

USSR

UDC: 8.74

DEVINGTAL', Yu. V.

"On Solution of a Recognition Problem by Means of a Given System of Tags"

Uch. zap. Perm. un-t (Scientific Notes. Perm' University), 1971, No 259,  
pp 4-10 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1083)

Translation: The paper introduces the concept of a tag and distance between tags. A definition is given for the norm in a space of objects, and some recognition algorithms are considered which account for small errors in the measurement of parameters. Author's resumé.

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USSR

UDC: 8.74

ABUSEV, R. A., DEVINGTAL', Yu. V.

"On One Approach to Selecting the Number of Gradations of Tags and Their Bounds for Coding Objects in Pattern Recognition"

Uch. zap. Perm. un-t (Scientific Notes. Perm' University), 1971, No 259, pp 20-30 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1091)

Translation: The following problem is considered. There are two classes,  $A_1$  and  $A_2$ , of objects. Each object  $x \in A_1 \cup A_2$  is described by  $n$  tags  $x^{(1)}, x^{(2)}, \dots, x^{(n)}$ . The a priori distributions of probabilities  $p(A_1), p(A_2)$  of appearance of the classes are known, as is the probability density function of the  $k$ -th tag for the  $i$ -th class  $f_i(x^{(k)})$  ( $i=1, 2; k=1, n$ ). It is required to determine the least number of gradations of different tags, and bounds of gradations when the number of gradations is given. The problem reduces to conversion of an initial description  $S$  to a new and simpler description  $S^*$ . Selection of the transformation  $S^* = F(S)$  is based on the following considerations: 1) the new description  $S^*$  must be simple and economical; 2) losses of information in transition from  $S$  to  $S^*$  must be insignificant. Illustrative examples are given. V. Mikheyev.

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AEUSEV, R. A., DEVINGTAL', Yu. V.

"Results of Experimenta on Selecting a Minimum Description in Pattern Recognition"

Uch. zap. Perm. un-t (Scientific Notes. Perm' University), 1971, No 259, pp 31-35 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1092)

Translation: Let there be  $N_1$  objects of class A and  $N_2$  objects of class B. Furthermore, let each object from classes A and B be described by tags  $x_1, x_2, \dots, x_n$ . An object may be treated as a point in n-dimensional Euclidean space, and the classes A and B as certain sets of points in this space. The problem of instruction in classification of objects from classes A and B consists in constructing a resolving function which is optimum in some sense. It is assumed (as is the case in practical problems) that the number n of tags is fairly great, or measurements of values of certain tags involve considerable expenditures or technical difficulties. In either case, the problem of a minimum description arises, i. e. the problem of selecting from among the tags the most informative ones (in some

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ABUSEV, R. A., DEVINGTAL', Yu. V., Uch. zap. Perm' un-t, 1971, No 259, pp 31-35

sense), the number of tags selected being  $m \leq n$ . A common disadvantage of conventional algorithms for minimizing a description is that they are cumbersome and involve considerable expenditures of time for computer realization. Solution of the problem can be considerably accelerated by an algorithm for selecting information tags by coefficients of the separating hyperplane. It is assumed in this algorithm that the absolute values of the coefficients of the separating hyperplane are proportional to the relative informativeness of the corresponding tags. The authors give the results of experiments on evaluating the informativeness of tags by three methods of this type: coefficients of the separating hyperplane, A. G. Frantsuz's method, and Yu. I. Neymark's method. E. Vagner.

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USSR

UDC 537.312.62

SAVITSKIY, Ye. M., DEVINGTAL', Yu. V., and GRIBULYA, V. B.

"Recognition of Metal Compounds of the Composition  $A_3B$  by Electronic Computer"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 39-50

Translation: Many superconductors are compounds of the stoichiometric composition  $A_3B$ . These include superconductors with the highest transition temperature to the superconducting state. It is known that some of these compounds are formed between low-melting and refractory components in a peritectic reaction, which makes their experimental production quite difficult.

There is therefore interest in determination of the characteristics or criteria for the presence of such compounds.

The use of recognition methods, mainly using computers, allowed certain empirical criteria both for the presence of these compounds and for methods of their formation to be found. Furthermore, these criteria allow the presence or absence of an area of homogeneity in the concentration interval to be indicated.

Examples are presented of recognition of superconducting compounds by computer.

1 figure; 9 tables; 10 biblio. refs.

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USSR

UDC 678.762.3-134.535.002.612

DEVIRTS, E. YA., IZMAYLOVA, L. V., and MOYSEYEV, V. V.

"Properties of an Isoprene-Nitrile Copolymer"

Moscow, Kauchuk i Rezina, No 12, 1972, pp 22-23

Abstract: A copolymer of isoprene and acrylonitrile (copolymer-30) is compared with another copolymer (copolymer-26m). Copolymer-30 has much less stability than copolymer-26m toward rolling at high temperatures, though at lower temperatures their stability is similar. An essential advantage of mixtures based on copolymer-30 over copolymer-26m is in the higher adhesion. The rates of vulcanization of both are similar unfilled rubber from copolymer-30 has high tensile strength and is comparable to unfilled from isoprene rubber.

Untreated rubber from copolymer-30 has a very low heat resistance, making it comparable to copolymer-26m. At room temperature the elasticity of copolymer-30 is much lower than that of copolymer-26m, at higher temperatures up to 100°C. elasticity is comparable. Noteworthy is the higher resistance to thermal aging found in untreated rubber from copolymer-30.

The elasticity of carbon black rubber from copolymer-30, is much lower than that of corresponding rubber from copolymer-26m, but when heated to 100°C

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DEVIRTS, E. YA., et al., Kauchuk i Rezina, No 12, 1972, pp 22-23

the elasticity of both is about the same. But heat resistance and resistance to thermal aging is much higher in carbon-black rubber from copolmer-30. There is also less swelling in a gasoline-benzene system(3:1). In other properties, such as tensile strength and residual deformation during pressing, the carbon-black rubbers from copolymers 30 and 26m are very similar.

Isoprene-nitrile rubbers use the same type of vulcanizing systems as do butadiene-nitrile rubbers. Also, the carbon black and the light fillers used for butadiene-nitrile rubbers can be used for copolymer-30 mixtures.

With rubber from copolymer-30 there is a significant strengthening in the presence of light, inactive fillers, surpassing copolymer 26m in such properties as resistance to tearing, relative and residual lengthening. Use of common plasticizers can increase cold resistance and elasticity in copolymer-30 mixtures, but this increase does not reach the values of plasticizer treated copolymer-26m.

The primary use of copolymer-30 will be in preparing glue and rubber mixtures of high adhesion. It can also be used for rubber manufactured articles having no need for high resistance to cold.

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USSR

UDC: 539.1.071

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ALEKSANDROV, I. A., BOLOTOV, V. I., DEVISHEVA, M. N., ~~DEVI-SHEV~~ M. I., ISAKOV, V. V., SAMOYLOV, A. V.

"Spark Spectrometer Investigation of a 70-GeV Particle Beam"

Moscow, Atomnaya Energiya, Vol 31, No 6, Dec 71, pp 589-593

Abstract: The authors evaluate the accuracy of the theoretical calculations for one of the channels of the accelerator at the Institute of High-Energy Physics by comparison with experimental measurements using a spark spectrometer. The initial statistics were gathered during graduation measurements made in an experiment to detect particles with a fractional charge (quarks). In these measurements, the channel was adjusted to a momentum of 60 or 65 GeV/s with an average angle of emergence  $\theta = 11$  and 0.14 mrad respectively. The magnetic spark spectrometer consists of four neon-filled spark chambers

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ALEKSANDROV, I. A., et al., *Atomnaya Energiya*, Vol 31, No 6, Dec 71, pp 589-593

with a gap of 200 mm and a working area of 400 x 400 mm. Between the spark chambers is an SP-12A1 magnet. A Minsk-2 computer was used in analyzing the films. Differential cross sections are calculated for production of negative particles in collisions between protons and aluminum nuclei. A comparison of theoretical and experimental beam characteristics shows that the accuracy with which the phase parameters of the beam were calculated is fairly high and technical realization of this accuracy is feasible. The results of calculation of the differential cross sections for negative particle production agree satisfactorily with the data in the literature found by another method. The authors thank Yu. D. Prokoshkin, responsible for initiation of this work; V. I. Kotov for interest in the work; and also Yu. S. Khodyrev and S. P. Denisov for constructive criticism. Five figures, bibliography of eight titles.

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UDC: 539.1.071

ALEKSANDROV, I. A., BOLOTOV, V. I., ~~DEVISHEVA, M. N.~~, DEVI-SHEV, M. I., ISAKOV, V. V., SANOYLOV, A. V.

"Spark Spectrometer Investigation of a 70-GeV Particle Beam"

Moscow, Atomnaya Energiya, Vol 31, No 6, Dec 71, pp 589-593

Abstract: The authors evaluate the accuracy of the theoretical calculations for one of the channels of the accelerator at the Institute of High-Energy Physics by comparison with experimental measurements using a spark spectrometer. The initial statistics were gathered during graduation measurements made in an experiment to detect particles with a fractional charge (quarks). In these measurements, the channel was adjusted to a momentum of 60 or 65 GeV/s with an average angle of emergence  $\bar{\theta} = 11$  and 0.14 mrad respectively. The magnetic spark spectrometer consists of four neon-filled spark chambers

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ALEKSANDROV, I. A., et al., *Atomnaya Energiya*, Vol 31, No 6, Dec 71, pp 589-593

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1/2 011 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--SYNTHESIS AND DETERMINATION OF THE LATTICE PARAMETERS OF NEW OXIDES  
OF COMPLEX COMPOSITION WITH PEROVSKITE STRUCTURE -U-  
AUTHOR-(05)-FILIPYEV, V.S., FESENKO, YE.G., DEVLIKANOVA, R.U., ZHAVORONKO,  
G.P., SHVOM, YE.A.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 179-81  
DATE PUBLISHED-----70  
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY  
TOPIC TAGS--MINERAL, OXIDE, CRYSTAL LATTICE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1984/0148 STEP NO--UR/0363/70/006/001/0179/0181  
CIRC ACCESSION NO--AP0054944  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054944

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE COMPOS. CA SUB3 TA SUB2 CDO  
SUB9 AND CA SUB3 TA SUB2 CAO SUB9 (CA SUB4 TA SUB2 O SUB9), A NEW TYPE  
OF PEROVSKITE LATTICE DISTORTION WAS OBSD. IN CONTRAST TO THE KNOWN  
TRICLINIC DISTORTION, THE PEROVSKITE LATTICE OF THESE COMPOS. IS  
OBTAINED FROM A SUPPLEMENTARY MONOCLINIC DISPLACEMENT ALONG THE LONG  
DIAGONAL OF THE BASE.

