"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

SOROKINA, L. P., and USIKOV, M. P., Fizika Metallov i Metallovedeniye, Vol 36, No 3, 1973, pp 574-582

in the matrix and on the surfaces of the gamma-prime and gamma-phase interface 100. The latter leads to a partial loss in the coherent bonding of the gamma-prime and gamma-phase lattices. Four figures, two tables, thirteen bibliographic references.

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CSO: 1842-W

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC: 669.112.342:539.374

SUYAZOV, A. V., USIKOV, M. P., KHACHATURYAN, A. G.

"Structural Peculiarities of Low-Temperature Plastic Deformation of Martensite in High-Carbon Nickel Steel"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 5, Nov 73, pp 1033-1042.

Abstract: Electron microscope study of the Martensite of Fe-Ni-C steel, deformed at liquid-nitrogen temperature, establishes the existence of deformation twins in plains $\{112\}_M$, which are not mirror symmetry plains with an accuracy to the tetragonality of the adjacent twinning and matrix latices. Theoretical analysis of the elastic stress state arising in this case can explain the decrease in tetragonality upon deformation of the martensite. The change in the tetragonal (011)-(110) doublet of the martensite observed in earlier works results from the formation of irregular twins on the $\{112\}_M$ plains upon low-temperature plastic deformation.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

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UDC 539.374

VERETENNIKOV, S. V., KRASIKOV, K. I., NOVOBRATSKIY, R. L., PERPER, E. A., POLYAK, S. M., UMANSKIY, YA. S., USIKOV, M. P., EPSHTEYN, G. H.

"Effect of an Impact of a Part of a Matrix Under Impulse Distortion"

V sb. Vysokoskorostn. deformatsiya (High-Speed Deformation -- Collection of Works), Moscow, "Nauka", 1971, pp 108-109 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V653)

Translation: The structure and mechanical properties of nickel, nichrome (NKh7) and Kh18N10T steel after hydraulic impulse stamping with impact and without impact of the parts of the matrix were investigated. It was established that collision occurs in a closed matrix and the central zone of the part undergoes the strongest impact. The impact of a part of thickness 2 mm causes strengthening of the material in the middle of the thickness of the part and weakening in the zone of a depth up to 0.3 mm from the side of the surface of the part contacting the matrix which is connected with nonuniform plastic deformation in the impact process. The weakening effect is supported by results of studying parts of thickness 0.3 mm that have first undergone collision with the matrix. Authors abstract.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

1/2 014 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--FORMATION OF THE THETA PHASE IN THE AGING OF A HIGH RESISTANCE ALLOY BASED ON A NICKEL MANGANESE INTERMETALIC COMPOUND -U-

AUTHOR--BOKSHITSKY, I.YA., YELYUTIN, O.P., SHIRENIN, V.I., USIKOV, M.P.

COUNTRY OF INFO--USSR

SOURCE--UKRAIN. FIZ. ZHUR. JAN. 1970, 15, (1), 114-117

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ELECTRIC RESISTANCE METAL AGING, ALLOY PHASE TRANSFORMATION, INTERMETALLIC COMPOUND, IRON ALLOY, VANADIUM ALLOY, NICKEL COMPOUND, MANGANESE COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1203 STEP NO--UR/0185/70/015/001/0114/0117

CIRC ACCESSION NO--AP0107679

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

2/2 014

CIRC ACCESSION NO--AP0107679 UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF CHANGES ASSOCIATED WITH AGEING AT 350DEGREESC ON THE STURCTURE AND PROPERTIES OF THE HIGH RESISTANCE NIMN-V-FE (QUASI TERNARY) ALLOY NG45F WAS STUDIED, WITH SPECIAL REF. TO THE FORMATION OF THE THETA PHASE. THE ELECTRICAL RESISTANCE WAS MEASURED AS A FUNCTION TIME AND CORRELATED WITH THE PHASE COMPOSITION, AS REVEALED BY X RAY ANALYSIS. THE RESISTANCE REACHED A MAXIMUM AFTER 5-6 H, DEPENDING ON THE PREVIOUS HEAT TREATMENT. THE THETA PHASE HAD A STRUCTURE WITH THE CUAU I TYPE OF ORDERING.

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USSR

Converters

GRAFOV, V.P., KOLOMIYETS, V.D., TOLSTOUKHOV, A.S., USIKOV, V.A.

UDC 621.314.14

"On The Principles Of Construction Of A Static Converter Using Semiconductor Devices"

Vestn. Kiyev. politekhn. in-ta. Ser. radioelektron. (Bulletin Of The Kiev Polytechnical Institute. Radioelectronics Series), 1970, No 7, pp 106-108 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B460)

Translation: The main possibilities are considered for construction of the circuits of autonomous inverters, which include a device for regulation of current or voltage, filters, systems for protection, monitoring, etc. Various combinations are compared of electronic and electromagnetic elements in different functional units of the circuit. At present the most common is the synthesized electronic and electromagnetic construction of static transistorized converters. 1 table. I.A.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

USIKOV, V. A.

UDC 621.314.61

"High-Voltage Regulated Source of Controlled D-C Voltage"

Vestn. Kiyevsk. politekhn. in-ta. Ser. Radioelektron. (Bulletin of the Kiev Polytechnical Institute. Radioelectronics Series), 1969, No 6, pp 73-76 (from RZh--Elektronika i yeye primeneniye, No 5, May 70, Abstract No 5B605)

Translation: Possible versions of the structure of high-voltage controlled rectifiers are surveyed. A version is considered with thyristors on the primary side, a system of control for the thyristors, and a feedback section for regulation with an intermediate voltage converter. 4 ill. 3 ref. Summary.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC 669.01:539.4.015

NIZHNIK, S. B., PELEPELIN, V. M., USIKOVA, G. I., and CHERNYAK, N. I., Kiev

"Mechanical Properties and Structure of Stainless Martensite-Containing Steel in the Hardened State"

Kiev, Problemy Prochnosti, No 12, Dec 70, pp 41-44

Abstract: The modes for hardening of types Kh16N6 and Kh16N5D3 steel leading to an increase in the resistance to plastic deformation in extension and compression are determined on the basis of a combination of processes of preliminary deformation and aging. The hardened state of Kh16N6 steel is characterized by formation of a more highly stressed submicrostructure of the martensite and coherently bonded segregations (in comparison with the tempered state). Kh16N5D3 steel is characterized by a decrease in the number of defects in the martensite and segregation of incoherent particles of the hardening phase.

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USSR

USIPBAYEV, S., KARPYKOV, S. S., and SADVAKASOVA, K. A.

"Mathematical Model of Evaluation of Control of Transport Flow in System with Unreliable Channels"

Alma-Ata, Vestnik Akad. Nauk Kaz SSR, No 9, Sep 70, pp 60-63

Abstract: Statistical processing of data on the mine pit-transport-dump system for the Sarbayskiy open pit mine has shown that the volume of arrival of units in the system is well described by a Poisson distribution, while the servicing time required follows an exponential distribution. Consequently, the principal criteria can be defined using formulas from the theory of operations research, taking into consideration the random nature of change of the parameters of the system. The criteria of the system were calculated using a Minsk-22 computer. A nomogram was constructed on the basis of the results to determine the idle time of excavator units and trains, depending on the effectiveness factor. In order to eliminate some of the idealization, the Monte-Carlo method was used for further calculation. A flow chart is presented for an algorithm allowing determination of the optimal quantity and form of information required for realization of an automatic control system considering economic criteria corresponding to the level of control of the system used.

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Automatic Control: Instruments

USSR

UDC: 681.325.65

PRANGISHVILI, I. V., POPOVA, G. M., USKACH, M. A., FETISOVA, S. V., MOSKOV, B. A., RUDERMAN, L. Z., KOPEYKIN, G. A., Institute of Automation and Remote Control (Technical Cybernetics)

"An Element of Homogeneous Structure"

USSR Author's Certificate No 287115, filed 11 Mar 69, published 18 Feb 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B169 P)

Translation: Elements are known which can be used as cells of homogeneous structure in addition to other applications. A multifunctional element used as a cell of homogeneous structure has the disadvantage that only the outputs are commutated in such an element, and the logic inputs are not commutated. This limits its functional possibilities: e. g., the cell cannot be used for high-speed homogeneous structures with feed-through current lines through which signals propagate with practically no delay (bus structures). For coupling to the lines, the cells must have commutatable inputs and outputs: i. e., they must receive signals from the line and transfer signals to the line. In addition, in the case of external interference the information must be periodically transferred to the cell flip-flops to correct

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USSR

PRANGISHVILI, I. V. et al., Soviet Patent No 287115

failures which may occur. In a multifunctional logic circuit in the multiple-transfer mode, all flip-flops are preset to the zero state each time, regardless of the presence of failures. This interrupts the function being realized by the structure each time, which is a considerable disadvantage of the logic circuit. The purpose of this invention is to extend the functional possibilities and increase the speed of the homogeneous structure. In the proposed element, this purpose is achieved by redistributing the control circuit between the inputs and outputs of the element without increasing the total number of components; i. e., some of the inputs and outputs are made commutatable, and some are not. Only the commutatable inputs and outputs are used in connecting the element to the lines. In connecting the elements to one another, the noncommutatable inputs of one element are connected to the commutatable inputs of the other, and vice versa. Thus between any elements of the structure (between adjacent cells or between the cells and the lines) a controllable data transmission channel is formed which may be switched on or off depending on the debugging code. The circuit for setting and resetting the flip-flops is made in such a way that when information is being transferred, the flip-flops are set immediately to a predetermined state without presetting to the zero state in order to correct failures. This procedure makes it possible to use a logic cell in high-

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

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PRANGISHVILI, I. V. et al., Soviet Patent No 287115

-speed bus structures, as well as to improve the interference suppression of the structure by means of multiple transfer. One illustration.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USKACH, M.A.

MATHEMATICS

GLORIA

10: JPRS 55352
6 MAR 1972

PART III

PRINCIPLES OF CONSTRUCTING COMPUTERS AND METHODS OF ORGANIZING COMPUTATION PROCESSES IN HOMOGENEOUS MICROELECTRONIC STRUCTURES

(Article by L. G. Prangishvili, Ye. V. Babicheva, G. M. Popova, M. A. Uskach; Moscow, V Vsesoyuznoye Soveshchaniye po Problemam Upravleniya, Moscow, 1971, Referaty Doklados, Russian, Part III, 1971, pp 109-112)

One of the prospective means of constructing fourth generation digital computers is construction of them on the basis of homogeneous structures made of large integrated circuits. The methods of organizing the computation processes based on group data processing are used here: the associative principle of retrieval and calculation, schematic simulation of the algorithms, flow or conveyor data processing methods and the principles of pictorial logic. In the case of schematic simulation of the algorithms in homogeneous structures, each operator corresponds to the circuit executing it. The number of arithmetic operator circuits required for the specific algorithm is organized in the homogeneous structures instead of the arithmetic module, and local memory files are placed in direct proximity to the operator circuits instead of a common memory. Analogously, each control operator corresponds to a local control circuit servicing the arithmetic unit and the memory module.

