALS WITH THE PRESENT STATE OF CHEMISTRY OF BASIC RADIOACTIVE LONG LIFE  
ELEMENTS FORMING DURING FISSION OF NUCLEAR FUEL. THE BOOK WAS WRITTEN  
FOR SCIENTISTS AND ENGINEERS WORKING IN THE FIELD OF RADIOCHEMICAL  
TECHNOLOGY. IT CAN BE RECOMMENDED ALSO AS A TEXTBOOK TO COLLEGE AND  
POST GRADUATE STUDENTS OF RADIOCHEMISTRY.

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