UNCLASSIFIED

USSR

UDC 632.954

DEVOCHKIN, F. A., SOKOLOVA, N. P., and OZDOYEV, B. A.,

"The Influence of Herbicides on the Anatomic Structure of the Husks of Onions"

Moscow, Khimiya v Sel'skom Khozyastve, Vol 10, No 5, 1972, pp 45-48

Abstract: The influence of various doses of Phaloran and dacthal on cell structure in onions was studied in order to use the data in determining optimal dosages without damage to the cultivated crop. The experiment took place on the Mikhailovskoye education farm on onion cultures of the Timiryazevskiy type. Phaloran was applied in dosages of 8 and 10 kg/ha, the dacthal in dosages of 15 and 20 kg/ha. Various plots were treated with and without a peat mulch, which when used had a thickness of 1.5 cm. The phaloran plots were treated upon the appearance of weed seed leaves; the dacthal plots 2 days after plantings of onion seeds. After harvesting, the variously treated onions and controls were preserved, then thoroughly examined under a microscope. In the treated onions there was apparently more cell division but the cells were smaller, and this phenomenon was in direct proportion to the herbicide dosage. Apparently also the peat mulch adsorbed some of the herbicide, thus lessening its effect on the onion and  
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DEVOCHKIN, F. A., et al., Khimiya v Sel'skom Khozyastve, Vol 10, No 5, 1972, pp 45-48

increasing its toxicity for weeds. Cells of the outer husks underwent greater changes, while the herbicides had a weakened effect by the time the inner husks began to grow. Morphologic-anatomic analysis seems to offer the possibility of determining optimal herbicide dosages with minimal damage to cultivated crops.

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1/2 017

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--TEMPERATURE FIELD OF AN INFINITE PLATE WITH VARIABLE THERMAL PROPERTIES -U-

AUTHOR-(G2)-DEVUCHKINA, S.I., BROVKIN, L.A.

COUNTRY OF INFO--USSR

SOURCE--INZHENERNO-FIZICHESKIY ZHURNAL, 1970, VOL 18, NR 1, PP 180-183

DATE PUBLISHED--70

D

SUBJECT AREAS--PHYSICS

TOPIC TAGS--TEMPERATURE DEPENDENCE, NCMGGRAPHY, THERMAL ANALYSIS METHOD, MATHEMATIC ANALYSIS, THERMODYNAMICS

CCNTRCL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0540

STEP NO--UR/0170/70/018/001/0180/0183

CIRC ACCESSION NO--AP0121212

UNCLASSIFIED



2/2 017

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0121212

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIG. 1. TIME OF HEATING THE SURFACE OF INFINITE PLATE (THEATA EQUALS 1 MINUS THETA SUBN) AT T (X, 0) EQUALS TO SUBO IN MEDIUM WITH T SUBO EQUAL CONST FI THERMAL PARAMETERS OF BODY ARE PREDICTED BY EQUATIONS. FIG. 2. TIME OF HEATING MIDDLE PLANE OF PLATE (THETA EQUALS 1 MINUS THETA SUBU). CONDITIONS AND THERMAL PARAMETERS THE SAME AS IN FIG. 1. SUMMARY. THE NOMOGRAMS PROPOSED IN THE PAPER ALLOW CALCULATION OF THE TEMPERATURE FIELDS OF THE BODIES WITH ACCOUNT FOR THE TEMPERATURE DEPENDENCE OF THE THERMO PHYSICAL COEFFICIENTS. THE ERROR IN USING THE NOMOGRAMS WAS BY THE ORDER LESS THAN THAT IN GENERALLY ADOPTED ENGINEERING CALCULATION AT MEAN CONSTANTS.

UNCLASSIFIED

USSR

SOBOLEVA, A. D., and DEVOYNO, L. V.

"The Problem of Formation of Tomentum-Like Structures in Lymph Organs Upon Immunization"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, No 5, Apr 71, pp 152-153

Abstract: On immunization of mice with bovine serum albumin, tomentum-like structures formed in the thymus and sometimes in the spleen and lymph nodes of animals. Staining according to Feulgen indicated that these structures were a morphological manifestation of DNA formation. The immunological response of organs is always accompanied by a reinforced synthesis of DNA. The synthesis of DNA is inhibited by the formation of specific immune proteins. For this reason, development of the tomentum-like structures was less pronounced in the spleen and lymph nodes, in which precursors of globulins are formed.

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Acc. Nr: **AP0051953**

Ref. Code: **PR 0219**

**DEVOYNO**  
PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i Meditsiny, 1970, Vol **69**, Nr **2**, pp **63-66**

IMMUNE RESPONSE OF THE REGIONAL LYMPH NODE CELLS AGAINST THE BACKGROUND OF THE EFFECT PRODUCED BY 5-OXYTRYPTOPHAN AND 3,4-DIOXYPHENYLALANINE

L. V. Devoyno, L. S. Yeliseyeva (Korovina)

Institute of Physiology of the Academy of Sciences of the USSR (Novosibirsk)

Tests conducted on mice revealed that multiple daily administration of 50 mg/kg of 5-oxytryptophan (5-HTP) by the intraperitoneal route led to the diminution of cells producing antibodies to the bovine serum albumin. Analogous effect was also achieved with a single introduction of this substance in the same dose, deposited at the site of its administration. An increase of the dose up to 100 mg/kg reduced not only the number of producing cells, but also brought down the amount of the antigen sorbed by the cell. Introduction of 3,4-dioxyphenylalanine was followed by stimulation of the immunogenic process, finding its expression in the rise of the producing cell number. This effect is age-qualified.

REEL/FAME  
**19820440**

*zbc*

USSR

UDC: 519.2

DEVULIS, G. S.

"Estimating the Error of an Approximate Bayes Algorithm"

Vil'nyus, Ob otsenke pogreshnosti odnogo priblizhennogo bayesova algoritma (cf. English above), Institute of Physics and Mathematics, Academy of Sciences of the Latvian SSR (manuscript deposited in VINITI 23 Jan 73, No 5426-73 Dep.) (from RZh-Kibernetika, No 5, May 73, abstract No 5V275 Dep by the author)

Translation: An approximate Bayes algorithm is proposed for the case where storage is limited to one case of observation. In contrast to algorithms already known for this class, the proposed algorithm is more accurate; an upper estimate of the error of the algorithm is presented.

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1/2 023 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--MAGNETIC PROPERTIES OF UNALLOYED TRANSFORMER STEEL UNDER VARYING  
ANNEALING CONDITIONS -U-  
AUTHOR--(05)--GREBENIK, N.P., DEVVOTKO, V.I., KAZADZHAN, L.B., MIRONOV,  
L.V., LOSEV, K.F.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR. SER. FIZ. 1970, 34(2), 348-50  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--TRANSFORMER STEEL, MAGNETIC PROPERTY, ANNEALING, ALLOY  
DESIGNATION, COLD ROLLING, MAGNETIC INDUCTION/(U)08KP LOW CARBON STEEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1995/0180 STEP NO--UR/0048/70/034/002/0348/0350  
CIRC ACCESSION NO--AP0115884  
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NG--AP0115884

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE STUDY WAS CARRIED OUT WITH STEEL GRADE 08KP (C 0.065, SI TRACES, MN 0.52, P 0.015, S 0.011, NI 0.07, CR 0.07, CU 0.09, AND AL 0.01 WT. PERCENT) MELTED IN AN ELEC. ARC FURNACE. BANDS, 3.0 MM THICK, WERE SUBJECTED TO BLACK ANNEALING AT 780DEGREES, WHEREUPON THE C CONTENT DECREASED TO 0.009-0.015PERCENT. AFTER PICKLING THE STEEL WAS COLD ROLLED TO 0.50 MM THICKNESS. SPECIMENS WERE CUT OUT LONGITUDINALLY AND TRANSVERSE TO THE ROLLING DIRECTION AND ANNEALED AT 10 PRIME NEGATIVE 2 TORR AT VARIOUS CONDITIONS. MAGNETIC AGING WAS TESTED AT 120DEGREES FOR 120 HR. MAGNETIC INDUCTION SIGNIFICANTLY INCREASED WITH RISING TEMP., REACHING A MAX. AT 700-20DEGREES. THE SP. CORE LOSSES OCCURRED WITH INCREASING ANNEALING TEMP. TO 700-50DEGREES; HIGHER TEMPS. CAUSED ONLY SMALL DECREASES. INCREASING THE HOLDING TIME OVER 1.5-2 HR AT 750DEGREES HAD LITTLE EFFECT ON THE SP. CORE LOSSES. THE AGING AFFECTED THE SP. CORE LOSSES LITTLE. THE ANISOTROPY OF MAGNETIC INDUCTION DID NOT EXCEED 4PERCENT. TO PREVENT WELDING TOGETHER OF SHEETS THE ANNEALING TEMP. SHOULD BE LESS THAN OR EQUAL TO 800DEGREES AND HOLDING TIME LESS THAN OR EQUAL TO 2 HR. FACILITY: TSNICHM IM. BARDINA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 531.01

DEVYANIN, YE. A.

"Analogy of the Motion of Unperturbed Gyrovertical Devices to the Motion of a Material Plate"

Nauch. tr. In-t mekh. Mosk. un-ta (Scientific Works of the Institute of Mechanics of Moscow University), 1970, No. 7, pp 44-54 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9A87)

Translation: It is shown that the equations of motion for a physical pendulum, a two-gyroscope and four-gyroscope gyrovertical, if conditions of unperturbability and the condition of motion and constant altitude are fulfilled, coincide with the equations of motion of a material point at the central gravitational field of the earth. The equations of motion of the point of a suspension at the axes of a trihedron, two axes of which are horizontal are first compiled and rotation at the azimuth is given. The Euler equations are then given for a physical pendulum under the same axes; these equations coincide with the equations of motion of a point of the suspension under conditions of unperturbability (vertical com-

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DEVYANIN, YE. A., Nauch. tr. In-t mekh. Mosk. un-ta, 1970, No. 7, pp 44-54

ponent of the angular velocity equal to zero, frequency of free oscillations equal to the Schuler frequency). The condition of unpertability for a two-gyroscope gyrovertical, which leads to coincidence of equations for a certain rigidity of the spring, is the same as in a gyrohorizontal compass. Coincidences obtained for a four-gyroscope gyrovertical under certain rigidities of the springs and a certain displacement of the center of gravity. An analogy is established and the differences are noted between gyropendulum devices and inertial systems. I. B. Chelpanov.