Organization of two types of operative memories is possible in homogeneous structures: static and dynamic memories. From the point of view of equipment expenditures (number of cells) preference must be given to the dynamic memory. The ready-access memory of the dynamic type (with ordered and address access) is organized from the cells of the homogeneous structures placed in a ring and set to execute the delay function. In a ready-access memory with ordered access, replacement of the register information is carried out after completion of the operation on the contents of the end register P_1 under the effect of the control signal. The information is copied from register P_2 into register P_1, from P_3 into P_2, and so on. As the control signal moves along the synchronous channel (the chain of cells set for the synchronous delay function), the information is copied from the preceding register into the following one. [illegible] the access is nondestructive, the contents of register P_1 are copied over the synchronous channel into the last register P_m. In a ready-access memory with random access, coincidence of two control signals in time is used for writing and reading. The address in this ready-access

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Heat, Combustion, Detonation

USSR

USKENBAYEV, S., Engineer, Leningrad Technological Institute of the Refrigeration Industry

UDC 536.242

"Study of the Heat Transfer Process to Cryogenic Liquids Under Natural Convection Conditions in the Presence of Supercritical Pressures"

Minsk, Izvestiya vysshikh uchebnykh zavedeniy -- Energetika, No 5, 1972, pp 143-147

Abstract: The schematic and a brief description of an experimental device for studying the heat transfer coefficient to cryogenic liquids at supercritical pressures are presented. Tables and curves are given which characterize the heat transfer coefficient as a function of the basic parameters of the investigated gases (nitrogen and argon). With an increase in the nitrogen temperature, the heat transfer coefficient first increases, reaching a maximum at a temperature of T_m corresponding to the maximum c_p for the given pressure and then it decreases. With an increase in the pressure, the maximum α become less expressed and shift toward higher temperatures. The temperatures corresponding to the maximum α for the reduced pressures P/P_{cr} = 1.175, 1.47, 1.75 respectively are equal to T_m = 129, 134, 140° K. The values of α also pass through a maximum

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USKENBAYEV, S., Izvestiya vysshikh uchebnykh zavedeniy -- Energetika, No 5, 1972, pp 143-147

with variation of the argon temperature. The maximum α decrease with an increase in P/P_{cr} and shift toward higher temperatures. The maximum α also correspond to the T_m temperatures. The argon experiments also show that α_{max} decreases with an increase in q for $P/P_{cr} < 1.4$; for $P/P_{cr} > 1.4$, α_{max} increases with an increase in q.

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1/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--TEMPERATURE COMPOSITION PHASE DIAGRAM OF A SODIUM TELLURIDE TELLURIUM SYSTEM -U-

AUTHOR--FINOGENOVA, V.K., USKOV, A.A., POPOVKIN, B.A., NOVOSELOVA, A.V.

COUNTRY OF INFO--USSR

SOURCE--VESTN. MOSK. UNIV., KHIM. 1970, 11(1), 56-8

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--THERMAL EFFECT, PHASE DIAGRAM, SODIUM COMPOUND, TELLURIUM, X RAY ANALYSIS, EUTECTIC MIXTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0613

STEP NO--UR/0189/70/011/001/0056/0058

CIRC ACCESSION NO--AP0107210

UNCLASSIFIED

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CIRC ACCESSION NO--AP0107210 UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE NA SUB2 TE AND TE SYSTEM WAS STUDIED BY THERMAL AND X RAY PHASE ANAL. METHODS AND THE PHASE DIAGRAM WAS DETD. IN ADDN. TO NA SUB2 TE, 2 OTHER COMPDS. ARE FORMED IN THE SYSTEM: NATE SUB3 M. CONGRUENTLY AT 455 PLUS OR MINUS 5DEGREES. THE EUTECTIC BETWEEN M. INCONGRUENTLY AT 360 PLUS OR MINUS 5DEGREES AND NATE THE COMPDS. IS AT 40 MOLE PERCENT NA SUB2 TE AND 320.5DEGREES. NATE SUBE FORMS A EUTECTIC WITH TE AT SIMILAR TO 9PERCENT NA SUB3 TE 405 PLUS OR MINUS 5DEGREES. THE M.P. FOR NA SUB2 TE WAS FOUND TO BE 1035 PLUS OR MINUS 5DEGREES. THE X RAY PHASE ANAL. IS IN COMPLETE AGREEMENT WITH THE DATA FROM THE THERMAL ANAL.

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USSR

SHACHNEV, V. I., USKOV, A. G., SHUTIKOV, V. G.

UDC 621.315.592.3:669.782-416

"Thermodynamics of the process of Growing Autoepitaxial Layers of Silicon Alloyed with Phosphorus in the Chloride Process"

Elektron. tekhnika. Nauchno-tekhn. sb. Materialy (Electronic Engineering. Scientific and Technical Collection. Materials), 1970, vyp. 5, pp 137-138 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G487)

Translation: A thermodynamic analysis of the PCl_3(gas)-$SiCl_4$(gas)-H_2(gas) system is performed for standard conditions of the process of growing autoepitaxial layers of Si with n-type conductivity (the ratio of the reagents in the initial mixture is $SiCl_4$(gas): H_2(gas) = 1 : 500 and PCl_3(gas) : $SiCl_4$(gas) = 10^3-10^8. The yields of Si(μ_{Si}) and (μ_P) in the 800-1,600° K range are calculated by joint solution of the system of equations relating the calculated equilibrium constants of the reaction of reduction of $SiCl_4$(gas) and PC_3 (gas) by hydrogen. For the indicated composition of the initial gas mixture, μ_{si} and μ_p reach one at 1,200°K and 800°K.

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USSR

SHACHNEV, V. I., AFANAS'YEVICH, V. F., USKOV, A. G., SHUTIKOV, V. P.

UDC 621.315.592:669.782-416

"Thermodynamics of the Process of Obtaining Autoepitaxial Layers of Silicon by Pyrolysis of Silane"

Elektron. tekhnika. Nauchno-tekhn. sb. Materialy (Electronic Engineering. Scientific and Technical Collection. Materials), 1970, vyp. 5, p 139 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G486)

Translation: The equilibrium constants of the decomposition reactions of monosilane and hydrides of the alloying elements of the third and fifth groups (diborane, phosphine, and arsine) are calculated. For the standard conditions of the process of epitaxial growth of Si (the ratio in the initial gas mixture $SiH(gas):H_2(gas) = 1 : 10^3$ and $EH_3(B_2H_6(gas) : SiH_4(gas) = 10^3-10^5$), the relative transition coefficients of the alloying admixtures are calculated ($\eta_e = \mu_e/\mu_{Si}$, where μ_e and μ_{Si} are the yields of the alloying element and Si) in the temperature range of 800-1,600° K. For all the investigated alloying elements (B, P, and As) the relative transition coefficient is constant and equal to one under the indicated conditions.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

SHACHNEV, V. I., USKOV, A. G.

UDC 621.315.592.3:669.782-416

"Thermodynamics of the Chloride Process of Growing Autoepitaxial Layers of Silicon Alloyed with Boron"

Elektron. tekhnika. Nauchno-tekhn. sb. Materialy (Electronic Engineering. Scientific and Technical Collection. Materials), 1970, vyp. 5, p 138 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G488)

Translation: A thermodynamic calculation of the relative transition coefficient B defined as $\eta_B = \mu_B/\mu_{Si}$ is performed where μ_B and μ_{Si} are the B and Si yields from BCl_3(gas) and $SiCl_4$(gas), respectively. The process conditions of growing autoepitaxial layers of Si are the following: the ratios in the initial mixture $SiCl_4$(gas): H_2(gas) = 1 : 500 and BBr_3(gas) (BCl_3(gas): $SiCl_4$(gas) = 10^3-10^8, temperature range 800-1,600° K. It is demonstrated that in alloyed $SiCl_4$(liquid), the initial BBr_3(liquid) is entirely converted to BCl_3(liquid), and BCl_3(gas) is found in the vapor phase. With an increase in the BCl_3(gas)/$SiCl_4$(gas) ratio in the initial gas mixture and an increase in

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USSR

SHACHNEV, V. I., et al., Elektron. tekhnika. Nauchno-tekhn. sb. Materialy, 1970, vyp. 5, p 138

temperature, the relative transition coefficient B increases by several orders, approaching one. As a result of the strongly expressed dependence of η_B on temperature to obtain autoepitaxial layers of Si which are homogeneous with respect to specific resistance, exact control of the composition of the initial gas mixture and also keeping the temperature constant in the reaction zone are required.

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Semiconductor Technology

USSR UDC 621.315.592.3:669..
782-416

SHACHNEV, V. I., USKOV, A. G.

"Thermodynamic Analysis of the Process of Obtaining Autoepitaxial Layers of Silicon with Gas Alloying"

Elektron. tekhnika. Nauchno-tekhn. sb. Materialy (Electronic Engineering. Scientific and Technical Collection. Materials), 1970, vyp. 5, pp 138-139 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G490)

Translation: A thermodynamic analysis of systems including hydrogen, Si tetrachloride, and the hydride of the alloying element (diborane, phosphine, or arsine) is performed. The magnitudes and nature of variation of the relative transition coefficients of the alloying elements as a result of complete decomposition of the hydrides and a significant excess of HCl fully coincide with the analogous characteristics of the transition coefficient in the case of alloying these elements with halides. For phosphine and arsine the relative transition coefficients of P and As at 1,200° and higher are equal to one, and they do not depend on the composition of the initial mixture. The relative transition coefficient B increases significantly with an increase in the diborane content in the initial mixture, approaching one. Gas alloying

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

SCHACHEV, V. I., et al., Elektron. tekhnika. Nauchno-tekhn. sb. Materialy, 1970, vyp. 5, pp 138-139

with hydrides insures better homogeneity of the specific resistance by comparison with alloying with halides.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC 8.74

USKOV, A. YA.

"Cycling Sequential Switching Devices and Conversion of Their Operating Cycle Time"

V sb. Avtomaty i upr. (Automata and Control--collection of works), Moscow, Nauka, 1972, pp 59-76 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V421)

Translation: It is demonstrated that the transfer and output tables of internal and external cyclicity are the formalized language for representing the operating conditions of the same model of a sequential switching device. The interrelation between two of these types of transfer tables is established, and algorithms are presented for their forward and inverse conversion.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC: 681.3.06:51

USKOV, A. V.

"Operational System for a Standard Class Computer"

Tr. 3 Zimn. shkoly po mat. programmir. i smezhn. vopr., 1970, vyp. 3 (Works of the Third Winter School on Mathematical Programming and Related Problems, 1970, No 3), Moscow, 1970, pp 605-640 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V838)

Translation: An operational system is described for a standard class computer. The problems considered in the greatest detail are those connected with the development of programs for operation with an external communications channel (telegraph or telephone), programs for convenience of work at the panel, programs for input from punched cards and punched tapes, programs for organizing exchanges with external devices as applied to the "Razdan-3" computer. Some controversial decisions in development of the system are discussed. V. Mikheyev.

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USKOV, F.N.

53. USSR 6314975 Psychology

SO: FOREIGN PRESS DIGEST 30 JUL 71

PSYCHOLOGY

MYASNIKOV, V. I. and USKOV, F. N.

"A System for Analyzing Human Dreaming Activity in Long Term Medical-Biological Experiments"

Moscow, Voprosy Psikhologii, No 2, Mar-Apr 71, pp 135-136

Abstract: Existing analyses of dream behavior have all been focused on single occurrences, either individual dreams or individual nights of sleep. Where subjects are available for a longer time, additional information can be gained by correlating EEG data with other indicators of night time activities (movements, respiration, pulse, etc.) and with verbal reports of dream activity. This information is further correlated with measurements of the duration of REM sleep, distinguished into categories on the basis of the duration of REM intervals and the duration of the period between such intervals.

