"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

DOMANEVSKIY, D. S., et al., Radiats. fiz. nemet. kristallov, T.3. Ch.2. (Radiation Physics Of Nonmetallic Crystals. Vol. 3, Part 2--Collection Of Works), Kiev, "Nauk. dumka," 1971, pp 50-53 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B534)

intensity of the red band with a flux decreased approximately 1.5 times more slowly that the green. The spectral composition of the radiation changed after irradiation. The results presented indicate that the change of the electrical and optical characteristics of GaP p-n junctions after irradiation have the same character as in the case of GaAs p-n junctions. 3 ill. 1 tab. 4 ref. I.M.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC: 681.327.02

YESHCHIN, K. K., KRASYUK, B. A., MEDVEDEV, N. F., MESKIN, S. S., RAVICH, V. N., SOROKIN, A. G.

"A Memory Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 28, 1970, Soviet Patent No 280543, Class 21, filed 11 Jan 69, p 40

Abstract: This Author's Certificate introduces a memory device which contains a diode matrix connected to control keys and to a discharge readout amplifier. As a distinguishing feature of the patent, the signal-to-noise ratio is improved by connecting a diode light source and optically coupled photo receiver to each group of diodes in the matrix. The photo receivers are united and connected to the input of the readout amplifier.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC 621.382:621.383.8 (088.8)

YESHCHIK, K.K., IGNATKINA, R.S., MEDVEDEV, N.F., MESKIN, S.S., RAVICH, V.N.

"Optical Indicator"

USSR Author's Certificate No 258458, filed 26 May 67, published 23 Apr 70 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11E252P)

Translation: A device is proposed for visual control of voltage. The device is a semiconductor optical indicator, one of the areas of which has at least two ohmic contacts and a fixed resistance per unit length along the p-n junction, and the second accomplished so that the resistance between its contacts and any point of the operating zone decreases, for example along a parabola. Because of this a reduction is achieved of the consumable power, as well as an increase of the degree of contrast of the boundary of the luminous area, which considerably expands the range of application of such devices. 2 ill. G.Sh.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

RAVICH, V. Z.

UDC: 519.2

"Analysis of the Reliability of Logical Automata With Regard to Malfunctions"

Kibernet. i vychisl. tekhn. Resp. mezhved. sb. (Cybernetics and Computer Technology. Republic Interdepartmental Collection), 1972, vyp. 18, pp 70-75 (from RZh-Kibernetika, No 5, May 73, abstract No 5V356 by the author)

Translation: The paper deals with the problem of evaluating the reliability of logical automata with regard to the particulars of their operation. Methods of the theory of thinning flows are used as the mathematical model.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

1/2 011 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--EVALUATING THE RELIABILITY OF RELAY DEVICES WITH ACCOUNT TAKEN OF COMPETITIONS -U-

AUTHOR--KAVICH, V.Z.

COUNTRY OF INFO--USSR

SOURCE--RIG. AVTOMATIKA I VYCHISLITEL'NAYA TEKHNIKA, NO 1, 1970, PP 35-38

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--RELIABILITY, BOOLEAN ALGEBRA, TIME RELAY, ALGORITHM, EQUIPMENT MALFUNCTION, PROBABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605041/E04 STEP NO--UR/0483/70/000/001/0035/0038