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USSR

UDC 531.1

DEVYANIN, YE. A., Moscow

"General Equations for an Inertial Navigation System"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 4, Jul-Aug 73, pp 80-86

Abstract: General formulas are derived for a disturbance-free inertial navigation system. With this in mind, the concepts of "inertial" and "disturbance-free" are introduced as they apply to a system. The concept of an inertial navigation system is determined by the composition of the pickups of initial information entering the input. In the case of an inertial system, these are the newtonometer and the gyroscopic devices which measure or assign the absolute angular velocity of a trihedron which is connected to the newtonometer. The disturbance-free system represents an inertial navigation system which accurately determines the location of an object within moving axes with precise execution of computational operations in the absence of instrument error and with the introduction of the initial conditions with respect to all of the variable into the system. A general mathematical model is set up of an inertial disturbance-free navigation system on the basis of the introduced definitions. It is assumed that this model can be represented by a system of ordinary differential equations in Cauchy form. A structure is established for the equations of the model as a consequence of the inertiality and freedom from disturbances of the system.

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1/2 017 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--THEORY OF AN UNPERTURBABLE BIGYROSCOPIC VERTICAL -U-  
AUTHOR--DEVYANTIN, YE.A. D  
COUNTRY OF INFO--USSR  
SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA TVERDUGO TELA, MAY-JUNE  
1970, P. 149-154  
DATE PUBLISHED-----70  
SUBJECT AREAS--NAVIGATION  
TOPIC TAGS--MOTION EQUATION, GYROSCOPE MOTION, PENDULUM, PENDULUM  
MECHANICS, ERROR ANALYSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605007/D06 STEP NO--UR/0484/70/000/000/0149/0154  
CIRC ACCESSION NO--AP0139881  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0139881

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF THE CONDITIONS OF NONPERTURBABILITY AND THE EQUATIONS OF MOTION OF A BIGYROSCOPIC VERTICAL CONSISTING OF TWO GYROSCOPIC PENDULUMS. IT IS ASSUMED THAT THE SUSPENSION POINT OF THE DEVICE IS MOVING AT AN ARBITRARY VELOCITY LESS THAN THE ESCAPE VELOCITY. IN CONTRAST TO THE EQUATIONS OF MOTION OF OTHER GYROPENDULUM DEVICES, THE EQUATIONS OF MOTION OF THE BIGYROSCOPIC VERTICAL DO NOT REDUCE TO THE EQUATIONS OF MOTION OF A MATERIAL POINT ON A SPHERE AND ARE NOT EQUIVALENT TO THE ORDINARY EQUATIONS FOR AN INERTIAL SYSTEM WITH TWO HORIZONTAL ACCELEROMETERS. THE ERROR EQUATIONS FOR THESE SYSTEMS ALSO DIFFER. THESE DIFFERENCES CAN BE SUBSTANTIAL WHEN THE SUSPENSION POINT IS MOVING AT HIGH VELOCITIES AND THE DEVIATIONS FROM THE UNPERTURBED POSITION ARE LARGE. THE SPECIAL FEATURES OF THE BEHAVIOR OF A BIGYROSCOPIC VERTICAL ARE INVESTIGATED FOR THE CASE WHERE ITS SUSPENSION POINT IS STATIONARY IN INERTIAL AXES.

UNCLASSIFIED

1/3 - 016  
UNCLASSIFIED  
PROCESSING DATE--27NOV70  
TITLE--BRONCHOLOGICAL INVESTIGATIONS UNDER NARCOSIS -U-  
AUTHOR--(03)-BODAREV, V.KH., DEVYATERIKOV, A.I., LEVSHANKOV, A.I.  
COUNTRY OF INFO--USSR  
SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, NO 3, 1970, PP 45-49  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RESPIRATORY SYSTEM DISEASE, TUBERCULOSIS, THORACIC SURGERY,  
MEDICAL EXAMINATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3006/0675  
STEP NO--UR/0177/70/000/003/0045/0049  
CIRC ACCESSION NO--AP0134424  
UNCLASSIFIED

2/3 016

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134424

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SIDE APPLICATION OF BRONCHOLOGICAL INVESTIGATIONS IN DISEASES OF THE LUNGS, AND ESPECIALLY IN TUBERCULOSIS, BECAME POSSIBLE THANKS TO THE WORK OF A. N. VOZNESENSKIY, A. A. LAPINA, G. I. LUKOMSKIY, V. V. PUCHKOV, L. YE. REBANE, V. F. UNDRITS, A. ALTYPARMAKOV AND MANY OTHERS. THE DEVELOPMENT OF THORACIC SURGERY, THE IMPROVEMENT OF THE APPARATUS AND INSTRUMENTATION, ANESTHESIA AND PROCEDURES OF BRONCHOLOGICAL INVESTIGATIONS, AND ALOS THE APPLICATION OF NEW CONTRAST SUBSTANCES ON A BACKGROUND OF EFFECTIVE ANTIBACTERIAL TREATMENT WITH MODERN ANTIBIOTICS AND CHEMICALS HAVE MADE THOSE INVESTIGATIONS PRACTICALLY WITHOUT DANGER. IN A NUMBER OF PULMONARY DISEASES BRONCHOSCOPY HAS BECOME OBLIGATORY. EXAMINATION OF THE TRACHEA AND LARGE BRONCHI, SONDING OF THE SEGMENTARY AND SUBSEGMENTARY BRONCHI, ASPIRATION OF THEIR CONTENTS TO DETERMINE THE MICROFLORA AND STUDY OF THE CELLULAR COMPOSITION (CATHETERBIOPSY), AND SELECTIVE CONTRASTING OF THE BRONCHI, ALL THESE MEASURES PERMIT CONSIDERABLY FACILITATING AND ACCELERATING DIFFERENTIAL DIAGNOSIS, WHICH IS ESPECIALLY IMPORTANT FOR THE RECOGNITION OF TUMEROUS AND SUPPURATIVE PROCESSES, TUBERCULOSIS, AND FUNGOUS AFFECTIONS (V. P. FILIPPOV, YE. D. TIMASHEVA, F. A. ASTRAKHANTSEV, AND OTHERS. WE HAVE AT OUR DISPOSAL DATA ON THE BRONCHOLOGICAL INVESTIGATIONS OF A LARGE GROUP OF PATIENTS. THEY WERE CONDUCTED BY US AS AN INHERENT ELEMENT OF PRE OPERATIVE EXAMINATION AND ALSO IN ALL FORMS OF PULMONARY TUBERCULOSIS WITH DEGENERATION OR SUSPICION OF TUBERCULOSIS OF THE BRUNCHI, AND IN THE DIFFERENTIAL DIAGNOSIS OF VARIOUS PULMONARY DISEASES.

UNCLASSIFIED

3/3. 016

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134424

ABSTRACT/EXTRACT--IN THE PRESENT REPORT WE WILL DEAL ONLY WITH  
INVESTIGATIONS CONDUCTED IN PREPARATION FOR LUNG RESECTION.

UNCLASSIFIED

USSR

UDC 669.71.472(088.8)

DEVYATERIKOV, N. A.

"Mastic for Sealing Gas Collector Column Sections of an Aluminum Electrolyzer"

USSR Author's Certificate No 266218, Filed 2/04/68, Published 26/06/70,  
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract  
No 2 G155 P)

Translation: To increase the sealing of the bell and the service life of the seal, magnetic materials and liquid glass are introduced into the mastic composition in the following ratio of components (in %): magnetic material 60-70, cooking salt 5-10, liquid glass 20-35%. The magnetic material used is a compound selected from a group containing iron filings and Fe scale.

1/1

- 5 -

USSR

UDC 669.71.042.62

BALAKHONTSEV, G. A., ANDREYEV, Y. F., DEVYATKIN, A. B., TEMNIKOV, A. V.,  
SHADRIN, G. G.

"Selection of Height of the Direct Cooling of an Ingot With Water During  
Continuous Casting With Blowing"

Tekhnol. Legkikh Splavov. Nauchno-tekhn. Byul. VILSa [The Technology of Light  
Alloys, Scientific and Technical Bulletin of the All-Union Institute of Light  
Alloys], 1970, No. 5, pp 9-12. (Translated from Referativnyy Zhurnal Metallur-  
giya, No. 5, 1971, Abstract No. 5 G135 by S. Krivonosova).

Translation: In order to determine the optimal height of the cooling band,  
electric modeling of the temperature fields in an ingot 720 mm in diameter was  
performed with a casting rate of 20 mm/min, using type-D16 alloy. Modeling  
was performed using a quasi-analog method, allowing both conductive heat trans-  
fer and heat transfer due to movement of the body (convection) to be considered.  
The optimal water blowing height was found to be  $160 \pm 10$  mm. However, the de-  
sired parameter is rigidly related to the quantities which determine it. For  
example, a change in blowing height by 20 mm changes the surface temperature  
from 50 to 150°. Therefore, when a new technology is being introduced, prelim-  
inary investigation of the process with the electric model is required. 4  
figs.

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AA0051774 - DEVYATKIN S.A.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

1/70

239660 CODE CONVERTER from a residual class system into a weighted number system with a mixed set of bases has between the register of the number to be converted and a pyramid matrix and between the latter and the register of the result identical logic circuits for the commutation of each of the inputs of each position. Any non-coincidence of the results of the first and second checks is established by a comparator circuit in parallel to the register of the result.

2.1.68. as 1206622/18-24. A.I. DOLGOV et alia(28.7.69)  
Bul 11/18.3.69. Class 42 m 3. Int.Cl. G 06 f.

AUTHORS: Dolgov, A. I.; Devyatkin, S. A. MT  
Bragin, I. F.

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19820130

USSR

D UDC 621.3/3.42.64:621.385.6(038.8)

GINZBURG-PRESNOV, V. S., DEVYATKIN, I. I., ZUSMANOVSKIY, A. S., TSEYTLIN, A. M.

"Superhigh Frequency Magnetron Generator"

USSR Author's Certificate No 251016, Filed 23 May 67, Published 5 Nov 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D295P)

Translation: In order to improve the reliability of a superhigh frequency magnetron generator (see RZh-Radiotekhnika, 1968, 4D366), it is proposed that the primary winding of the heater transformer of the first magnetron be connected in series to the primary winding of the heater transformer of the second magnetron.