The information collected can be used to measure the degree of correlation between the subjects' recall of dreams and the external indication of dreams; variations in the degree of such correlation may provide useful supplementary information about the patient's mental or physical condition.

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USKOV, F.N.

Psychology

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC 629.78.015.077.4

MEL'TS, I. O. and USKOV, G. V.

"Gradient Method of Guidance Correction For Solving a Boundary Problem"

Uch. Zap. Tsentr. Aerogidrodinam. In-ta (Scientific Writings of the Central Aerohydrodynamics Institute), Vol 3, No 2, 1972, pp 77-85 (from Referativnyy Zhurnal--Raketostroyeniye, No 8, 1972, Abstract No 8.41.84)

Abstract: The gradient method of plotting the correction of guidance functions and parameters is examined which, in the linear approximation, provides a specified change in the boundary conditions vector at the right end of the trajectory. A comparison of the results of a number of works on direct methods of optimization is conducted in which this problem is examined. Plotting of guidance function corrections in the class of piecewise-constant functions was examined. Results of calculations for the problem on guidance by angle of attack, providing the design of aircraft at a given point, are presented as an illustration. Author's view, 6 figures, 9 bibliographical references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

Acc. Nr: AP0102300 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code: UR0441

111987h Spatial structure formation and thermomechanical characteristics of polymer homologs. Nizhnik, A. S.; Maksimova, Ch. A.; Uskov, I. A.; Pochinok, V. Ya.; Borodkina, M. S. (Kiiv. Derzh. Univ., Kiev, USSR). *Dopov. Akad. Nauk Ukr. RSR, Ser. A* 1970, 32(1), 54-6 (Ukrain). Thermomech. and rheol. properties of typical amorphous polymer homologs of Bu methacrylate were investigated. A forced flow point (a conditional characteristic of the polymer) and a true flow point (a phys. const. of the polymer) were distinguished. O. Elsner

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

Acc. Nr. AP0040012 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UR 0096

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68589r Heat transfer in rotating, closed, cylindrical channels filled with sodium. Uskov, I. B.; Tseitlin, L. M. (Tsent. Kotloturbin. Inst., Leningrad, USSR). *Teploenergetika* 1970, 17(1), 56-8 (Russ). An exptl. study was carried out on the heat transfer in a rotating, closed, straight, cylindrical channel filled with liq. Na. The channels were made of 4.1 and 10-mm inside-diam. steel tubes. The max. heat flux in the tubes was 10^7 and 10^6 kJ/m^2 hr, resp. The heat-transfer coeffs. were calcd. from the exptl. data. The data on the local heat-transfer coeff. were correlated by the equation $Nu = 14.1\,[Gr\,Pr/(1 + Pr)]^{-1.31} f^{0.23} (d/l)^{1.43}$, where Nu, Pr, and Gr are the Nusselt, Prandtl, and Grashof nos., resp., f an adjustable parameter accounting for the rotational overload, d and l the diam. and length of the channel.

M. Shelef

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--LIQUID PHASE CATALYTIC OXIDATION OF P XYLENE IN MIXTURES WITH CUMENE -U-

AUTHOR-(03)-ARIKO, N.G., MITSKEVICH, N.I., USKOV, I.I.

CL

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK BELORUSS. SSR 1970, 14(2), 141-3

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYTIC OXIDATION, XYLENE, CUMENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1122 STEP NO--UR/0250/70/014/002/0141/0143

CIRC ACCESSION NO--AT0119976

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

2/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0119976

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SIX SUBJECT MIXTS. CONTG. 0-100PERCENT P XYLENE AND 2.1 MILLIMOLE PER L. CO STEARATE WERE TREATED AT 120DEGREES PER 1 ATM WITH O 2.5 HR. MAX. O ABSORPTION OCCURRED AT 80 WT. PERCENT XYLENE, AND MAX. CO SUB2 FORMATION AT 50PERCENT. INDUCTION TIMES FOR PURE XYLENE AND CUMENE WERE 37 AND 1.5 MIN, RESP.; THE MIXTS. WERE INTERMEDIATE. WT. PERCENT THEORETICAL YIELD OF P TOLUIC ACID RANGED FROM 86PERCENT FOR 90-100PERCENT XYLENE TO 44PERCENT FOR 20PERCENT XYLENE. THEREFORE, THE CUMENE CONTENT SHOULD NOT EXCEED 10PERCENT FOR HIGH SELECTIVITY IN OXION. TO THE ACID. FACILITY: INST. FIZ.-ORG. KHIM., MINSK, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR UDC 534.61

USKOV, I.Ye., Technical Television Center 50th October Anniversary

"On Measuring the Levels and the Dynamic Range of a Sound Signal"

Moscow, Tekhnika Kino i Televideniya, No 7, Jul 72, pp 44-48

Abstract: A comparison was made of measuring results of sound signal levels of two pulse trains from different indicator types, one of quasi-peak (pulse-meter) and the other of mean values (vu-meter). The quasi-peak level indicators were found highly to overstate the mean readings in comparison with averaged effective values of a signal with a high peak factor. As its readings are independent from the signal frequency, they do not reflect actual sending levels according to power and loudness. The indicators of mean values are unsuitable for recording peak surcharges, but they reflect better power and loudness levels. The Acoustic Laboratory of the Moscow Television Center has developed a two-channel indicator which registers peak levels like the pulse-meter and better records the transmission loudness. Depending on the quasi-peak value of the transmission level, this indicator is switched on either to the loud (by 0--80%, or - to -2db levels), or the peak (by 80--160%, or -2 to -4db) channels. The characteristics of this indicator and its diagram are shown. Two illustr., five biblio. refs.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC 681.322.06(075.8)

RYAZANKIN, V. N., KRIUSHIN, V. N., KAPLINSKIY, V. V., USKOV, N. F., YEVSTIGNEYEV, G. P.

Vychislitel'nyye mashiny i programmirovaniye (Computers and Programming), Moscow, Statistika Press, 1969, 344 pp (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 3, Mar 70, Abstract No 3B14K)

Translation: The textbook Vychislitel'nyye Mashiny i Programmirovaniye (Computers and Programming) is intended for students of the economic institutions of higher learning and departments. The division on "Basic Information about Digital Computers" contains basic information about data conversion and digital computers, the arithmetic and logical principles of digital computers, the structures of computers and basic circuits making up a digital computer. In the section on "Keyboard Computers with Manual Data Input" summing computers and tabulators -- invoice and bookkeeping machines -- are investigated. In the section on "Punchcard Computers with Automatic Data Input" the general characteristic of punchcard computers is presented; and keypunches and verifies with manual selection of the initial data, automatic keypunches, sorting machines and stackers and tabulators are described. In the sec-
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RYAZANKIN, V. N., et al., Vychislitel'nyye mashiny i programmirovaniye (Computers and Programming), Moscow, Statistika Press, 1969, 344 pp (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 3, Mar 70, Abstract No 3B14K)

tion on "Digital Computers" the general characteristics of digital computers and a description and operation of the EV80-3M are given. Digital computers with an automatic computation program of the Ural-11B and Minsk 22 type are described. The section on "Programming for Digital Computers and Algorithmic Languages" contains an investigation of programming elements for digital computers, the peculiarities of programming economic problems, and algorithmic languages as a modern means of programming automation.

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USSR

UDC 616.993.162-022.39-084.47-036.8

SERGIYEV, P. G., BEYSLEKHEM, R. I., MOSHKOVSKIY, Sh. D., DEMINA, N. A., KELLINA, O. I., SHUYKINA, E. Ye., SERGIYEV, V. P., DUKHANINA, N. N., TRIYERS, I. I., SHCHERBAKOV, V. A., YARMUKHAMEDOV, M. A., USKOV, N. Ye., LOSIKOV, I. N., and NEDOSPELOVA, Ye. I., Institute of Medical Parasitology and Tropical Medicine imeni Ye I. Martsinovskiy, Ministry of Health USSR, Moscow

"Results of Mass Vaccinations against Zoonotic Cutaneous Leishmaniasis"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 5, Sep/Oct 70, pp 541-551

Abstract: Preventive mass vaccinations with a virulent strain of Leishmania tropica major were found to give reliable protection against cutaneous leishmaniasis. Only virulent strains can be used for vaccination. The degree of inoculation with such strains is almost 100%, the inoculative process having, as a rule, a favorable effect. The maximum size of the vaccination lesion does not exceed 2 cm in diameter in 3/4 of the subjects vaccinated. In practically all cases, the process does not last more than 5-6 months. Morbidity occurred in the group vaccinated with the low-virulence strain, among those without lesions, and among those whose lesions were less than 0.5 cm in diameter.

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USSR

SERGIYEV, P. G., et al., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 5, Sep/Oct 70, pp 541-551

Secondary pyococcal infections represented the only complications observed; allergic exanthem was noted occassionally. In order to prevent local and general allergic reactions after vaccination, it is necessary to exclude persons who have had cutaneous leishmaniasis. If past disease cannot be revealed by means of anamnesis or medical examination, the intracutaneous leishmanin test is recommended. The level of the virulence in inoculative strains should be periodically tested, since insignificant initial virulence or its weakening during culturing make a given strain unfit for preparation of inoculum.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

1/2 034 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--DIFFUSION OF ANTIMONY, PHOSPHORUS, AND BORON INTO SILICON FOR DIFFERENT SURFACE CONCENTRATIONS OF THE DIFFUSANT -U-

AUTHOR-(04)-USKOV, V.A., PAVLOV, P.V., KURILCHIK, E.V., PASHKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1504-10

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--SEMICONDUCTOR MATERIAL, BORON, ANTIMONY, PHOSPHORUS, SILICON, PHYSICAL DIFFUSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0159 STEP NO--UR/0181/70/012/005/1504/1510

CIRC ACCESSION NO--AP0129415

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

2/2 034 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129415

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIFFUSION OF SB, P, AND B IN SI WAS STUDIED AND THE RESULTS COMPARED WITH THEORY. LIMITS ARE ESTABLISHED FOR APPLICABILITY OF THE AV. FIELD METHOD IN THE CASE OF IMPURITY DIFFUSION INTO A SEMICONDUCTOR. FACILITY: GOR'K. GOS, UNIV. IM. LOBACHEVSKOGO, GORKI, USSR.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC 669.295

MOROZ, L. S., and USHKOV, S. S.

"Special Features of the Disintegration of Alpha-Alloys of Titanium at High Temperatures"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 6, Jun 70, pp 1242-1247

Abstract: Data are presented on the anomalous reduction of ductility in a number of titanium alpha-alloys at temperatures above 500°C but below the temperature of polymorphic transformation. It is shown that the cause of embrittlement is the intergrain disintegration which begins at the early stages of deformation and leads to a sharp reduction in the specific ductility of high-alloy alloys. The intergrain disintegration in titanium alpha-alloys actively takes place during static tests and increased rates of deformation and is absent during creep at very low stresses. It is assumed that the viscous slip at the grain boundaries is not always necessary for intergrain disintegration, since the area of disintegration in metals and alloys, as well as in titanium alloys, can appear on the grain boundaries during static tests and at increased deformation rates.

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USSR

UDC: 621.43.011:533+621.5:533

D'YAKONOV, Yu. N., USKOV, V. I.