CIRC ACCESSION NO--AP0142749

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

2/2 011 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0142749

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXISTING METHODS OF THE SYNTHESIS OF RELAY DEVICES ARE BASED IN PRINCIPLE UPON TWO VALUED BOOLEAN ALGEBRA, IN WHICH IT IS ASSUMED THAT THE INDIVIDUAL ELEMENTS AND THE DEVICE AS A WHOLE CHANGE THEIR STATE INSTANTANEOUSLY. MEANWHILE IN ACTUAL RELAY DEVICES, THE TRANSITION FROM ONE STATE INTO ANOTHER ALWAYS TAKES PLACE WITH SOME KIND OF LAG. THE LAG TIME IS IN THE GENERAL CASE A RANDOM VALUE, SINCE IT IS DETERMINED BY TRANSIETN PROCESSES TAKING PLACE IN THE ELEMENTS, AND FREQUENTLY THE LAG TIME CHANGES IN THE COURSE OF THE OPERATING PROCESS UNDER THE INFLUENCE OF EXTERNAL CONDITIONS IN ACCORDANCE WITH A DISTRIBUTION WHICH DOES NOT DEPEND UPON THE STATE OF THE DEVICE. AS A RESULT OF THE LAG OF INDIVIDUAL ELEMENTS COMPETITION OF RANDOM NATURE CAN TAKE PLACE IN RELAY ACTION DEVICES, IN OTHER WORDS THE SO CALLED UPLANEED TRANSITIONS, AS A RESULT OF WHICH SIGNALS APPEAR BRIEFLY AT THE OUTPUT OF THE DEVICE, WHICH DO NOT CORRESPOND TO THE OPERATIONAL ALGORITHM OF THE DEVICE (MALFUNCTION). A METHOD IS PROPOSED FOR EXPOSING ALL TRANSITIONS WHICH CAN BE ACCOMPANIED BY MALFUNCTIONS, AND A METHOD OF COMPUTING THE PROBABILITY OF THE APPEARANCE OF THESE MALFUNCTIONS IS GIVEN. THE METHOD IS BASED UPON THE ASSIGNMENT OF A FUNCTION IN THE FORM OF THE APEXES OF AN N DIMENSIONAL CUBE.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC: 621.315.592

DRABKIN, I. A., MORGOVSKIY, L. Ya., NEL'SON, I. V., and RAVICH, Yu. I., Semiconductor Institute, Leningrad

"Characteristic Light Absorption in Nonparabolic Regions of PbTe and Solid PbTe-SnTe Solutions"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1323-1326

Abstract: A comparison is made between the experimental data for the absorption coefficient of PbTe and compounds of similar zonal structure on the one hand, and the theoretical expressions derived on the basis of the two-zone model on the other. Computation of the characteristic absorption coefficient is made in the framework of the two-zone model by computing the matrix elements of the dipole junctions through the use of wave functions found by the $\overline{kp}$ method. Such calculations show that the absorption coefficient in the nonparabolic zone increases because of the faster growth of the density of the compounds as a function of the energy. Experiments to determine the absorption of epitaxial films of PbTe, $Pb_{0.9}Sn_{0.1}Te$ and $Pb_{0.8}Sn_{0.2}Te$ are described. The results of these

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

DRABKIN, I. A., et al, Fizika i tekhnika poluprovodnikov. No 7, 1972, pp 1323-1326

experiments are given in the form of curves showing the absorption coefficient and the coefficient squared as functions of the light energy. For the sake of comparison, the theoretical and experimental results are plotted on the same axes.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--EFFECT OF POLAR SCATTERING ON THE MOBILITY OF CARRIERS IN LEAD CHALCOGENIDES -U-

AUTHOR-(04)-RAVICH, YU.I., YEFIMOVA, B.A., PROKOFYEVA, L.V., DUBROVSKAYA, I.N.

COUNTRY OF INFO--USSR

R

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1), 230

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--LEAD SULFIDE, TELLURIUM COMPOUND, THERMAL EFFECT, OPTIC PROPERTY, LIGHT SCATTERING, REACTION MECHANISM, PHOTON EMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0591 STEP NO--UR/0449/70/004/001/0230/0230