1/1

USSR

UDC 535.853.23:533.9.07

BACHURINA, L. G., ~~DEVYATKIN, I. I.~~, PERMINOVA, V. M., TSEMKO, N. I.; CHUPRINA, L. K.

"Microwave Plasma Solution Analyzer"

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

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

1/1

USSR

SOLYAKOV, S. P., BELKIN, G. I., TATAKIN, A. N., NACHAYEV, V. M., ZOBININ, S. I.,  
ZYEV, N. M., IVANOV, A. B., VUKOLOV, V. V., SVALOV, G. N., DEVYATKIN, V. N.,  
ALEKSANDROV, V. A., GRIBOV, V. I.

"Method of Processing Slimes from Electrolytic Production of Magnesium"

Author's Certificate No 278126, filed 11/02/69, published 18/11/70. (Translated from Referativnyy Zhurnal Metallurgiya, No 2, 1972, Abstract No 2G185).

Translation: In order to use the slime for production of Mg, it is fed from the electrolyzers to chlorinators together with the depleted  $MgCl_2$  electrolyte in the form of a pulp containing 1-10%  $MgO$  and 5-25%  $MgCl_2$ . The chlorinators also receive the Cl-Mg raw material and  $Cl_2$ , after which the electrolyte, enriched with  $MgCl_2$ , is fed to the electrolyzers.

1/1

1/2 GCS UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--SOLUBILITY OF CARBON DIOXIDE IN CHLORIDE MELTS -U-  
AUTHGR--(G2)--DEVYATKIN, V.N., ILICHEVA, O.N.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 253  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CARBON DIOXIDE, MELTEN CHLORIDE, FUSED SALT, SOLUBILITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY KEEL/FRA--3001/0459 STEP NO--UR/0076/70/044/001/0253/0253  
CIRC ACCESSION NO--AP0126211  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSIGN NO--AP0126211

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. OF CO SUB2 IN MELTED  
NaCl (I), KCl (II), AND CsCl (III) INCREASES LINEARLY WITH INCREASING CO  
SUB2 PARTIAL PRESSURE ACCORDING TO HENRY'S LAW. TEMP. DEPENDENCE OF THE  
SOLY. C FOLLOWS THE EQUATION  $C = C_{SUB0} \exp(Q-RT)$  WHERE Q IS THE  
MOL. HEAT OF SOLN. AND C SUB0 IS A CONST. THE EXPTL. VALUES OF Q (IN  
CAL) AND C SUB0 (IN MOL. FRACTIONS TIMES 10 PRIMES) FOR I, II, AND III  
ARE: MINUS 5804, 36.1; MINUS 5047, 38.9; MINUS 6434, 108.4; RESP. NO  
INTERACTIONS BETWEEN THE SOLN. COMPONENTS WERE FOUND.

UNCLASSIFIED

USSR

UDC 669.721.472

STRELETS, Kh. L., DEVYATKIN, V. N., TATAKIN, A. N., CHESNOKOV, A. S., CHISTYAKOVA, V. S., MEDVETSKAYA, G. A., BONDARENKO, N. V.

"Development of Designs of Diaphragmless Magnesium Electrolyzers"

Tr. Vses. N-i. i Proyechn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 41-47. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G195 by the authors).

Translation: Results are presented from testing of pilot-scale diaphragmless electrolyzers (DE) with upper and lower input of anodes. The DE allow the specific consumption of electric power to be decreased by about 1500 kw-hr/t Mg, increasing the specific removal of Mg by 30-35% and decreasing the losses of Cl in the exhaust gases. The results of testing indicated that DE with lower position of the anodes should be introduced at two plants. 2 figs; 2 tables, 6 biblio refs.

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AA0040676

DEVYATKIN

V.N.

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UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent.  $\frac{1}{70}$

241694 MAGNESIUM ELECTROLYSER LINING is made up of a thin asbestos layer 1, furnace slag 2, heat resistant concrete 3, and firebricks 4. This reduces the liner cost by 8-15 times without adversely affecting thermal insulation.

AUTHORS: Sprygin, A. I.; Kuz'min, V. V.; Bashkatov, V. V.;  
Volchkov, G. V.; Devyatkin, V. N.; Aleksandrov, V. A.;  
and Kolesnikov, V. A.

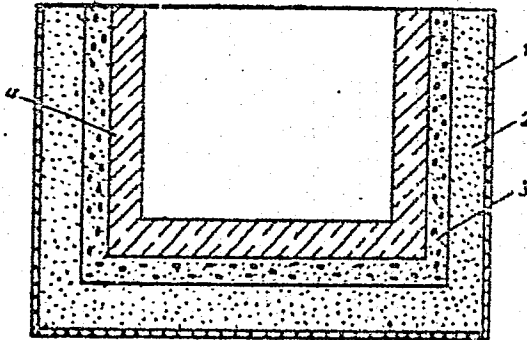
$\frac{1}{2}$

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AA0G4Q676



26.2.68 as 1221183/22-1. A.I. SPRYGIN et alia  
(25.8.69) Bul 14/18.4.69. Class 40c. Int.Cl.C22d.

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19750280

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USSR

UDC: 621.317:621.372.852.3

PETROSYAN, F. N., DEVIATKOV, G. K., YUDINA, O. S.

"A Speed Reducer for a Polarization Attenuator With Uniform Scale in Decibels"

Tr. VNIi Fiz.-tekhn. i radiotekhn. izmereniy (Works of the All-Union Scientific Research Institute of Physicotechnical and Radio Engineering Measurements), 1970, vyp. 2(32), pp 66-71 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5A209)

Translation: The paper describes a speed reducer designed for making a polarization attenuator with uniform scale in decibels, which is especially convenient for use in systems with automatic recording of a change in signal level. Two illustrations, one table.

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USSR

UDC 621.385.623.5:621.372.233

DEVYATKOV, M.N., KOSTIYENKO, A.I., PIROGOV, YU. A., ROMANYUK, S.K.

"Investigation Of Reflex Klystrons In Regimes Of Rectification And Bias"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 9, pp 86-90 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12A165)

Translation: Reflex klystrons for the 3-cm, 8-mm, and 4-mm band were investigated in regimes of rectification and signal bias. Their sensitivity in a rectification regime is not lower, and in a number of cases is higher, than the sensitivity of crystal rectifiers for corresponding wave bands. Author's Abstract.

1/1

1/2 031 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--THE REACTION OF AN INTERELECTRODE SPACE, WITH A VIRTUAL CATHODE, ON  
THE TEMPERATURE CHANGE OF THE ELECTRON BEAM --U--  
AUTHOR--(02)--OVCHINNIKOVA, G.I., DEVYATKOV, M.N.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK MOSKOVSKOGO UNIV. FIZ. ASTRON. (USSR), VOL. 11, NO. 1, P.  
3-10 (1970)

DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--TEMPERATURE CHARACTERISTIC, SEMICONDUCTOR DIODE, ELECTRON  
BEAM, CATHODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1684

STEP NO--UR/0188/70/011/001/0003/0010

CIRC ACCESSION NO--AP0122014

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0122014

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APPROXIMATE CALCULATION OF TEMPERATURE SENSITIVITY OF A "MODIFIED" DIODE (AN IDEALISED MODEL WITH PLANE GEOMETRY) IN ITS VIRTUAL CATHODE MODE OF OPERATION IS GIVEN. EXPERIMENTAL MEASUREMENTS ARE COMPARED WITH THE RESULTS OF CALCULATIONS.

UNCLASSIFIED

USSR

UDC 621.383.29.032.11

DEVYATKOV, M. N., SHARIKHIN, V. P.

"Modification Of Photoelectron Detector With Virtual Cathode For Microwave Demodulation Of Light Signal"

Elektron, tekhnika. Nauch.-tekhn. sb. Elektron, SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1972, Issue 4, pp 33-35 (from RZh: Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9A163)

Translation: The paper discusses the design variations of a photodetector in which efficiency of operation at microwave frequencies is assured by the introduction of a supplementary device of the diode transit interval type or the delay system type for separation of a demodulated signal. The design variations assure the possibility of using the photodetector for wide-band demodulation of light signals. 1 ill. 5 ref. Summary.

1/1

- 102 -

USSR

UDC: 577.4

GAVRILOV, M. A., DEVYATKOV, V. V., POTEKHIN, A. I., CHICHKOVSKIY, A. B.,  
PUPIREV, Ye. I.

"Technical Requirements for an Automated System for Logical Synthesis of Discrete Controlling Devices. Using Procedures of Dialog With a Computer in Synthesizing Such Devices. By Way of Discussion"

Inform. materialy. Nauch. sovet po kompleks. probl. "Kibernetika" AN SSSR  
(Informational Materials. Scientific Council on the Complex Problem of Cybernetics, Academy of Sciences of the USSR), 1971, No 7(54), pp 62-112 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V325)

[No abstract]

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USSR

DEVYATKOV, V. V.

"Algorithm for Realization of a Finite Automaton Based on Shift Registers"

Abstraktn. i Struktur. Teoriya Releyn. Ustroistv. [Abstract and Structural Theory of Relay Devices -- Collection of Works], Moscow, Nauka Press, 1972, pp 157-167 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V604 by the author).

Translation: An algorithm is suggested for realization of a finite automaton based on binary shift registers, based on the use of a certain class of binary subdivision shift registers. The algorithm is presented in LYaPAS.