"Calculation of Supersonic Jets of Ideal Gas by the Net-Point Method"

Nauch. tr. In-t mekh. Mosk. un-ta (Scientific Works of the Institute of Mechanics, Moscow University), 1970, No 5, pp 73-87 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B404)

Translation: The procedure and results are presented for calculation of supersonic jets of ideal gas by the net-point method over a wide range of variation in parameters: $M_\infty = 0-10$; pressure drop at the nozzle tip $n = p_a/p_\infty = 10^3-10^7$; $M_a = 3-5$; the angle between the generatrix and the axis of symmetry $\phi_a = 0-20°$; ratio of specific heats of the inner $\kappa_a = 1.3-1.5$ and outer flows $\kappa_\infty = 1.4$. In calculating escape of a jet into a submerged space, no consideration was given to development of a central shock, and flow beyond the triple point was not considered. In calculating a jet with regard to the wake, the contact surface passing through the triple point was replaced by a line parallel to the axis of symmetry, and impermeability to flow was taken as the boundary condition on this line.

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D'YAKONOV, Yu. N., USKOV, V. I., Nauch. tr. In-t mekh. Mosk. un-t, 1970, No 5, pp 73-87

A difference equation was used in the calculations, and the sweep method was applied in the bidirectional modification. The peculiarities of application of the method to the problem of jets are considered. The results of calculation of leakage of a jet into a submerged space are presented. The velocity and pressure fields are given for predetermined ranges of variation of parameters. The results of calculation of the interaction between a jet and an external flow are outlined. It is shown how the Mach number M_∞ and the pressure drop affect the shape of the jet boundary, the head, trailing and reflected shock wave. Consideration is given to the case of calculation of a jet boundary when the angle of inclination of the jet at large differentials may become greater than the limiting angle, and the usual computational scheme is not realized. The results of calculation of a detached flow are presented. Yu. F. Dityakin.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC: 533.6.011

GINZBURG, I. P., RUDOV, Yu. M., USKOV, V. N.

"Investigation of Gas Flow in Isolated and Composite Jets Interacting With an Obstacle"

Tr. II Resp. konf. po aerogidromekh., teploobmenu i massoobmenu. Sekts. "Aerodinamika bol'sh. skorostey" (Works of the Second Republic Conference on Aerohydromechanics, Heat Exchange and Mass Exchange. "High-Velocity Aerodynamics" section), Kiev, Kiev University, 1971, pp 150-153 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B320)

Translation: Qualitative pictures of the interaction between supersonic jets and a flat barrier are constructed on the basis of the results of experimental research with cold air jets in the range of Mach numbers $M_a = 1.0-3.5$ and roughness factors $n = 1-30$. An investigation is made of the pattern of interaction between an isolated jet and a barrier as a function of the angle between the barrier and the axis of the jet, which was varied from 0° to 90°. Particular attention is given to the properties of viscous flow in the zone of detachment of the boundary layer on the barrier. The shock-wave structure is also plotted for the flow when a four-nozzle jet

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GINZBURG, I. P. et al., Tr. II Resp. konf. po aerogidromekh., teploobmenu i massoobmenu. Sekts. "Aerodinamika bol'sh. skorostey", Kiev, Kiev University, 1971, pp 150-153

is incident on a barrier normal to the axis of the jet with gasdynamic and geometric parameters of the nozzle assembly and barrier such that jet interaction takes place on the axis of the set-up close to the bottom screen. It is found that under certain conditions maximum pressure on the barrier is reached on the periphery rather than on the jet stagnation point (for both isolated and composite jets), which leads to the development of circulation flow in the central part of the barrier. M. G. Lebedev.

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Aeronautical and Space

USSR

SEMILETENKO, B. G., SOBKOLOV, B. N., USKOV, V. N.

"Interpretation of the Shock-Wave Processes Which Accompany Unstable Interaction Between a Jet and an Obstacle"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Tekhnicheskikh Nauk, No 13(208), Issue 3, Oct 72, pp 39-41

Abstract: When a supersonic jet strikes a flat obstacle with dimensions much greater than the maximum diameter of the jet, there is an abrupt drop in the frequency of pressure oscillations and an increase in their amplitude when the jet nozzle reaches a certain distance from the barrier. In this situation, the shock wave structure is strongly diffused, and the central shock wave fluctuates with a large amplitude at a frequency corresponding to that of the pressure oscillations. Such a mode of interaction has been termed strong instability. In this mode when the pressure in the center of the obstacle is lower than at the periphery blocking of the central region is observed as a result of adhesion of the tangential discontinuity to the surface of the obstacle. Adhesion takes place at a distance from the jet axis approximately equal to the maximum radius of the

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USSR

SEMILETENKO, B. G. et al., Izv. SO AN SSSR, Ser. Tekhn. Nauk, No 13(208), Issue 3, Oct 72, pp 39-41

jet. This paper proposes a possible interpretation of the shock-wave processes accompanying such a collapse of the tangential discontinuity. The proposed hypothesis can be used to explain the pattern of sound emission in the ambient medium during the interaction process. The shock waves which arise during the process are reflected from the surface of the obstacle into the surrounding medium. One or more waves may result, depending on the number of reflections of a shock wave in the period of a single oscillation. While the proposed interpretation applies to obstacles much larger than the maximum jet diameter, the case of obstacles with dimensions comparable to the maximum jet diameter is basically similar.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

SEMILETENKO, V. G., SOBKOLOV, B. N., USKOV, V. N., Leningrad Mechanics Institute

"Particulars of Unstable Interaction Between a Supersonic Jet and an Infinite Obstacle"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Tekhnicheskikh Nauk, No 13(208), Issue 3, Oct 72, pp 47-51

Abstract: The paper gives some of the results of experimental studies of the process of unstable interaction between an airjet and an infinite barrier. The results apply primarily to the frequency and amplitude characteristics of wave structure oscillation in the jet preceding the obstacle and pressure oscillations on the boundary. Pressure oscillations on the barrier were measured and the wave structure in the jet was visualized by the IAB-451 shadow device and the SFR-1M high-speed camera. Pressure pulsations on the barrier were measured by LKh-601 piezoelectric sensors and recorded on the S-1-4 oscillograph. Frequency responses were tape-recorded and decoded on the ASChKh-1 spectrum analyzer. The passband of the recording equipment was 20 Hz to 20 kHz. The experiments were done on airjets with $M_a = 1-3$ and $n = 1.5-20$.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC 620.172.251.2

TROSHCHENKO, V. T., USKOV, Ye. I., (Kiev)

"Some Regularities of the Deformation and Rupture of Refractory Alloys Based on Molybdenum, Niobium and Tantalum with Programmed Temperature Change"

Kiev, Problemy Prochnosti, No 12, Dec. 1972, pp 8-14.

Abstract: Results are presented from a combined study of creep and long-term strength of a number of refractory alloys based on Mo, Nb and Ta under conditions of cyclically changing temperature; the regularities of deformation and rupture of refractory alloys are studied under these conditions. It is demonstrated that thermal cycling causes an increase in the creep rate, a reduction in plasticity and a significant reduction in time to rupture of the alloy studied in comparison to isothermal tests. An exponential dependence is established for the alloy studied between the stress and time to rupture.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR UDC 632.95

RASKIN, M. S., USKOVA, L. A., SVIRIDENKO, A. S., RYZHKOV, A. A., BABIN, YE. P.

"Analysis of 2-Methoxy-3,6-dichlorobenzoic Acid in Plant Mass by a Combined Method"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryaz-neniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-Union Conference on the Investigation of Pesticide Residues and Preventive Contamination of Food Products, Fodder and Environment), Tallin, 1971, pp 363-365 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N503)

Translation: The herbicide is extracted from the plant mass, the dry extract is dissolved in a mixture of 75% alcohol with dioxane (4:1); it is applied to the first entire bean leaves at the time of development of the first trefoil (50 microliters/plant); the plants are gathered 5-6 days after treatment considering the weight of the dry mass of the trefoil.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC 632.95.4/.5

RASKIN, M. S., USKOVA, L. A., and GRUZDEN, L. G.

"Investigation of the Activity of Herbicidal Mixtures"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 11, No 11 (121), 1973, pp 47-51

Abstract: Highest degree of conditional synergism was observed in the combination of dianate with 2M-4Kh or 2,4-D taken in ratios of 1:6 to 1:20. Diamet and diamet-D were effective against annual dicotyledonous weeds including those resistant to 2,4-D and 2M-4Kh. The optimal dose of herbicides for grain culture fields is 21.2 kg/hectare. Herbicidal activity of these preparations is almost identical, although diamet-D is somewhat more advantageous due to a simplier production technology and a much higher content of the active substance. Used at the optimal dose, diamet-D did not depress the growth of oats nor did it lower the yield of grain, its quality also remaining unaffected.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC 541.69 + 547.594.5

KUZ'MITSKIY, B. B., AKHREM, A. A., UKHOVA, L. I., and USKOVA, N. F., Minsk State Medical Institute, Institute of Physico-Organic Chemistry, Academy of Sciences BSSR, and Institute of Organic Chemistry Imeni N. D. Zelinskiy, Academy of Sciences USSR

"Conformational Effects of 1,2,4-Substituted Decahydroquinolol-4 Derivatives on Their Biological Activity"

Moscow, Izvestiya Akademii Nauk, Seriya Khimicheskaya, No 7, Jul 70, pp 1678-1679

Abstract: Cholinolytic activity depends principally on the hydrocarbon substituent in position 4. The most active are compounds with an ethynyl substituent, less so with a vinyl, and least active are those with an ethyl or acetyl substituent. As far as the effect of spacial orientation is concerned, compounds with the methyl and alkyl groups in 2-axial, 4-equatorial conformation are most active, those 2e4a-oriented are less active, and 2e4e substituted ones are least active. Toxicity of this type of compounds relates in the opposite direction: the least toxic are those of the 2a4e series, followed by 2e4a and 2e4e compounds in increasing order of toxicity.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--STEREOCHEMISTRY OF THE ETHYNYLATION OF 1,2,DIMETHYL,DECAHYDRO,4,QUINOLONES ISOMERIC AT C 2 -U-

AUTHOR-(03)-AKHREM, A.A., UKHOVA, L.I., USKOVA, N.F.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSR, SER. KHIM. 1970, (4), 900-3

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--STEREOCHEMISTRY, QUINOLINE, KETONE, ISOMER, PICRIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0941 STEP NO--UR/0062/70/000/004/0900/0903

CIRC ACCESSION NO--AP0134665

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

2/2 011 UNCLASSIFIED

CIRC ACCESSION NO--AP0134665 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PASSING HCL INTO MIXED ISOMERS OF 1,2,DIMETHYLDECAHYDRO,4,QUINOLONES (I) IN ET SUB2 O GAVE A MIXT. OF HCL SALTS, WHICH WERE SEPD. INTO A SALT (II) M. 168-9DEGREES AND A SALT (III) M. 146-7DEGREES; TREATMENT OF THE FILTRATE FROM THIS WITH PICRIC ACID GAVE A PICRATE (IV) M. 193-4DEGREES AND A PICRATE (V) M. 173-4DEGREES. II TREATED WITH K SUB2 CO SUB3 GAVE AN ISOMER (VI) OF I, B SUB1 TIMES 5 85-7DEGREES, N PRIME20 SUBD 1.4956; ALSO FORMED FROM V. III GAVE AN ISOMER (VII) OF B SUB1 TIMES 5 87-8DEGREES, M. 52-3DEGREES, WHICH WAS FORMED IN PART BY IV, ALONG WITH VI. C SUB2 H SUB2 PASSED INTO NA IN LIQ. NH SUB3 3 HR, THEN TREATED WITH VI GAVE 58PERCENT 1,2,DIMETHYL,4,ETHYNYLDECAHYDRO,4,QUINOLOL, M. 134-5DEGREES, WHILE THE MOTHER LIQUOR GAVE 29PERCENT ISOMER, M. 115-16DEGREES. SIMILAR REACTION WITH VII GAVE 56PERCENT 4,QUINOLOL ISOMER, M. 133-3.5DEGREES IN 56PERCENT YIELD. THE PIPERIDONE WHICH FORMS VI PROBABLY HAS CIS RING JUNCTURE. VII EVIDENTLY IS CAPABLE OF REACTING WITH NAC TRIPLE BOND CH VERY STERED SELECTIVELY AND TO FORM ONLY THE ONE ISOMER OF THE QUINOLOL WITH AN EQUATORIAL ETHYNYL GROUP. FACILITY: INST. FIZ. ORG. KHIM., MOSCOW, USSR.