CIRC ACCESSION NO--AP0105574

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

2/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105574

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CALCN. OF CARRIER MOBILITIES IN PBTE, PBSE, AND PBS IS PRESENTED, COVERING A WIDE RANGE OF TEMPS. AND CONCNS. (2-600DEGREES K; 10 PRIME18 MINUS 10 PRIME20-CM PRIME3). IT TAKES INTO ACCOUNT THE POLAR SCATTERING ON OPTICAL PHONONS. RESULTS ARE COMPARED WITH EXPTL. DATA. POLAR SCATTERING HAS A SUBSTANTIAL INFLUENCE ON MOBILITY AND IS CONSIDERED TO BE THE PREVAILING MECHANISM OF SCATTERING AT LOWER CONCNS. (SMALLER THAN OR EQUAL TO 10 PRIME18-CM PRIME3) AT BOTH LIQ. N AND ROOM TEMPS. THE CONTRIBUTION OF POLAR SCATTERING INCREASES FROM PBTE TO PBS. MANY EXPTL. RESULTS CAN BE BETTER UNDERSTOOD IF POLAR SCATTERING IS CONSIDERED. THIS APPLIES IN PARTICULAR TO THE TEMP. DEPENDENCE OF MOBILITY AT SMALLER THAN 77DEGREES K.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

UNCLASSIFIED

TITLE--MECHANISMS OF THE SCATTERING OF CURRENT CARRIERS IN LEAD CHALCOGENIDES -U-

PROCESSING DATE--18SEP70

AUTHOR-(05)-RAVICH, YU.I., GURIYEVA, YE.A., DUBROVSKAYA, I.N., YEFIMOVA, B.A., PROKOFYEVA, L.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(4) 917-19

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LEAD SULFIDE, TELLURIUM COMPOUND, ELECTROMOTIVE FORCE, LOW TEMPERATURE EFFECT, HALL CONSTANT, MAGNETIC FIELD EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0582

STEP NO--UR/0181/70/012/003/0917/0919

CIRC ACCESSION NO--AP0105565

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

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CIRC ACCESSION NO--AP0105565 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANAL. WAS CARRIED OUT OF THE EXPTL. DATA ON MOBILITY AT 2-600DEGREES K AND THE LORENZ NO. AT SMALLER THAN OR EQUAL TO 77DEGREES K IN N AND P TYPE PBTE, PBSE, AND PBS WITH CARRIER CONCNS. OF APPROX. 10 PRIME20-CM PRIME3. CONSIDERATION OF POLAR SCATTERING ALLOWS ONE TO EXPLAIN ALSO THE RESULTS OF MEASUREMENTS OF MAGNETORESISTANCE. CALCNS. WERE MADE OF THERMAL EMF. AND THE LORENZ NO. IN PBTE AND PBSE OF N TYPE IN A BROAD INTERVAL OF CONCNS. AT GREATER THAN OR EQUAL TO 300DEGREES K; THE TEMP. DEPENDENCE OF THE HALL COEFF. FROM VERY LOW TEMPS. TO THE BEGINNING OF INTRINSIC COND.; THE NERNST ETTINGSHAUSEN COEFF. AT 300DEGREES K AS A FUNCTION OF CONCN. ALSO AT 77DEGREES K, WHERE SCATTERING IS INELASTIC; AND FINALLY THE VARIATION OF THERMAL EMF. IN A STRONG MAGNETIC FIELD AT 77DEGREES K. IN ALL CASES, GOOD AGREEMENT WAS OBSD. BETWEEN THEORY AND EXPT. AT HIGH CONCNS. (OF THE ORDER OF 10 PRIME20-CM PRIME3), SCATTERING ON LONG WAVELENGTH ACOUSTICAL PHONONS PREVAILS. BECAUSE OF NONPARABOLICITY, THE MATRIX ELEMENT OF THE ACOUSTICAL SCATTERING DEPENDS ON THE ENERGY. AT CONCNS. OF SMALLER THAN OR EQUAL TO 10 PRIME18 MINUS 10 PRIME19-CM PRIME3, IN ADDN. TO ACOUSTICAL SCATTERING, AN ESSENTIAL ROLE IS PLAYED BY POLAR SCATTERING. AT RELATIVELY LOW TEMPS. (20-200DEGREES K), THERMOELEC. AND THERMOMAGNETIC EFFECTS ARE INFLUENCED BY THE COLLISIONS BETWEEN CARRIERS. AT EXTREMELY LOW TEMPS. (SMALLER THAN OR EQUAL TO 100DEGREESK), SCATTERING IS CONSIDERABLE IN THE CENTRAL PART OF THE IMPURITY POTENTIAL.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

RAVICH-BIRGER, Ye. D.