1/1

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1/2 009 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--DETERMINATION OF THE MONETHYL ADIPIC ACID CHLORIDE -U-  
AUTHOR--(04)--SOLUNINA, I.A., PARFENOVA, V.V., DEVYATNIN, V.A., KUZNETSOVA,  
T.N.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. FARM ZH. 1970, 4(2), 46-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY  
TOPIC TAGS--CHEMICAL ANALYSIS, ADIPIC ACID, CARBOXYLIC ACID CHLORIDE,  
HYDROLYSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1993/0538 STEP NO--UR/0450/70/004/002/0046/0048  
CIRC ACCESSION NO--AP0113429  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113429

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PROCEDURE WAS DEVELOPED FOR DETG. THE TITLE COMPD. (I) IN THE PRESENCE OF MONO ET ADIPATE (II) AND HCL. THE PROCEDURE WAS BASED ON ETHANOLYSIS OF I WITH ABS. ETOH TO FORM DI ET ADIPATE AND HCL, AND ON HYDROLYSIS OF I TO FORM II AND HCL. A TITRIMETRIC DETN. OF THE ACIDS FORMED BOTH REACTIONS PERMITS THE I CONTENT TO BE ASSESSED FROM THE DIFFERENCE. THE HCL CONTENT WAS DETD. BY THE VOLHARD METHOD. THE PROCEDURE IS AS FOLLOWS: DISSOLVE A SAMPEL (SIMILAR TO 0.15 G) IN 5 ML ABS. ETOH, ADD SEVERAL DROPS OF BROMOTHYMOL BLUE AND TITRATE WITH 0.1 N NAOH. THEN ADD 10 ML 16PERCENT HNO SUB3, 20 ML 0.1 N AGNO SUB3, AND BACK TITRATE THE AGNO SUB3 WITH 0.1 N NH SUB4 SCN IN THE PRESENCE OF NH SUB4 FE(SO SUB4) SUB2. DISSOLVE ANOTHER SAMPLE IN 5 ML DIOXANE, ADD 20 ML H SUB2 O, AND TITRATE WITH 0.1 N NAOH USING THE SAME INDICATOR AS IN THE 1ST TITRN. CALC. THE CONTENT OF I, II, AND HCL FROM THE GIVEN FORMULAS. THE RELATIVE ERRORS OF THE DETN. OF I, II, AND HCL BY THIS PROCEDURE WERE 5.5, 1.1, AND 15.0PERCENT, RESP. FACILITY: VSES. NAUCH. ISSLED. VITAMIN. INST., MOSCOW, USSR.

UNCLASSIFIED

1/3 008 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--REMOVAL OF PENTOSANS FROM SULFITE PULP -U-

AUTHOR--(02)-DEVYATOVA, A.P., SHARKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--BUM. PROM. 1970, (3), 4-5

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, MATERIALS

TOPIC TAGS--PENTOSE, GUM RESIN, SULFITE, CELLULOSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1436

STEP NO--UR/0329/70/000/003/0004/0005

CIRC ACCESSION NO--AP0116882

UNCLASSIFIED

2/3 008

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116882

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. WERE CONDUCTED TO DET. THE EFFECTIVENESS OF PURIFICATION OF SULFITE DISSOLVING PULP BY DIFFERENT METHODS OF ALKALI REFINING. THE SULFITE PULP CONTAINED 92.4PERCENT ALPHA CELLULOSE AND 2.45PERCENT PENTOSANS AND HAD A SOLY. IN 10PERCENT NAOH OF 11.6PERCENT AND A D.P. OF 850. THE PULP WAS REFINED BY THE FOLLOWING 3 PROCESSES: HOT ALKALI REFINING WITH 2PERCENT NAOH AT A BATH RATIO OF 1:25 FOR 1 HR AT 110-170DEGREES; HTO COLD REFINING IN WHICH THE ABOVE PROCEDURE WAS FOLLOWED BY TREATMENT WITH 10PERCENT NAOH FOR 1 HR AT A BATH RATIO OF 1:50 AND 20DEGREES; AND COLD HOT REFINING, CONSISTING IN REVERSAL OF THE ORDER OF TREATMENTS BY THE 2ND PROCEDURE. HOT REFINING AT 110-150DEGREES GAVE PULP STILL CONTG. SIMILIAR TO 1PERCENT PENTOSANS, AND, AT 150DEGREES, THE CELLULOSE LOSS WAS 13.5PERCENT. AT 170DEGREES, THE PENTOSAN CONTENT DROPPED TO 0.5PERCENT, BUT THE CELLULOSE LOSS WAS 18PERCENT, AND THERE WAS A SUBSTANTIAL DECREASE OF D.P. COMBINED REFINING METHODS GAVE BETTER RESULTS: A DECREASE OF PENTOSAN CONTENT TO 0.36-0.31PERCENT, BUT AT A CELLULOSE LOSS OF 17-29PERCENT. HOT COLD REFINING GAVE REFINED PULP WITH THE HIGHEST D.P., BUT ALSO SHOWED THE MAX. LOSS OF CELLULOSE. COLD HOT REFINING STRONGLY REDUCED THE PENTOSAN CONTENT AT RELATIVELY SMALLER LOSSES OF CELLULOSE. AT AN EQUAL DEGREE OF PURIFICATION, THIS METHOD GAVE REFINED PULP WITH THE MIN. D.P. MILLING OF DRY PULP IN A VIBRATORY MILL PRIOR TO ALKALI REFINING MADE THE REMOVAL OF PENTOSANS MORE DIFFICULT, APPARENTLY BECAUSE OF SWELLING OF THE PULP IN THE ALKALI SOLNS., THE SURFACE LAYER OF SWOLLEN MATERIAL PREVENTING THE DISSOLN. OF PENTOSANS.

UNCLASSIFIED

3/3 008 UNCLASSIFIED PROCESSING DATE--23OCT70  
CIRC ACCESSION NO--AP0116882  
ABSTRACT/EXTRACT--FACILITY: LENINGRAD. LESOTEKH. AKAD. IM. KIROVA,  
LENINGRAD, USSR.

UNCLASSIFIED

USSR

REPINSKIY, S. M., DEVYATOVA, S. F.

"Temperature Dependence of Dissolution of Semiconductor as a Process Including Adsorption Equilibrium"

Temperaturnaya Zavisimost' Rastvoreniya Poluprovodnika kak Protsessa, Vkluchayushchego Adsorbtsionnoye Ravnovesiye [English Version Above], Moscow, 1971, 7 pages (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1396 Dep. by the author's).

Translation: The dissolution of a semiconductor is studied as a process of desorption of the reaction products; the preexponential factor in the kinetic equation is determined by the adsorption isotherm of the oxidizer molecules. It is demonstrated that the effective activation energy of the process at low oxidizer concentrations has a lower value than at high concentrations, by the heat of adsorption of the oxidizer molecules. The ratio of the preexponential factors is equal to the ratio of the statistical sums of the states of the oxidizer particles adsorbed and in solution.

1/1

172 007 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--PURIFICATION OF VINYL ACETATE BY FRACTIONAL DISTILLATION AT LOW  
PRESSURE --U-  
AUTHOR--(02)-DEVYATYKH, G.G., UMILIN, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970 43(3) 578-81  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--DISTILLATION, VINYL COMPOUND, ACETATE, CHEMICAL SEPARATION,  
ACETIC ACID, ACETONE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/0338 STEP NO--UR/0090/70/043/003/0578/0581  
CIRC ACCESSION NO--AP0111532  
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111532

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CH SUB2:CHJAC WAS DISTD. AT 100 PLUS OR MINUS 5 MM AND 24DEGREES IN A 2 M 11 MM INNER DIAM. COLUMN FILLED WITH GLASS FENSKE RINGS (DIAM. 4 MM). THE SEPN. FACTORS OF ACH, ACOH, AND ME SUB2 CO IN CH SUB2:CHJAC AT 24DEGREES ARE 2.45, 4.30, AND 1.80, RESP. THE RELATIVE VOLATILITY OF ACH IS INFLUENCED BY THE PRESENCE OF ACOH.

UNCLASSIFIED



1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT71  
TITLE--INTENSE PURIFICATION OF TETRABUTYL TIN BY A FRACTIONAL DISTILLATION  
METHOD -U-  
AUTHOR--(03)--DEVYATYKH, G.G., UMILIN, V.A., TSINOVVOY, YU.N.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 541-6 D  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANOTIN COMPOUND, CHEMICAL PURITY, FRACTIONAL DISTILLATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRACTION--2000/0739 STEP NO--UR/0062/70/000/003/0541/0546  
CIRC ACCESSION NO--AP0124409  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--30OCT7

CIRC. ACCESSIGN NO--AP0124409

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CIRCULATING TYPE OF EBULLIOMETER WAS USED TO RECTIFY CRUDE BU SUB4 SN AND TO EVALUATE THE SEPN. COEFFS. OF THIS SUBSTANCE FROM BU SUB3 SNCL. THE BEST METHOD OF PURIFICATION IS RECTIFICATION IN HIGH VACUUM, WHICH MADE POSSIBLE PRODUCT PURITY OF LESS THAN 5 TIMES 10 PRIMENEGATIVE4 MOLE PERCENT IMPURITIES. THE VALUES OF SEPN. COEFFS. WERE TABULATED VS. THE THERMODYNAMIC ACTIVITY COEFFS. OF COMPONENTS IN THE CRUDE MATERIAL. FOR BEST RESULTS THE HIGH BOILING ADMIXTS. WERE REMOVED FIRST, THEN THE LOW BOILING IMPURITIES WERE SEPD. THE DESIGN OF THE DISTN. COLUMN WAS SHOWN DIAGRAMMATICALLY. FACILITY: LAB. STABIL. POLIM., GORKI, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--CALCULATION OF A THERMODYNAMIC ACTIVITY COEFFICIENT IN INFINITELY  
DILUTED SOLUTIONS OF NONELECTROLYTES USING THE THEORY OF FREE VOLUME -U-  
AUTHOR-(04)-STEPANOV, V.M., DEVYATYKH, G.G., PANASENKO, A.G., SHIROBOKOV,  
M.YA.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 445-51  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CALCULATION, THERMODYNAMIC PROPERTY, HEAT OF VAPORIZATION,  
ACTIVITY COEFFICIENT, FLUID STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1995/1426

STEP NO--UR/0076/70/044/002/0445/0451

CIRC ACCESSION NO--AP0116873

UNCLASSIFIED

2/2 025

. UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116873

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOUR EQUATIONS ARE DERIVED FROM COMPUTING THE THERMODYNAMIC ACTIVITY COEFF. ON THE BASIS OF THE FREE VOL. THEORY. THESE EQUATIONS TAKE INTO ACCOUNT THE LOOSENING OF THE STRUCTURE OF A FLUID WITH THE RISE IN TEMP. WHICH CAUSES THE FORMATION OF HOLES IN THE FLUID. DATA COMPUTED BY MEANS OF THESE EQUATIONS WERE IN GOOD AGREEMENT WITH EXPTL. DATA. THE THERMODYNAMIC ACTIVITY COEFF. ( $\gamma_2$ ) CAN BE COMPUTED FROM THE FOLLOWING: (FORMULA SHOWN ON MICROFICHE). FACILITY: NAUCH.-ISSLED. INST. KHIM., GOR'K, GOS. UNIV. IM. LOBACHEVSKOGO, GOR'KI, USSR.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--USE OF COUNTERCURRENT CRYSTALLIZATION TO PURIFY VINYL ACETATE -U-