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USSR

AMIRKHANOVA, N.A., ZHURAVSKIY, A.K. and USKOVA, N.G., Ufa

"Anodic Dissolution of Nickel-Base Heat-Resisting Alloys in Salt Solutions as Applied to EKhRO (Electrochemical Dimensional Finishing of Metals)"

Kishinev, Electronnaya Obrabotka Materialov, Applied Physics Institute, Academy of Sciences, Moldavian SSR, No 6, 1972, pp 19-23

Abstract: The electrochemical metal finishing is achieved by anodic dissolution of metal in the electrolyte. 12 electrolytes of different chemical composition were tested with four nickel-base heat-resisting alloys. The specimens were cylindrical, 5 mm diameter, rotating at 800 rpm. Graphs show the dissolution speed as a function of applied voltage. Tests showed that electrolytes having a NaCl base are the most productive. With electrolytes having a $NaNO_3$ base the anodic dissolution is preceded by oxidation, which causes a non-uniform anodic dissolution and resulting rough surface finish.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

LEVIN, A. Yu., USKOVA. O. F.

"An Algorithm for Flat Path Arrangement"

Sb. Tr. Aspirantov. Mat. Fak. Voronezh. Un-ta [Collected Works of Graduate Students of the Mathematics Department, Voronezh University], Voronezh, 1972, pp 80-90 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V699, by V. Mikheyev).

Translation: The problem of flat (single-layer) path selection to realize the necessary connections of modules on printed circuits is studied. Noise, mutual modulation and signal reflection are not considered. The mathematical model of theproblem is as follows. Rectangle Ω is covered with an integer coordinate grid, in which n pairs of different junctions $\pi_i = \{A_i', A_i''\}$; $A_i' = (x_i', y_i')$, $A_i'' = (x_i'', y_i'')$; $i = 1, 2, \ldots, n$ are marked. The problem is to connect the largest possible number of pairs of points $\{A_i', A_i''\}$ along lines of the grid (without going outside of Ω) so that the paths connecting different pairs have no common points. The number of connected pairs is the main goal function; another goal function, subordinate in nature, is the total length of connections made. Of two versions of connection, that where the

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USSR

Levin, A. Yu., Uskova, O. F., Sb. Tr. Aspirantov. Mat. Fak. Voronezh. Un-ta, Voronezh, 1972, pp 80-90.

number of connected pairs is greater is considered better; if the number is equal, that with the least total length of paths is considered better. It is believed that when pair π_i remains unconnected after completion of the task, none of the paths connecting other pairs can pass through points $\{A_i', A_i''\}$. Some characteristic is used to select one of the pairs $\pi_i (i = 1, 2, \ldots, n)$ and the shortest path is drawn for it. Using this same characteristic, in the next step, one of the remaining pairs is selected and the shortest path which does not cross the path already drawn is drawn for it, etc. The algorithm stops when all pairs are connected or when the only remaining pairs cannot be connected without intersecting paths already drawn. 25 biblio. refs.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--INFRARED SPECTROSCOPIC STUDY OF THE HYDROGEN BONDING OF SOME CARBINOLS -U-

AUTHOR-(04)-USMANOV, A., KOZHUKHOVA, A.N., MARUPOV, R., KALONTAROV, I.YA.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK TADZH. SSR 1970, 13(3), 31-4

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

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, HYDROGEN BONDING, HYDROXYL RADICAL, HETEROCYCLIC NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1086 STEP NO--UR/0425/70/013/003/0031/0034

CIRC ACCESSION NO--AT0124743

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

2/2 022 UNCLASSIFIED

CIRC ACCESSION NO--AT0124743 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IR SPECTRA (3000-3800 CM PRIME NEGATIVE) OF I (AS SOLID AND 1 AND 2PERCENT SOLNS. IN CCL SUB4) AND H SUB2 C:CHC TRIPLE BOND CCME SUB2 OH (AS LIQ. AND 0.5, 1, 2, AND 5PERCENT SOLNS. IN CCL SUB4) INDICATE THE ABSENCE OF INTRAMOL. H BONDS. A BAND AT 3600 CM PRIME NEGATIVE) WAS ASCRIBED TO FREE OH GROUPS.

FACILITY: FIZ.-TEKH. INST. IM. UMAROVA, DUSHANBE, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

Acc. Nr. AT0049882 — Abstracting Service: CHEMICAL ABST. 5/10

Ref. Code UR 0020

105470t Spectroscopic manifestations of phase transitions in crystalline cyclopentane. Zhizhin, G. N.; Lozovik, Yu. E.; Moskaleva, M. A.; Usmanov, A. (Inst. Spektrosk., Akademgorodok, USSR). Dokl. Akad. Nauk SSSR 1970, 190(2), 301-4 [Phys] (Russ). Phase transitions in mol. crystals cause changes in their ir spectra (width, intensity and splitting). The changes of bandwidth were used to det. phase transitions in cyclopentane. The absorption band was measured at 300-80°K. Sample thickness was 35 and 100 μ. The bandwidth decreased with decreasing temp. from 23 to 2.8 cm⁻¹. Its plot vs. temp. shows discontinuities at the temps. of freezing and transitions into different cryst. modifications. Freezing appears at 179.5°K as a change in the slope of the line and as the temp. is lowered further transition from cryst. phase *I* to *II* at 138.1°K is manifested as a decrease of bandwidth by 2 cm⁻¹; at 122.4°K transition of phase *II* to *III* appears as a decrease in bandwidth by 7 cm⁻¹. Anal. of the line segments corresponding to different phases allowed one to det. the barriers to rotational reorientations: 1.2 kcal/mole for the liq., 0.8 kcal/mole for phase *I* and 0.4 kcal/mole for phase *II*. In some of the samples of phase *III* dichroism could be obsd. by using polarized light. Roman Mykolajewycz

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REEL/FRAME 19801814

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC 51:155.001.57:518.9

USMANOV A. A.

"Algorithm for Automatic Search for Optimal Strategies in Chess Programs"

Vopr. Kibernet. i Vychisl. Mat. [Problems of Cybernetics and Computer Mathematics -- Collection of Works], No 40, Tashkent, 1970, pp 57-61, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V653 by V. Mikheyev).

Translation: An algorithm is suggested for the task of seeking and selecting optimal strategies in chess situations. The problem is reduced to three sequential operations. The first is development of algorithms of certain n characteristics (x_1, x_2, ..., x_n), using which the positions on the chessboard are coded, each of which corresponding to its characteristic -- point $x = (x_1, x_2, \ldots, x_n)$ in the end dimensional space of characteristics. The second operation consists of division of this space using certain dividing surfaces into noninter-secting areas. Then, rules are developed, in correspondence with which the membership of the position to some certain class is established on the basis of the area in which the characteristic of the position is located. The third operation the selection of the optimal strategy, corresponding to this class. Results are presented from experiments run on a Minsk-22 computer.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

Acc. Nr: AP0049807

Abstracting Service: CHEMICAL ABST. 5/70

Ref. Code: UR0170

104711k Experimental study of the thermal conductivity of organic liquids at low temperatures. Brykov, V. P.; Mukhamedzyanov, G. Kh.; Usmanov, A. G. (Khim.-Tekhnol. Inst. im. Kirova, Kazan, USSR). Inzh.-Fiz. Zh. 1970, 18(1), 82-9 (Russ) A device is constructed for the detn. of the thermal cond., λ, of liqs. The thermal cond. of C_2H_4, *n*-butane, *n*-pentane, *n*-hexane, *n*-heptane, *n*-octane, *n*-nonane, *n*-decane, 1-hexene, 1-heptene, MePh, and isoprene are given from their m.p. to 100° above the m.p. The thermal cond. of these liqs. is described by the equations $q/q_{AS} = 2.03\ (S_1 - S/R)$ or $\lambda/\lambda_{S_1} = \psi(S/S_1)$, where q/q_{AS} = relative heat flux; q_{AS} = scale heat flux, S and S_1, are current and initial value of entropy and R is the universal gas const.

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REEL/FRAME
19801729

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC 621.311.4:621.316.545-523

USMANOV, F. KH, RUDAKOVA, R. M.

"Standard Layout for Double-Transformer Substations with Short-Circuiting Devices and Separators"

Tr. Ufim. aviats. in-ta (Works of Ufa Aviation Institute), 1970, vyp. 12, pp 121-126 (from RZh-Elektrotekhnika i Energetika, No 3, Mar 71, Abstract No 3Ye67)

Translation: Analysis and experience in the operation of dual-transformer substations with short-circuiting devices and disconnects having a switching circuit both with a repair jumper made of disconnects connected above the separators in the transformer circuit and a circuit with an automatic jumper with a separator and disconnect included below the disconnects in the transformer circuit, which is the standard circuit approved for application, demonstrates the advantages of this type of substation. This conclusion is drawn considering the operating experience of Bashkirenergo [Bashkir Power Administration] by the materials of which a series of data on the specific failure rate (λ) of different equipment, including the separators and disconnects, are presented. There are 2 illustrations.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

1/2 051 UNCLASSIFIED

TITLE--CHEMICAL CHANGES IN POLY,VINYL FLUORIDE, INDUCED BY IRRADIATION -U-

PROCESSING DATE--04DEC70

AUTHOR-(03)-USMANOV, KH.U., YULCHIVAYEV, A.A., LATYPOV, T.V.

COUNTRY OF INFO--USSR

SOURCE--UZB. KHIM. ZH. 1970, 14(2), 63-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--FLUORINATED ORGANIC COMPOUND, POLYMER, GAMMA RADIATION, RADIATION POLYMERIZATION, RADIATION EFFECT, POLYMER CROSSLINKING, POLYMER DEGRADATION, CONJUGATE BOND SYSTEM, COBALT ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0918

STEP NO--UR/0291/70/014/002/0063/0066

CIRC ACCESSION NO--AP0137946

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

2/2 051 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137946

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLY(VINYL FLUORIDE) OBTAINED BY RADIATION POLYMN. IN BULK WAS IRRADIATED WITH PRIME60 CO GAMMA RAYS AT 10 PRIME3 MM IN A WIDE RANGE OF IRRADN. RATES AND DOSES. POLYMER D. AND ITS F CONTENT WERE DETD. IN THE COURSE OF IRRADN. AT ALL RATES AND DOSES OF IRRADN. THE F CONTENT DECREASE WAS PROPORTIONAL TO THE OVERALL DOSE BECAUSE OF HF EVOLUTION. THE D. OF POLYMER DECREASED BECAUSE OF LOOSENING THE POLYMER MASS BY THE GAS EVOLVED. AT LOW DOSES EVOLUTION OF GAS WAS ACCOMPANIED BY POLYMER DEGRADATION WHEREAS AT HIGH DOSES CROSSLINKING WAS ALSO OBSD. IR ANAL. REVEALED FORMATION OF CONJUGATED DOUBLE BONDS. IRRADIATED POLYMER WAS EASILY OXIDIZED BY O.