AUTHOR--(03)-DEVYATYKH, G.G., UMILIN, V.A., ISAYCHEVA, L.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. LENINGRAD 1970, 43(4), 936-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CRYSTALLIZATION, CHEMICAL PURIFICATION, VINYL COMPOUND,  
ACETATE, PARTITION COEFFICIENT, ACETIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1997/0726

STEP NO--UR/0080/70/043/004/0936/0938

CIRC ACCESSION NO--AP0119633

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70  
CIRC ACCESSION NO--AP0119633  
ABSTRACT/EXTRACT--(U).GP-0- ABSTRACT. THE PARTITION COEFFS. (K) OF ACOH  
OR WATER BETWEEN LUQ. AND SOLID PHASES OF VINYL ACETATE (I) ARE 1.30 AND  
1.47 RESP. AND THESE COMPS. MAY BE EFFECTIVELY REMOVED FROM I BY  
COUNTERCURRENT CRYSTN. (H. SCHILDKNECHT, ET AL., 1961). K OF ACETONE  
AND ACH ARE 1. THE LAB. APP. USED TO OBTAIN I CONTG. SMALLER THAN OR  
EQUALS TO 1 TIMES 10 PRIME NEGATIVE4 MOEL PERCENT WATER AND SMALLER THAN  
OR EQUALS TO 1 TIMES 10 PRIME NEGATIVE3 MOLE PERCENT ACOH IS DESCRIBED.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--PROPERTIES OF ANTISTATIC AND CONDUCTING POLYMERIC MATERIALS -U-  
AUTHOR--(06)-VASILENOK, YU.I., DEYANOVA, A.S., KONOPLEV, B.A., LAGUNOVA,  
V.N., LELCHUK, SH.L., SAZHIN, B.I.  
COUNTRY OF INFO--USSR  
SOURCE--PLAST. MASSY 1970, (5), 57-60  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--SURFACE ACTIVE AGENT, POLYETHYLENE, PROPYLENE, COPOLYMER,  
BUTENE, ACETATE, POLYMETHYLMETHACRYLATE, ELECTRIC RESISTANCE, PLASTIC  
FABRICATION, ANTISTATIC ADDITIVE, MONOETHANOLAMINE, AMMONIUM CHLORIDE,  
ALCOHOL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3006/0923 STEP NO--UR/0191/70/000/005/0057/0060  
CIRC ACCESSION NO--AP0134652  
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDITION OF SURFACE ACTIVE COMPS. TO POLYETHYLENE, ETHYLENE, PROPYLENE COPOLYMER, ETHYLENE, ALPHA, BUTYLENE COPOLYMER, ETHYLENE, VINYL ACETATE COPOLYMER, OR POLY(ME METHACRYLATE) REDUCED THEIR SP. SURFACE ELEC. RESISTANCE (RHO SUBS). THE REDN. OF RHO SUBS INCREASED THE RATE OF THE ELEC. CHARGE DISSIPATION AND IMPROVED THE ANTISTATIC PROPERTIES. THE REDN. OF RHO SUBS DEPENDED ON THE THICKNESS OF THE SURFACTANT LAYER ON THE POLYMER SURFACE, WHICH WAS THE FUNCTION OF THE SURFACTANTS DIFFUSION TOWARDS THE SURFACE. THE BEST METHOD OF ADDING THESE SURFACTANTS (HYDROXYETHYLATED CETYL ALC., STEARYL ALC., OCTADECYLAMINE, MONOETHANOLAMINE, OR DIMETHYLOCTADECYLAMMONIUM CHLORIDE) WAS DURING THE EXTRUSION.

UNCLASSIFIED



1/2 031 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--TEMPERATURE COMPENSATING ALLOY -U-

AUTHOR--(05)-AFONINA, L.G., FIRSOV, A.M., DEYANOVA, S.V., VAKHRAMFYEV,  
V.I., FARMAKOVSKIY, B.V.  
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 260, 892  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--06JAN70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METALLURGIC PATENT, TIN ALLOY, NICKEL, SILICON, BORON, ALLOY  
COMPOSITION, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1990/1791

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0109752

UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--02OCT70  
CIRC ACCESSION NO--AA0109752  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMOCOMPENSATION ALLOY CONSISTS  
OF NI 0.5-3, SI 0.5-3, B 0.01-0.1PERCENT, AND SN THE REMAINDER.

UNCLASSIFIED

89

USSR

UDC 620.172.251.12

DEYCH, A. SH., KOPEL'MAN, L. A., KOROTKIN, V. V., Leningrad Polytechnical  
Institute imeni Kalinin

"Determining the Parameters of the True Stress-Strain Diagram in the Temperature Range From +25 to -196°C"

Moscow, Zavodskaya laboratoriya, No. 11, 1971, pp 1377-1379

Abstract: The parameters of the true hardening curve in the temperature range from +25 to -196°C were determined for VMSt. 3sp steel with a grain size of 5.5. The chemical composition of the steels is 0.17% C, 0.46% Mn, 0.15% Si, 0.05% Cr, 0.09% Ni, 0.17% Cu, 0.029% S and 0.017% P. The calculated values of the true stresses and deformations for all samples tested are graphed. It is shown that over the entire temperature range studied the power relationship for the strengthening law is maintained and the parameters of the true stress-strain diagram can be determined by the method used. The effect of scale appears only in the deformation strengthening index, where in testing samples of diameter 1.2 and 5 mm, there appeared some increase in the deformation strengthening index for samples of the larger diameter.

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USSR

UDC: 547.26'118'113

BIRYUKOV, I. P., NIKONOROV, K. V., GURYLEV, E. A., DEYCH, A. Ya., Institute of Organic and Physical Chemistry, Academy of Sciences of the USSR

"Investigation of Organic Compounds of Trivalent Phosphorus  $RP\text{Cl}_2$  and  $\text{CCl}_3\text{CCH}(\text{OH})\text{P}(\text{O})\text{RR}$  by the Method of Nuclear Quadrupole Resonance"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jul 72, pp 1223-1227

Abstract: A pulse method of nuclear quadrupole resonance was used at  $77^\circ\text{K}$  to study 23 organic compounds of phosphorus,  $RP\text{Cl}_2$  and  $\text{CCl}_3\text{CCH}(\text{OH})\text{P}(\text{O})\text{RR}$ . The results are given in tables and graphs. A comparison of the nuclear magnetic resonance frequencies of organochlorophosphorus compounds and their analogs -- organylchlorosilanes -- showed that the frequencies lie along a correlation line calculated by the least sum method:

$$\nu_m(\text{P}-\text{Cl}) = -2.40 + 1.5\nu_m(\text{Si}-\text{Cl}) \pm 0.15. \quad (1)$$

A comparison of the experimental and theoretical values of  $\nu_m$  shows that molecules containing alkoxy groups or those without an organic radical deviate from the correlation line. It was also found that the frequencies of nuclear quadrupole resonance increase with an increase in the number of methyl groups in the molecule.

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USSR

UDC 547.558.1

BIRYUKOV, I. P., and DEYCH, A. Ye., Riga Institute of the Engineers of Civil Aviation

"Investigation of Some Pentavalent Phosphorus Compounds by the Method of Nuclear Quadrupole Resonance"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1934-1936

Abstract: Several of the pentavalent phosphorus compounds of the series R,R',R'',R''' P<sup>35</sup>Cl were investigated by means of nuclear quadrupole resonance method. It was shown that the axial chlorine atoms are principally responsible for the transfer of the inductive effect -- the contribution of the  $\sigma$ -bonds. The inductive effect of the substituents in this series of compounds is stronger than the effect in an analogous series of trivalent phosphorus.

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172 022 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--ON THE NATURE OF THE CHI CARBIDE -U-  
AUTHOR-(02)-DEYCH, I.S., APAYEV, B.A. D  
COUNTRY OF INFO--USSR  
SOURCE--FIZIKA METALLOV I METALLOVEDENIE, APR. 1970, 29, (4), 829-833  
DATE PUBLISHED----APR70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--CARBIDE PHASE, CARBON STEEL, COLD WORKING, CURIE POINT,  
PEARLITE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3003/0360 STEP NO--UR/0126/70/029/004/0829/0833  
CIRC ACCESSION NO--AP0129592  
UNCLASSIFIED

272 022

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129592

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE NATURE OF A CARBIDE (THE SUBX PHASE) FORMED IN C STEELS WITH THE STRUCTURE OF LAMELLAR PEARLITE AS A RESULT OF COLD WORKING IS DISCUSSED IN THE LIGHT OF THE LATEST THEORETICAL AND EXPERIMENTAL DATA. THE MOST PROBABLE FORMULA FOR THIS CARBIDE IS  $Fe_{0.5}C_{0.2}$ ; IT IS IN NO WAY A FORM OF 'DEFECTIVE CEMENTITE', BUT AN INDEPENDENT PHASE, IDENTICAL WITH THE SYNTHETIC TYPE OF SUBX CARBIDE AS REGARDS CURIE POINT AND TEMP. RANGE OF EXISTENCE.

UNCLASSIFIED

USSR

UDC 621.438

DEYCH, M. Ye. and LAZAREV, L. Ya.

"Investigation of Nozzle Cascades With Release of the Cooling Air Through the Exhaust Edge"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, No 2, 1972, pp 107-112

Abstract: The process of air and gas mixing behind cooled blades is dealt with; relationships are presented for calculation of stream parameters after mixing. Experimental research on parameters behind a nozzle and in the wake behind the exhaust edge, conducted on a model packet in an open wind tunnel, confirms the premises underlying the calculation and indicates the sources of loss, as well as pointing out possible ways of decreasing the losses. 6 figures. 5 references.

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USSR

UDC 532.525.621-226.3

DEYCH, M. E., Doctor of Technical Sciences, LAZAREV, L. Ya., Candidate of Technical Sciences and LOKTEV, A. L. (Moscow Power Institute)

"On Meridional Shaping of Turbine Supersonic Nozzle Grid"

Moscow, Teploenergetika, No 3, March 72, pp 61-64

Abstract: A three-dimensional flow in a meridionally shaped nozzle grid operating steadily in a wide range of  $M$  is analyzed. In this grid the interblade passage is convergent in the cylindrical cross section, and divergent in the meridian cross section. It is assumed that a medium passage cross section ensures an efficient operation at near and supersonic velocities, while the divergent passage allows to obtain small losses at high supersonic velocity. This assumption was experimentally substantiated by tests conducted on a meridionally shaped grid C-9012BM of low height. The experimental results are presented in the form of pressure distribution, variation of the flow exit angle and of the coefficient of total losses. They show that this grid type is between the convergent and divergent types presenting moderate and practically constant losses in the Mach range of  $M=0.6$  to  $1.8$ .