FACILITY: TASHKENT, GOSUNIV. IM. LENINA, TASHKENT, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

1/2 009 UNCLASSIFIED

TITLE--ACRYLOYLCYTISINE -U- PROCESSING DATE--27NOV70

AUTHOR-(04)-MUSAYEV, U.N., MIRKHIDOYATOV, M.N., TILLAYEV, R.S., USMANOV, KH.U.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,394

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

DATE PUBLISHED--03MAR70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ALKALOID, CHEMICAL PATENT, ACRYLIC ACID, ACID CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1854 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132119

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

2/2 009 UNCLASSIFIED

CIRC ACCESSION NO--AA0132119 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACRYLOYLCYTISINE IS PREPD. BY TREATING CYTISINE WITH THE ACID CHLORIDE OF ACRYLIC ACID IN THE PRESENCE OF SODA IN AN ORG. SOLVENT, E.G. CHLOROFORM, AT 65-70DEGREES.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

1/2 057 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--GRAFTING OF METHYL METHACRYLATE ON POLY(VINYL FLUORIDE) UNDER THE INFLUENCE OF GAMMA RADIATION -U-

AUTHOR-(03)-LATYPOV, T., YULCHIBAYEV, A.A., USMANOV, KH.U.

COUNTRY OF INFO--USSR

SOURCE--UZB. KHIM. ZH. 1970, 14(1), 53-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--GRAFT POLYMERIZATION, METHYL METHACRYLATE, FLUORINATED ORGANIC COMPOUND, GAMMA RADIATION, RADIATION EFFECT, COPOLYMER, THERMOMECHANICAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1840 STEP NO--UR/0291/70/014/001/0053/0056

CIRC ACCESSION NO--AP0123629

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

2/2 057 UNCLASSIFIED

CIRC ACCESSION NO--AP0123629 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IRRADN. OF A POLY(METHYL METHACRYLATE) (I)-H SUB2 C:CHF (II) MIXT. WITH GAMMA RAYS IN VACUUM GAVE GRAFT COPOLYMERS CONTG. LESS THAN OR EQUAL TO 74.2 II UNITS. THE CONVERSION RATE OF II IS CONSIDERABLY GREATER IN THE PRESENCE OF I THAN THE II HOMOPOLYMN. RATE UNDER THE SAME CONDITIONS. THE GRAFT COPOLYMERS HAVE GREATER SWELLING IN ACETONE, HCONME SUB2, OR DIOXANE AND ARE ESP. SOL. IN PHME AT ROOM TEMP. GRAFTING DECREASES THE MELT FLOW INDEX OF II AND IT CHANGES THE SHAPE OF ITS THERMOMECH. CURVES.

FACILITY: TASHKENT. GOSUNIV. IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

1/2 016 UNCLASSIFIED

TITLE--STRUCTURE OF ULTRATGRAFTING WITH STYRENE OR VINYLTOLUENE -U- PROCESSING DATE--23OCT70

AUTHOR-(04)-RAZIKOV, K.KH., ISAMUKHAMEDOVA, I.I., USMANOV, KH.U., AZIZOV, U.A.

COUNTRY OF INFO--USSR

SOURCE--UZB. KHIM. ZH. 1970, 14(1), 35-8

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--NATURAL FIBER, STYRENE, CELLULOSE, VINYL COMPOUND, TOLUENE, METHYL METHACRYLATE, ACRYLATE, EPOXY RESIN, QUARTERNARY AMMONIUM SALT, GRAFT POLYMERIZATION/(U)ED5 EPOXY RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1838

STEP NO--UR/0291/70/014/001/0035/0038

CIRC ACCESSION NO--AP0123627

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

2/2 016 UNCLASSIFIED

CIRC ACCESSION NO--AP0123627 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRON AND OPTICAL MICROSCOPY OF THE TITLE POLYMERS SHOWED THAT THE INCREASE OF GRAFTING GREATER THAN OR EQUAL TO 21.5PERCENT CAUSES STRUCTURAL CHANGES OF THE COTTON FIBERS. POLYSTYRENE OR POLY(VINYLTOLUENE) CHAINS SWELL IN ME METHACRYLATE, BU METHACRYLATE, OR EPOXY RESIN ED-5, USED IN MOUNTING OF THE SAMPLES FOR MICROSCOPY AND SEPG. THE FIBERS. HOWEVER, THE GRAFTED CELLULOSE CONTG. GREATER THAN OR EQUAL TO 13.4PERCENT GRAFTED CHAINS DOES NOT SWELL OR DISSOLVE IN QUATERNARY AMMONIUM BASES.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

1/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--POLYMERS AND COPOLYMERS BASED ON VINYLPHOSPHONIC ACID DIETHYLENIMIDE -U-

AUTHOR-(04)-NADZHIMUTDINOV, SH., KARGIN, V.A., USMANOV, KH.U., BRUEVICH, G.YU.

COUNTRY OF INFO--USSR

U

SOURCE--U.S.S.R. 260,887

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

DATE PUBLISHED--06JAN70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COPOLYMER, ORGANIC PHOSPHORUS COMPOUND, PHOSPHONIC ACID, IMIDE, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0241 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0111435

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

2/2 020

UNCLASSIFIED

CIRC ACCESSION NO--AA0111435 PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VINYLPHOSPHONIC ACID DIETHYLENIMIDE WAS POLYMD. OR COPOLYMD. WITH VINYLPYRROLIDINONE IN THE PRESENCE OF RADICAL POLYMN. INITIATORS DURING HEATING TO PROVIDE BIOL. ACTIVE PRODUCTS.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

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USSR

UDC 632.95

VOLODKOVICH, S. D., ANDREYEVA, YE. I., GOLYSHIN, N. M., MONOVA, V. I., KAPLAN, G. I., PRONCHENKO, T. S., USMANOV, M. G., ABELENTSEV, V. I., DVOYCHENKOVA, E. A., and SKAZKINA, T. P.

"Bromtan"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 116-129 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N501 by T. A. Belyayeva)

Translation: The preparation bromtan ($BrCCl_2CHBrCH_2CH_2CH_2Cl$) (I) is being tested as a soil fungicide and antiseptic for nonmetallic materials. I is as effective as carbathion in the control of melon fusarial wilt. I in a concentration of 0.8 percent is equivalent to DNOC in an 0.6 percent concentration with respect to hibernating forms of the causative agent of apple scab and brown spot. I is active in the control of cotton root rot and wilt at a consumption rate of 100-100 kg/ha.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420010-7

USSR

UDC 632.95

GRAPOV, A. F., MEL'NIKOV, N. N., ANDREYEVA, YE. I., RASVODOVSKAYA, L. V., PRONCHENKO, T. S., USMANOV, M. T., MIKHAYLOVA, O. B., SMIRNOVA, K. F., and ZBARSKIY, F. SH.

USSR AUthors' Certificate No 276572, Cl. Aol n 9/36, filed 13 Jan 69, published 11 Feb 72 (from RZh-Khimiya, No 20, 25 Oct 72, Abstract No 20N582 by T. A. Belyayeva)

Translation: In order to widen the assortment of effective fungicides for controlling cotton wilt, it is suggested that use as systemic fungicides be made of asymmetric diamides and amidohydrazides of alkylphosphonic and alkylthiophosphonic acids of the formula $R'R''N(R)P(X)(NH)_nR'''$ (I) (R and R' = alkyl; R'' = H or alkyl; R''' = unsubstituted or substituted phenyl; n = 1 or 2; X = O or S). I is obtained from amines or hydrazides and alkylphosphonic or alkylthiophosphonic acid chlorides. The preparations were tested under field conditions on naturally infected plants. Experimental results showed that, as compared with control, I possesses definite systemic activity, suppressing the development of cotton wilt. Data are presented on tests of I in comparison with phosbutyl.

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UDC 632.95

ANDREYEVA, YE. I., NEL'NIKOV, N. N., PRONCHENKO, T. S., SKALOZUBOVA, A. V., MATVEYEVA, G. N., OVSISHCHER, M. R., BEZUGLYY, S. F., and USTANOV, N. T.

"Phenothiuram Seed Disinfectant"

V sb. Khim. Sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 135-145 (RZh-Khimiya, No 11, Jun 72, Abstract No 11N429)

Translation: The combination disinfectant phenothiuram (40% tetramethylthiuram disulfide, 10% copper trichlorophenoxide, and 20% γ-hexachlorocyclohexane; heptachlor or some other organochlorine insecticide may be substituted for the last component) has been tested and is recommended for treating cotton seeds (10-12 kg/ton) and the seeds of legume grain crops (3-4 kg/ton). Phenothiuram may also be used to treat seed corn, tree crop seeds, and the planting material for flowers, shrubs and trees. Phenothiuram is moderately toxic and is recommended as a substitute for organomercury disinfectants.

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USSR UDC 575.24

USMANOV, P. D., STARTSEV, G. A., SHABALOV, V. V., and NASYROV, Yu. S., Institute of the Physiology and Biophysics of Plants, Academy of Science Tadzhik SSR, Dushanbe

"Mutagenic Effects of Laser Irradiation of Seeds of Arabidopsis thaliana (L.) Heynh"

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 2, 1970, pp 455-457

Abstract: Since absorption of laser rays produces a release of heat and a high-intensity electrical field it was decided to investigate the possible mutations that may develop in plants after such irradiation. Air-dried seeds of Arabidopsis thaliana (L.) Heynh (Enkheim strain) were irradiated with modulated ($t = 6 \times 10^{-9}$ sec) and freely generated ($t = 5 \times 10^{-4}$ sec) ruby laser rays and planted in appropriate media. Both the percentage of germinating seeds and the size and viability of the sprouts were reduced. As a result of mutations in pigmentation, the plants acquired a pale green, yellow, or whitish color. Evidence suggests that these mutations were caused not only by the heat released, but also (and primarily) by nonlinear optical processes. Since 180 of the 700 irradiated plant families developed viable mutants, laser rays may be regarded as a new physical agent that can be used to produce mutations in Arabidopsis thaliana.

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USSR UDC: 621.3.049.75

GODOVITSYN, Ye. V., USMANOV, R. A., BELYAKOV, V. M., LAVRIMHCHEV, V. P., LAPSHINOVA, Zh. V., VIKULINA, N. V.

"A Method of Making Thin-Film Circuits"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 27, 1970, Soviet Patent No 279728, Class 21, filed 20 Dec 68, p 53

Abstract: This Author's Certificate introduces a method of making thin-film circuits based on forming circuit conductors on a dielectric substrate by means of an acid resist made from modified rubber, and coating the conductors with a layer of copper and gold. As a distinguishing feature of the patent, adhesion of the resist to the metallized substrate is improved by coating the substrate with a layer of iron over which the resist is applied.