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USSR

UDC 621.165:533.64

DEYCH, M. Ye., KOBZEV, A. V., and DAKHNOVICH, A. A.

"Experimental Investigation of Supersonic Active Cascades With Different Relative Height"

Tr. Mosk. Energ. In-ta (Works of the Moscow Power Engineering Institute), No 99, 1972, pp 9-14 (from Referativnyy Zhurnal, Turbostroyeniye, No 5, 1972, Abstract No 5.49.26)

Translation: An investigation was made of the influence of end phenomena upon energy losses in active cascades within the Mach number range from 0.9 to 1.75 and with change of the relative height  $l/b$  from 0.43 to 1.30. The principal aim of the work was to determine the influence of the Mach number of a supersonic stream upon the intensity of the secondary flows and the linking of the end zones, as well as to investigate the region of small relative heights, in which the linear relationship of the loss coefficient to the value of  $b/l$  is infringed. 3 figures. 3 references.

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USSR

UDC 621.165

DEYCH, M. Ye., FILIPPOV, G. A., SALTANOV, G. A., LAUKHIN, Yu. A., and  
SIVOBOROD, V. A.

"Investigation of Phase Transitions in Eddy Currents of Supersaturated Steam"

Moscow, Energetika i Transport, No 2, 1972, pp 160-166

Abstract: In the article are presented the results of an experimental investigation of the condensation of water vapor in a vortex wake behind a stream flowing lengthwise about a flat plate at  $M_\infty < 1$ . Special attention was devoted to the structure of the vortex wake and to the particle size of the liquid phase in the wake. The dispersion field of the liquid phase in the wake behind the edge was measured. The stream was photographed in order to obtain the wake structure more exactly. A theoretical justification of the possibility of steam condensation in eddy currents is given on the basis of the consideration of a single eddy. 5 figures. 9 references.

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Thermodynamics

USSR

UDC 536.42

DEYCH, M. Ye., TSIKLARI, G. V., SHANIN, V. K., and DANILIN, V. S., Moscow  
Power Engineering Institute

"Studying Wet Vapor Flows in Nozzles"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 1, Jan-Feb 1972, pp 122-129

Abstract: The authors present the results from the experimental and theoretical study of the flow of a wet vapor in nozzles within a broad range of initial moisture content and initial pressure. Specific methods are developed and used for studying two-phase flows. Experimental data obtained in studying nozzles operating on wet water vapor within a broad range of initial pressure and degrees of dryness are analyzed. The following types of experimental units were used in the study: stand for optical investigation, weighing unit, and a high-pressure water vapor stand. An optical method is used for determining the dimensions and the spectrum of the particles of the liquid phase, the phase being dispersed by the vapor in a flat, narrowing nozzle. The optical method is based on the scattering of light during its passage through a turbid medium: small-angle method by K. S. Shifrin and V. N. Golikov. A schematic is given of the unit for determining the degree of  
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USSR

DEYCH, M. Ye., et al., *Teplofizika Vysokikh Temperatur*, Vol 10, No 1, Jan-Feb 1972, pp 122-129

dispersion of particles by the "small angles" method. The results show that initial pressure within the range studied affects significantly the thrust, power, and consumption characteristics of a two-phase nozzle. It also has a significant effect on the liquid phase dispersion process. Original article: eight formulas, eight figures, and 12 bibliographic entries.

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USSR

UDC: 533.6.011.3

GOLOVINA, L. G., DEYCH, M. Ye., ZARYANKIN, A. Ye., ETT, V. V.,  
Moscow

"Particulars of Gas Flow in Exit Cones at Near-Sonic Velocities"

Moscow, Izv. AN SSSR: Energetika i Transport, No 3, May/Jun  
72, pp 123-128

Abstract: An investigation is made of the details of high sub-sonic and near-sonic compressible flow in a wind tunnel in the section where a cylindrical or converging profile meets a divergent channel (exit cone). It is found that an increase in the average value of the dimensionless velocity of gas flow in the initial section leads to an abrupt jump in longitudinal pressure gradients, as well as to an increase in nonuniformity of flow across the section. Under the effect of strong negative pressure gradients, degeneration of turbulence is observed in the section preceding the exit cone. This effect is a direct result of compressibility. The undesirable deformation of the velocity field preceding the exit cone combined with posi-

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USSR

GOLOVINA, L. G., Izv. AN SSSR: Energetika i Transport, No 3, May/Jun 72, pp 123-128

tive pressure gradients in the divergent channel leads to flow detachment in the immediate vicinity of the neck of the tunnel, which is the cause of a critical drop in exit cone economy at high subsonic and near-sonic gas flow velocities. The degree of degeneration of turbulence is a function of the Reynolds number. Flow detachment can be delayed by increasing the Reynolds number as the relative velocity of gas flow in the input section increases.

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USSR

Rpt 25 Nov 70

In the article "Students' Heat and Electric Power Station" V. Gaydukov (U/I) discusses the experimental-training TETs Heat and Electric Power Station of the Moscow Power Engineering Institute, which has been in operation 20 years. In addition to its output of heat and power each year over 1,500 students acquire practical skills in maintenance of power engineering equipment. They also participate in the scientific research in the field of power engineering which is conducted by the professors, docents, and scientific workers of the Institute. The application in industry of the findings of such research has produced a great economic effect. For example, work conducted for increasing the efficiency of the section of the turbine between inlet and outlet valve, through which steam passes, under the overall guidance of

SHCHEGLYAYEV, A., Professor; Corr-Mbr, AS USSR, and  
DEYCH, M., Professor,

produced savings in excess of 10 million rubles annually.

Izvestiya, 25 Nov 70, p 3, col 7

(2)



USSR

UDC 621.165.533.6

DEYCH, M. Ye., LAZAREV, L. Ya., and NITSKEVICH, V. P.

"On Edge Losses in Turbine Nozzle Lattices"

Kazan', IVUZ Aviatsionnaya Tekhnika, No 4, 1971, pp 67-72

Abstract : Experimental investigation results of edge losses in turbine nozzles, depending on the edge thickness, are discussed by reference to diagrams showing the losses measured at different distances from the edge and effects of  $M$  and  $Re$ . Based on a detailed study of the flow leveling process behind edges of different thickness and by different values of  $M$  and  $Re$ , recommendations are given for the selection of the distance of the measuring plane from outlet edges. An empirical formula which considers the edge thickness and  $M$  is presented for the determination of the coefficient of edge losses. Five illustr., two biblio. refs.

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Graphite

USSR

UDC 539.21

ZAYTSEV, G. G., BARABANOV, V. N., and DEYEV, A. N., Moscow

"Study of the Elastic Properties of Carbon Materials During Heat Treatment"

Kiev, Problemy prochnosti, No 1, Jan 71, pp 110-113

Abstract: A study was made of a broad class of carbon formations used in the production of various types of artificial graphite. Heat-treated (annealed) carbon materials produced from two types of petroleum coke were studied. The method of study included isothermal holding at 1250, 1400, 1700, 2000, and 2500°C. The dependences of the change in the modulus of elasticity of the compositions during this subsequent heat treatment are presented. The relaxation times, values of activation energy, and changes in modulus of elasticity were determined during the isothermal holding. The concept of the dipoles of carbon atoms in various energy states is introduced. It is demonstrated that the activation energy for a change in modulus of elasticity during heat treatment can be explained as the energy of certain dipole-dipole transitions in the carbon structure.

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USSR

UDC: 621.3.035.2

OSTROUMOV, YE.M., DEYEV, A.N., KOSTERINA, L.K., and SHARINA, I.L.

"Effect of Some Factors on the Physicomechanical Parameters of Graphitized Material"

Moscow, Tsvetnyye Metally, No 5, May 70, pp 62-64

Abstract: Investigations were made to determine the effect of additives changing the course of the pitch pyrolysis process, using uncalcined coke as the filler, on the properties of graphitized material. The additives were: finely dispersed sulfur and  $FeCl_3$  (polycondensation catalysts),  $Fe_2O_3$  (cracking catalyst), and  $H_2O$ , an additive exerting an influence on the catalytic activity of the surface of the filler used and also impairing the wettability of the surface by pitch. The experiments were conducted with a filler predispersed to obtain -0.15 mm and -1.2-0.5 mm fractions. The coke-pitch composition was obtained with a laboratory mixer at 105-110°C. The composition of the coke-pitch mixture was 74% coke and 26% pitch. The pressing of coke-pitch billets (diameter -- 150 mm, height -- 170 mm) was done in a heated mold at a specific pressure of 400 kilogram (force)/cm<sup>2</sup>. Their calcination was performed under identical conditions. Experiments revealed that the greatest effect was exerted by sulfur. Its introduction increased the strength and, to some degree, the elastic modulus of the material.  $FeCl_3$  had

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USSR

OSTROUMOV, YE.M., et al, Tsvetnyye Metally, No 5, May 70, pp 62-64

practically no effect as a condensing agent. The introduction of  $Fe_2O_3$  caused more drop in strength and also a tendency for a rise in the electrical resistance of the material. The addition of finely dispersed sulfur changed the characteristics of the "green" mass to a high degree; in particular, its plasticity dropped sharply, causing increased crack formation in pressed billets and, to a still greater degree, in heat-treated ones. From data on specific resistance and specific weight, it was postulated that  $Fe_2O_3$  has no effect as a graphitization catalyst or as an agent for increasing carbon material density. This is explained probably by specific properties of the structure-forming process in using uncalcined coke in the composition. It was also determined that the moisture content of the initial filler is a negative factor. It was postulated that the decrease in strength characteristics was due to the impairment of the moist coke wettability by pitch.