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USSR

USMANOV, S. M., and KADYROVA, A. S., Uzbek Scientific Research Institute of Epidemiology, Microbiology, and Infectious Diseases

"The Effects of Zinc-7 and Manganese-35 Compounds on Certain Mainfestations of Nonspecific Immunity in Dysentery Patients"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 10, 1971, pp 37-38

Abstract: Of 50 patients ill with acute dysentery of medium severity, 25 were treated with antibiotics only and the other 25 with antibiotics and compounds containing zinc and manganese. In the first group, the complement titer, the total hemolytic activity, and titers of normal hemolysins and hemagglutinins were significantly reduced during the disease and did not return to normal during convalescence. In the second group, the titer of normal hemolysins was not raised, but the complement titer, the total hemolytic activity, and the titer of normal hemagglutinins were increased. On the basis of these findings, it is recommended to include zinc and manganese in the chemotherapy of dysentery patients.

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Heat, Combustion, Detonation

USSR

UDC 662.997

YELISEYEV, V. N., USMANOV, YU. U., Physicotechnical Institute, Academy of Sciences, Uzbek SSR imeni S. V. Starodubtsev

"Some Problems Concerning Simulation of the Thermal Regime of a Solar Reservoir"

Tashkent, Geliotekhnika, No 5, 1970, pp 42-46

Abstract: For regions with a large number of sunny days in the year, a cheap method of converting solar energy into thermal energy is the use of special reservoirs with an artificial density gradient with respect to depth. This density gradient is effected by means of several horizontal layers, in which the concentration of salt increases with depth; when the reservoir is heated by sunshine, each successively deeper layer becomes hotter than the one above it. In an experiment conducted with a reservoir with dimensions of 25 x 5 meters, a maximum temperature of 94° C was attained at a depth of 80 cm. In order to ascertain the economic justifiability of using this heat-storage method, experiments were conducted on small models of a reservoir

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YELISEYEV, V. N., et al, Geliotekhnika, No 5, 1970, pp 42-46

of this type. Simulation of the thermal regime of a reservoir permits rapid and sufficiently precise determination of the influence of numerous factors upon it in any combination. Such tests are described in the article. 2 figures, 6 bibliographic entries.

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USSR

USMANOV, Z. D., Division of Mathematics With Computing Center, Academy of Sciences of the Tadzhik SSR

UDC: 517.945.7

"The Riemann-Hilbert Problem for One Class of Generalized Analytical Functions With a Stationary Singular Point"

Dushanbe, Doklady Akademii Nauk Tadzhikskoy SSR, Vol 15, No 4, 1972, pp 10-13

Abstract: The author studies the following boundary value problem

$$\partial_{\bar z} w - \frac{b(z)}{2\bar z}\overline{w} = F(z),\ z \in G$$

$$Re\,[\overline{g(z)}\,w] = h(z),\ z \in \Gamma.$$

Here G is a singly connected region of the complex plane $z = x + iy$, bounded by the smooth closed contour Γ and containing the coordinate origin inside; $w(z)$ is an unknown function; and $b(z)$, $F(z)$, $g(z)$, and $h(z)$ are given functions. It is assumed that $b(z)$ is continuous in $G+\Gamma$, that it satisfies the Hölder boundary condition at point $z=0$ with positive index α, and $b(0) \neq 0$; $F(z) \in C(G-o) \cap L_q(G+\Gamma)$, $q > 2$; $g(z)$ and $h(z) \in C_\nu(\Gamma)$, $0 < \nu \leqslant 1$; $|g(z)| \neq 0$ on Γ.

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USMANOV, Z. D., DAN TadzhSSR, Vol 15, No 4, 1972, pp 10-13

The solutions $w(z)$ are found in the class of functions which are continuous on $G+\Gamma$. The final result is formulated with satisfaction of a certain inequality which in the simplest cases holds either for small $b(z)$ or for $b(z)$ which in some sense differ only slightly from $b(o)$, or for small dimensions of the region G. In the most general case, the solution is limited to calculation of the index.

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USSR

UDC 582.288.42:632.4:581.4:633.511

TARUNINA, T. A., USMANOV, Z. U., and TIME, R. N., All Union Institute of Plant Protection, Leningrad

"Morphological and Cultural Forms in Different Populations of the Fungus Verticillium dahliae Kleb. on Cotton"

Leningrad, Mikologiya i Fitopatologiya, No 5, 1971, pp 449-455

Abstract: A total of 66 Verticillium dahliae populations isolated from a large number of cotton varieties in Soviet Central Asia were divided into six morphological groups on the basis of differences in morphology of the colonies grown on Czapek's medium, rate of formation of microsclerotia, structure of the conidiophores, and shape and size of conidia. Clones of all six morphological forms attacked cotton varieties with different degrees of wilt resistance. The morphological group to which a clone belonged did not determine its virulent properties because the clones differed in virulence for the cotton varieties tested.

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USSR

UDC 539.121.72/.75

KHENNIG, K., TEMPEL'KHOFF, K., and USMANOVA, C. A.

"Interaction of Ultracold Neutrons With Matter"

Ob'yedin. in-t yadern. issled. Labor. enytron. fiz., No 14-5189 (Joint Institute of Nuclear Research. Laboratory of Neutron Physics, No 14-5189), Preprint, Dubna, 1970, 22 pp, ill. (from RZh-Fizika, No 4, Apr 71, Abstract No 4V509)

Translation: Various interaction processes of ultracold neutrons with matter are discussed. The use of ultracold neutrons to study effects associated with the variation of nuclear forces with spin is especially important for possible studies in the field of solid state physics. Abstract.

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USSR

Pharmacology and Toxicology

UDC 615.28.015.46.07

NIKOLAYEV, A. I., and USMANOVA, I. YA., Tashkent Medical Institute

"On the Appearance of Antibodies to Pesticides"

Moscow, Laboratornoye Delo, Vol 11, 1971, pp 676-678

Abstract: A report is presented of the appearance of antibodies to the commonly used pesticides methyl mercaptophos and hexachloran when administered orally to 20 rabbits for 14 days. The rabbits were divided into four groups of five each. The first group was given hexachloran in a dose of 10 mg/kg; the second, methyl mercaptophos, 10 mg/kg; the third, a mixture of the two, 5 mg/kg each; and the fourth was a control group. The blood serum of rabbits was checked periodically up to 120 days after the administration of pesticides. The presence of antibodies was determined by two reactions: precipitation of an antigen-antibody complex in an ammonium sulfate solution, and passive hemagglutination. Antibodies to the pesticides appeared beginning on the sixth day after administration of the pesticides. Thereafter, antibody titers varied, with higher ones (1:80) on the 10th and 14th days. After that, there was a gradual reduction in the titers of antibodies and, after 3 months, antibodies were nearly absent. There was a more intensive formation of antibodies to hexachloran than to methyl mercaptophos.

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NIKOLAYEV, A. I., and USMANOVA, I. YA., Laboratornoye Delo, Vol 11, 1971, pp 676-678

Human patients in contact with pesticides in the course of their work were also observed. Antibodies appeared in 65 of the 102 patients observed. The reaction to the antibodies was negative when there was no contact with pesticides for 6 months or more.

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USSR

KATSENOVICH, R. A., and USMANOVA, I. Ya., Uzbek Scientific Research Institute of Sanitation, Hygiene and Occupational Diseases

"Appearance of Antihepatic Autoantibodies in Persons Exposed to Pesticides"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 7, Jul 70, pp 6-8

Abstract: A study was conducted to determine the involvement of the liver in autoimmune processes of persons exposed to various chloro- and phosphorus pesticides. Antihepatic autoantibodies were determined with the aid of the Khudomel complement reaction as modified by Romanyuk. Forty subjects who had contact with pesticides were divided into three groups: those with definite pesticide intoxication (19 persons), those with some toxicity symptoms (13 persons), and those with no toxic manifestations (8 persons). The first group showed symptoms of disorders of the nervous and gastrointestinal systems; 17 were found to have autoantibodies to liver tissue. In the second group, six subjects had antihepatic autoantibodies. In the third group, autoantibodies were found in four subjects, all of whom had a history of gastrointestinal disorders. Since antihepatic autoantibodies appear not only in advanced cases of hepatic disorders but also in early dysfunctions of the liver, their presence represents a useful indicator of the development of a pathological process.

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Acc. Nr AP0055217 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code UR9085

113064d Effects of catalyst composition and structure on the hydrogenation of cottonseed oil. Abdurakhimov, A. A.; Kadyrov, Yu.; Usmanova, Z. U.; Safaev, A. (Tashkent Politekh. Inst., Tashkent, USSR). *Masla-Zhir. Prom.* 1970, 36(1), 15-16 (Russ). The effects of compn. and structure of Raney Ni-Cu catalysts on continuous hydrogenation of cottonseed oil at 200° and an elevated pressure were investigated. All the catalysts tested were prepd. under const. conditions, as follows: Ni-Cu-Al alloys with a const. amt. of 50% Al and various amts. of Ni and Cu were leached with NaOH soln., washed, and dried. The Raney catalysts obtained were directly used for redn. in a reactor, or were oxidized in a stream of O at an elevated temp. The optimum Ni:Cu was 1:1. An increase in the amt. of Cu decreases the activity of the catalyst, but increases its selectivity. The catalysts oxidized before redn. were more active and had a higher stability than catalysts prepd. without previous oxidn. An increase in the amt. of Cu leads to a decrease in m.p., acidity, and hardness of the hydrogenated fat. An increase in the redn. temp. to 300° leads to an increase in the activity of the catalyst, but a further increase in the redn. temp. decreases its activity. It is caused by sintering of the crystals of Ni and Cu. M. Zajcew

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USSR

USOL'SKIY, V. G.

UDC 534

"Several Features of the Oscillation of Mechanical Systems with One Degree of Freedom on Intermittent Change of Restoring Forces Into the Position of Equilibrium"

Moscow, Bopr. teorii mekhanizmov i dinamiki mashin (Questions on the Theory of Mechanisms and Machine Dynamics, Collection of Works), 1972, pp 135-141 (from Referativnyy Zhurnal -- Mekhanika, No 4, 1973, Abstract No 4A237 by M. D. Perminov)

Translation: An investigation was conducted on natural and forced oscillations of a two-way spring-friction shock absorber with a preliminary obstruction. A differential equation of system motion was derived. The natural oscillations of a conservative system and the natural oscillations in the presence of forces of dry friction were analyzed by means of a constructed set of phase trajectories. For the solution of problems on forced oscillations of systems under the action of harmonic forces the method of harmonic linearization was used. Expressions for oscillation amplitude and phase shift are presented.

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1/2 016 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--INSTRUMENTS FOR THE MEASUREMENT OF AIR HUMIDITY AT METEOROLOGICAL STATIONS -U-

AUTHOR--USOLTSEV, V.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRIBORY I SISTEMY UPRAVLENIYA, NO 1, 1970, PP 37-39

DATE PUBLISHED--------70

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UNCLASSIFIED

CIRC ACCESSION NO--AP0142715 PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INSTRUMENTS FOR THE MEASUREMENT OF AIR HUMIDITY CURRENTLY IS USE AT METEOROLOGICAL STATIONS ARE ENUMERATED AND CRITICIZED. A NEW HIMIDITY DATA UNIT IS DESCRIBED. PATENTED IN 1964, WITH A COMPARATIVELY SMALL HEATED ELECTROLYTIC SENSITIVE ELEMENTS, - IT HAS BEEN DESIGNED FOR AUTOMATIC INFORMATION MEASURING METEOROLOGICAL STATIONS FOR MEASURING THE DEW POINT WITHIN THE RANGE FROM MINUS 43 TO PLUS 35DEGREES C AT AN AMBIENT AIR TEMPERATURE FROM MINUS 30 TO PLUS 50DEGREES C. FOR THE GREATER PART OF THE TIME THE SENSITIVE ELEMENT IS SITUATED IN AIR WHICH IS DRIED BY ASORBENT, AND WHEN MEASUREMENTS ARE TAKEN, A STREAM OF THE INVESTIGATED AIR IS BLOWN UPON IT; THE SENSITIVE ELEMENT THEN ASSUMES AN EQUILIBRIUM TEMPERATURE CORRESPONDING TO THE VALUE OF THE MEASURED AIR HUMIDITY. WITH RESPECT TO MEASUREMENT LIMITS AND PRECISION, AND DURATION OF UNSUPERVISED OPERATION, THE NEW INSTRUMENT IS SUPERIOR TO LIKE INSTRUMENTS PRODUCED OUTSIDE THE USSR. PREPARATIONS ARE BEING MADE FOR THE SERIES PRODUCTION OF THESE DATA UNITS AT THE RIGA EXPERIMENTAL PLANT "GIDROMETPROBOR.

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USSR

UDC 541.64:547.341

LEVIN, YA. A., PYRKIN, R. I., YAGFAROVA, T. A., and USOL'TSEVA, A. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"The Polymers and Copolymers of Divinylphosphinates"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 15 (A), No 9, Sep 73, pp 2070-2074

Abstract: The radical-chain block polymerization of derivatives of divinylphosphinic acid $(CH_2{=}CH)_2P(=O)X$ (I; X = OMe, OEt, OPr, OPh, OC_8H_{17}, $OCH_2CH_2CH_2Cl$, OCH_2CH_2Br, NEt_2) in the presence of azoisobutyric acid resulted in the formation of polymers with a tridimensional network, the properties of which ranged from those of elastomers to those of solids. Polymerization of I (X = OEt) in benzene resulted in the formation of a polymer with a tridimensional network, while that in EtOH led to a soluble cyclolinear oligomer. In the Copolymerization of I (X = OEt) with styrene or methyl methacrylate, I (X = OEt) was less reactive than the monomer that did not contain P, so that tridimensional and soluble polymers formed which contained less P in relation to sytrene or methyl methacrylate than the initial monomer mixture.

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USSR

UDC 535.324+535.341]:539.238

USOSKIN, A. I., ShKLYaREVSKIY, I. N., GERChIKOV, A. S., and VERLINSKIY, Yu. S

"The Optical Properties of Thin Films of Bismuth"

Leningrad, Optika i Spektroskopiya, Vol 34, No 5, May 73, pp 954 - 958

Abstract: Experimental studies were made of two groups of bismuth films. Films in the first group were precipitated in a vacuum at room temperature and then heated to 120°C, while those in the second group were deposited on a substrate heated to 120°C. Films in the first group were of a gray-blue color with transitions to yellowish at low thicknesses, while those in the second group were an intense yellow color. Each group includes films of different, precisely controlled thicknesses. The films deposited at room temperature could not be separated from the substrate, so they were deposited on materials that were transparent to the electron beam for electron microscopy. The two groups of films show a clear distinction in pattern, those in the second group maintaining large, distinct islands of bismuth even at high thicknesses, while the islands tend to run together in the first groups.

Visible light measurements were made to determine the indices of refraction and absorption of the films. Nominal values permitted the calculation of the imaginary and real components of the effective dielectric constant of the films.

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Usoskin, A. I., et al, Leningrad, Optika i Spektroskopiya, Vol 34, No 5, May 73, pp 954 - 958

These calculations yield both positive and negative roots. Special observations permitted the determination that the positive roots and the indices of refraction and absorption associated with them are valid for the thinner films, while the negative values are valid for thicker films. The transition comes when the two values of effective dielectric constant tend to be equal, that is when the expression under the radical in the formula for this value becomes zero; this thickness is greater for light of longer wavelengths.

The results indicate that as the islands of bismuth coalesce in films of the first group the properties approach those of much thicker films, while the films of the second group maintain fairly constant indices even when the thickness and the size of the islands change significantly (thickness 11 - 18 nanometers). The relevant values for various thicknesses and wavelengths are given in two tables.

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USSR

SHKLYAREVSKIY, I. N. and USOSKIN, A. I. UDC: 535.39

"Optical and Structural Characteristics of Thin Amorphous Antimony Films"

Leningrad, Optika i spektroskopiya, vol. 31, No. 4, 1971, pp 623-627

Abstract: The purpose of this article is to fill in gaps of knowledge concerning the optical characteristics of thin films of metals other than noble, which have virtually been ignored. No work has been done in the parallel investigation of the optical and structural characteristics of these metals, and this omission the present article, describing experiments performed with amorphous antimony, is designed to fill. The specimens were prepared by depositing antimony on a glass substrate in a vacuum of the order of $5 \cdot 10^{-5}$ mm Hg with a purity of 99.99%. Reflection, transmission, and thicknesses of the films were measured, and the structure of the films was examined with the use of the UEMV-100V electron microscope. The optical constants of the films are computed, and photomicrographs plus photographs of electron diffraction patterns are shown. The
Authors thank A. S. Breslavskiy and Yu. S. Verlinskiy for preparing the photos.

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USSR

USOSKIN, G. I. UDC 534.2

"Statistical Properties of the Radiation Fields of Elastic Systems"

Tr. 2-y Vses. shkoly-seminara po stat. gidroakustike (SG-2) (Works of the Second All-Union Seminar on Statistical Hydroacoustics (SG-2)), Novosibirsk, Nauka, 1971, pp 91-102 (from RZh-Fizika, No 12, Dec 72, Abstract No 12Zh532)

Translation: A study was made of the emission of sonic fields by infinite elastic plates and cylindrical shells on excitation of them by random external forces. In terms of the Green function, the solution of the problem is formulated in general form for thin plates and shells. Here, the radiation field is found in integral form in which the function under the integral sign is expressed by the product of the function characterizing the external effect and a transition function. For the transition function, an integral equation is written the kernel of which is directly expressed in terms of the Green functions of the elastic oscillations of the shell in a vacuum and the Helmholtz equations for the medium on both sides of the shell satisfying the Neuman boundary conditions. As an example, the author considers the radiation of a thin infinite plate, a cylindrical shell, and two coaxial cylindrical shells excited by statistically independent forces. A qualitative analysis was made of the results of calculating the intensity and the mutual spectral density of the time-space correlation function both in the near nonwave zone and in the far zone.

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USSR

UDC 534.231

KLYACHKIN, V. I., and USOSKIN, G. I., Leningrad

"Sound Projection by Interacting Elastic Shells"

Moscow, Akusticheskiy Zhurnal, Vol 17, No 4, 1971, pp 574—581

Abstract : An analysis is presented of the problem of vibrations and sound projection by arbitrary shells forming a combined system, owing to the interaction through a medium. This problem can be led to a system of integro-differential equations of the order equal to the number of investigated shells. The solution of such system offers considerable difficulties; in connection with that, the problem of combined vibrations of elastic shells has been discussed in the literature in the most simple formulation, in particular for two parallel located plates. A closed form solution of the problem of combined vibrations and sound projection by a system of arbitrary shells is presented in which the system of integro-differential equations is solved in a general form with the help of a series of Green's auxiliary functions of shell vibrations. The expression for the sound projection field of interacting shells is presented in form of quadratures, containing Green's functions of Helmholtz's equation, and shell vibration equations. The application of the described solution method is discussed for the case of one and two shells. One illustr., 22 formulas, five biblio. refs.

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Traumatology & Orthopedics

USOSKINA, R. YA

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EXPERIENCE IN PREVENTION OF CHILD INJURY IN LATVIAN SSR

[Article by V.K. Kalnberz, K.A. Krumin', R.Ya. Usoskina, Riga Scientific Research Institute of Traumatology and Orthopedics; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 4, 1972, pp 52-59]

Prevention of child injury is closely related to development of medicine, pedagogics, psychology, social hygiene of childhood, health statistics and forecasts, physical culture, athletics, development of legislation on child and adolescent labor safety, socioeconomic living conditions in urban and rural areas, and scientific and technological progress.

Some prevention of traumatism among children was practiced for a long time. This did not include organization of control of child injuries, but in various historical periods it was reflected in the principles and systems of child upbringing.

The ancient Greeks strived to rear a handsome, brave, and strong man, in their expression "a perfect citizen," through meticulous care of children, prevention of injuries to the body, conditioning of the organism, instilling physical and labor skills, and discipline.

Many monuments to Russian culture of the 15th-17th centuries also had inscriptions quoting the profound ideas of progressive people of those times about childhood hygiene and physical conditioning of children.

The prominent state figure of the 17th century and pedagogue, I.I. Betskoy gave a number of concrete instructions on the prevention of traumatism among children: "... do not entrust children to youngsters and do not allow them to take in their hands anything that could harm them." And further, "...the art of bringing children up lies in diverting them from what could only harm them, without inhibiting their playfulness, and doing this without force..."

The idea of preventing injury among children while in school is found in Plato and Aristotle, Rabelais and Maur, Feltre and Helvetius, Prokopovich and Radishchev.

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1/2 010 UNCLASSIFIED

TITLE--SYNTHESIS OF METHYL 5,6,DIDEOXY,5,IODO,2,3,O,ISOPROPYLIDENE,BETA,D,ALLOFURANOSIDE -U-

PROCESSING DATE--23OCT70

AUTHOR-(03)-ADAMYANTS, K.S., USOV, A.I., KOCHETKOV, N.K.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REFLUXING 7 G I WITH 14 G BZONA IN REFLUXING ME SUB2 NCHO 20 HR GAVE 1.78 G ME 6,DEOXY,2,3,O,ISOPROPYLIDENE,ALPHA,L,TALOFURANOSIDE BENZOATE, M. 95DEGREES, (ALPHA) PRIME20 SUBD MINSU 36DEGREES. THIS WITH MEONA-MEOH GAVE 50PERCENT FREE FURANOSIDE, (ALPHA) SUBD MINUS 51DEGREES, WHICH WITH (PHO) SUB3 PMEL IN C SUB6 H SUB6 HEATED 8 HR AT 70DEGREES GAVE 54.5PERCENT ME 5,6,DIDEOXY,5,IODO,2.3,O,ISOPROPYLIDENE,BETA,D,ALLOFURANOSIDE, M. 57-8DEGREES, (ALPHA) PRIME20 SUBD MINUS 70.8DEGREES. NMR SPECTRAL DATA ARE GIVEN.

FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

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USSR

UDC: 536.532.088

Usov, A. T.

"Error in a Thermocouple in Measurement of Unstable Temperature of a Metal Shell"

Moscow, Metrologiya, No. 8, 1972, pp. 52-56.

Abstract: A method is suggested for calculating the error arising in a thermocouple due to the heat conductivity of the wires during measurement of the unstable temperature of a metal shell. The calculated results are compared with experimental data. The plan of the method suggested is as follows: first, based on the indications of the thermocouple, the heat flux which it absorbs during the course of the experiment is determined. Then, based on the calculated heat flux, the difference between the temperature of the shell at the point of action of the heat source from the true temperature is determined. The heat flux absorbed by the thermocouple as its indications change is determined as for a semiunlimited solid, heat insulated on the sides.

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