2/2

USSR

UDC 577.391

SERYAKOV, V. N., and DEYEV, L. I., Chair of Biophysics, Moscow State University

"Oxidation-Reduction Potential in Tissues Exposed to Radioprotective Agents and Hypoxia"

Moscow, Vestnik Moskovskogo Universiteta, Seriya 6, Biologiya, Pochvodeniyе, No 5, Sep/Oct 70, pp 87-89

Abstract: Changes in redox potential were studied in rat spleen, liver, and subcutaneous tissue after exposure to S-beta-aminoethylisothiuronium bromide (AET), beta-mercaptoethylamine bitartrate (MEA), and serotonin creatinine sulfate combined with hypoxic hypoxia (HH). Exposure to HH (6% oxygen, 94% nitrogen) 15 to 17 minutes after injection of AET or MEA decreased the redox potential in all of the tissues studied more than after injection of the radioprotector alone. The decrease was greatest 5 to 7 minutes after the start of HH. The shifts were reversible. In animals that were irradiated with X-rays after receiving AET or MEA combined with HH, the radioprotective additive effect was significantly less when serotonin was combined with HH.

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USSR

UDC 621.0.39.58+615.7

KUDRYASHOV, Yu. B., GONCHARENKO, Ye. N., DEYEV, L. I., GORSKAYA, T. G., and SAMOYLIKOVA, T. I., Moscow State University ~~Imeni M. V. Lomonosov~~

"Reduction of Endogenous Radiosensitizers, LTV [Lipid Toxic Substances], as One of the Mechanisms of the Radioprophylactic Effect"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 1, 1970, pp 206-208

Abstract: A study was made of the decrease in LTV activity in tissues of white rats after introduction of highly effective radioprotectors. The same effect as is observed with hypoxic hypoxia was found. The drop in LTV activity was accompanied by a similar decrease in the tissues or by an increased inhibitor content. It was determined that the shifts observed in the period of maximum radioresistance (15 minutes) are attenuated and expire after 4-6 hours. One of the possible mechanisms for the effect produced by radioprotectors may be the reduction in the content of biogenic radiosensitizers during the period of enhanced radioresistance associated with hypoxia or with the injection of radioprotectors (such as AET, MEA).

1/1

DEYEV, V.G.

SPS: 60367  
25 October 1973

(C)

HETEROTOPIC HEART TRANSPLANTATION IN RATS

UDC: 616.12-08:61-092.9

Article by G.S. Ilyevskiy, V.G. Deyev, M.A. Danilov, Institute of Organ and Tissue Transplantation, USSR Academy of Medical Sciences, Moscow; Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 9, 1973, pp 78-81

Specialists in different fields, transplantologists, cardiologists, immunologists, physiologists, biochemists, and others, are interested in the model of heterotopic transplantation of the rat heart. Development of such a model is related to microsurgical technique. The methods we adopted for heterotopic transplantation of the heart are based on the works of Fisher et al., Abbott et al., But-Mong-Hung et al., and R.N. Veresyan et al.

The transplantation scheme is as follows (Figure 1). The donor heart is connected through cannulas to the aorta and inferior vena cava (IVC) which were cut above the region of bifurcation in the recipient, creating the following anastomoses: abdominal aorta to donor heart aorta, IVC to pulmonary artery. All of the venous vessels of the donor heart were ligated. We used tubes made of polyfluoropropylene resin. The external diameter of the tubes ranged from 0.8 to 1.5 mm for arterial anastomoses, and from 1.5 to 3.5 mm for venous ones, with a wall thickness of the cannulae ranging from 0.2 to 0.4 mm. They were about 5 mm long.

In this report, we shall discuss the surgical technique and main complications of the postoperative period. Experiments were conducted on mongrel rats of both sexes, weighing 150 to 280 grams. In all, 106 experiments were performed: 83 to perfect the surgical technique and 23 in which we determined the mean time of heart transplant function.

It must be noted that we were compelled to create vascular anastomoses over the tubes because we did not have the necessary equipment for the suturing methods of making vascular anastomoses on this size vessels. Anesthetics: 0.5-0.7 ml 2% hexenal solution was administered intraperitoneally to the recipient animal. Ten minutes later, it was immobilized on the operating table and surgery was subsequently performed under ether

USSR

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SERGEYEV, V. I., DEYEV, Yu. S., KRUGLIY, M. S., and  
SIRENKOV, V. I., Scientific Research Institute of Plastics,  
Moscow

"A Test Unit of Polymers by Irradiation Effect"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 8,  
No 1, 1972, pp 87—89

*Abstract: The construction and operation of a test unit for polymers is described by reference to its schematic drawing. The unit is designed for carrying out tensile and creep tests and studying the stress relaxation by tension of polymers under vacuum and ionizing irradiation conditions in a wide temperature interval. The unit is mounted on the base of a linear electron accelerator with 5 Mev energy of accelerated electrons and their 50  $\mu$ A average and 75 mA pulse current. Some preliminary investi-*

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SERGEYEV, V. I., et al., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 8, No 1, 1972, pp 87-89

gation results, stress relaxation curves, of mechanical properties of polytetrafluoroethylene subjected to the action of fast electrons show that the relaxation of mechanical properties proceeding in polytetrafluoroethylene is considerably intensified by irradiation and, therefore, an increase of the creeping rate can be anticipated. Two illustr., eight biblio. refs.

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USSR

UDC 639.954

MASHTAKOV, S. M., (DECEASED), DEYEVA, Y. P., VOLYNETS, A. P., PROKHORCHIK, R. A., SHCHERBAKOV, V. A., and KUDRYAVTSEV, G. P., Fiziologicheskoye Deystviye Nekotorykh Gerbitsidov ns Rasteniya (The Physiological Effect of Certain Herbicides on Plants), Minsk, "Nauka i Tekhnika," 1971, 252 pp

*Translation; Annotation:* The book presents results from research on the effect of certain herbicides, gibberallic acid, and chlorchlorinechloride (?) on the biochemical activity of mitochondria and chloroplasts and the exchange of phenol compounds of plants. The physiological activity of a number of free and linked polyphenols is described. The relationship between the effect of herbicides on plants and the content of native phenol compounds and the level of energy potential of the plants being tested is discussed.

The book is intended for scientific associates, graduate students, teachers, and students at universities and agricultural and pedagogical higher educational institutions.

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Gerutsidov na Rasteniya, Minsk, "Nauka i Tekhnika," 1971, 252 pp

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1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--TEMPERATURE FUNCTION OF FE PRIME3 POSITIVE EPR LINEWIDTH IN  
ALUMINUM OXIDE -U-  
AUTHOR--(03)-DEYGEN, M.F., GEYFMAN, I.N., GLINCHUK, M.D.  
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. AND THEORETICAL INVESTIGATIONS WERE CARRIED OUT OF THE TEMP. DEPENDENCE OF THE WIDTH OF EPR LINES OF FE PRIME3 POSITIVE IN AL SUB2 0 SUB3. MEASUREMENTS WERE MADE AT 3 CM BETWEEN 4.2 AND 1100DEGREEK. AT HIGH TEMPS., CONSIDERABLE CONTRIBUTION TO THE EPR LINEWIDTH IS MADE BY 4 PHONON PROCESSES WITH PARTICIPATION OF OPTICAL PHONONS. FACILITY: INST. POLYPROV., KIEV, USSR.

UNCLASSIFIED



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TITLE--ANGULAR AND TEMPERATURE DEPENDENCES OF THE WIDTHS OF EPR LINES -U-  
AUTHOR--(03)--DEYGEN, M.F., GLINCHUK, M.D., KOROBKO, G.V.  
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CIRC ACCESSION NU--A00054462  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANGULAR AND TEMP. DEPENDENCES OF THE WIDTH OF EPR LINES WERE INVESTIGATED. IT IS ASSUMED THAT THE MAIN CONTRIBUTIONS TO THE WIDTH OF THE EPR LINE ARE MADE BY THE ELEC. FIELDS OF DEFECTS, DIPOLE DIPOLE INTERACTIONS, AND SPIN LATTICE RELAXATION. TEMP. VARIATION OF THE WIDTH OF THE LINE IS RELATED MAINLY TO MODULATION OF THE CRYSTAL FIELD CONSTS. BY LATTICE VIBRATIONS. ANGULAR DEPENDENCE OF THE WIDTH OF THE LINE IS DETD. BY ALL 3 EFFECTS. EVALUATION WAS MADE OF THE CONTRIBUTION TO TEMP. VARIATION OF THE LINEWIDTH OF THE DEFECT MECHANISM, WHICH IS RELATED TO MODULATION BY LATTICE VIBRATIONS OF ELEC. FIELD OF THE DEFECT AS WELL AS TO THE THERMAL EXPANSION OF THE CRYSTAL. THEORY WAS COMPARED WITH EXPT. DATA FOR THESE ANGULAR AND TEMP. DEPENDENCES OF THE WIDTH WERE DETD. FOR CR PRIME3 POSITIVE IN ZNWO SUB4. FACILITY: INST. POLUPROV., KIEV, USSR.

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1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--MAGNETIC HYPERFINE AND QUADRUPOLE INTERACTIONS OF F-CENTRES IN NaCl  
AS MEASURED BY ENDOR -U-  
AUTHOR--(05)-DEYGEN, M.F., ZEVIN, V.YA., ISHCHENKO, S.S., BARAN, N.P.,  
RUBAN, M.A. *D*  
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HYPERFINE AND QUADRUPOLE INTERACTIONS OF F-CENTRES IN NaCl WERE INVESTIGATED BY THE ENDOR METHOD. THE CONSTANTS OF HYPERFINE INTERACTIONS WITH NUCLEI OF COORDINATION SHELLS I TO X SURROUNDING THE VACANCY HAVE BEEN DETERMINED. THE QUADRUPOLE INTERACTION WITH NUCLEI OF SHELLS II, IV, VI, AND VIII HAS BEEN RECORDED AND MEASURED. GENERAL EXPRESSIONS FOR ENDOR FREQUENCIES ARE GIVEN IN SINGLE PARTICLE APPROXIMATION, ALLOWANCE BEING MADE FOR THE DEVIATION OF THE NUCLEAR SPIN QUANTIZATION AXIS FROM THE DIRECTION OF THE CONSTANT MAGNETIC FIELD II SUBO AND FOR CORRECTIONS DUE TO SECOND ORDER PERTURBATION THEORY. THE ANGULAR DEPENDENCE OF ENDOR SPECTRA HAS BEEN INVESTIGATED IN DETAIL AND FULLY EXPLAINED ON THE BASIS OF THEORETICAL FORMULAE. THE CONSTANTS WERE DETERMINED AT T EQUALS 20, 77, AND 300DEGREESK. FACILITY: INSTITUTE FOR SEMICONDUCTORS, ACADEMY OF SCIENCES, UKRAINIAN SSR. FACILITY: KIEV POLYTECHNICAL INSTITUTE.

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