UDC 576.851.48/.49.07

"Methods and Prospects for the Development of Laboratory Identification of Intestinal Bacteria"

Moscow, Laboratornoye Delo, No 11, 1970, pp 643-648

Abstract: Improvements in the laboratory diagnosis of intestinal infections are needed. N. S. Akatova has developed an optical method for morphological studies of microorganisms. The fluorescence method is frequently used in microscopic studies of microorganisms. The study of saccharolytic enzyme systems of intestinal bacteria is promising, particularly for classification of microorganisms. The study of separation of amino acids for classification and differentiation of enterobacteria has been very effective. Methods for the activation of enzymes are needed. Existing methods such as electrophoresis, various forms of chromatography, filtration through ion exchange resins, and spectrophotometric and chemical analysis could be applied. Serological research has developed many unique methods, among them a passive hemagglutination method involving erythrocyte conservation. Since it is impossible to establish the antigenic structure of enterobacteria by immunoelectrophoresis, antibody solutions have been studied. Research on nutrient media may be of

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USSR

RAVICH-BIRGER, Ye. D., Laboratornoye Delo, No 11, 1970, pp 643-648

great importance in bacteriological work. Microbiological and interdisciplinary methods should be examined to determine those methods which might be applicable to the identification and determination of intestinal bacteria.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC 612.215+612.42/.017.1.014.481/.482

KEVORKOV, N. N., and RAVICH-SHCHERBO, M. I., Kursk Medical Institute

"Antibody Formation in Lungs and Lymphoid Organs in Irradiated Animals"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1973, pp 80-84

Abstract: Studies were conducted on rabbits immunized with sheep erythrocytes either intratracheally or intravenously to determine the effects of a previous irradiation with 1000 r x-rays. Irradiation of intravenously immunized animals inhibited antibody formation by lung, spleen, and paratracheal lymph nodes. However, irradiation of intratracheally immunized animals showed that hemagglutinin formation by lung explants was not inhibited, while that of the other tested tissues was. Studies on plaque formation with cellular suspensions indicated that in the latter case radioresistant alveolar macrophages may have been responsible for antibody production.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC: 539.376+620.172.251.2

RAVIKOVICH, A. I., Novosibirsk

"Creep of AK4-1 Alloy Under Complex Loading"

Novosibirsk, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 3, May/Jun 73, pp 138-142

Abstract: The paper examines some approaches to description of creep under complex loading which account for the anisotropic nature of hardening of material accompanying unsteady creep. An attempt is made to account for the difference in behavior of the material under increasing stress and under decreasing stress. The results of predictions in accordance with various theories are compared with data of experimental studies of the creep of AK4-1 alloy specimens under combined stretching and twisting in conditions of non-proportional step loading. A comparison with experiment shows that with complex loading a theory based on isotropic hardening is not adequate to describe experimental data. Considerably better results are obtained with theories which account for the anisotropic nature of hardening of materials with unsteady creep.

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USSR

YERMAKOV, V. P. and RAVIKOVICH, A. I., Novosibirsk

"Creep of a Heat-Resistant Aluminum Alloy Under Conditions of a Complex Stressed State"

Novosibirsk, Prikladnoy mekhaniki i tekhnicheskoy fiziki, No 2, 1971, pp 83-86

Abstract: Results are given from experimental studies of the creep of the AK_4-1, heat-resistant, aluminum alloy under constant and variable loading at 175°C and using a 100 hr. test duration. The theory of creep is verified using experimental data. This theory is based on the following hypotheses: variation in volume is elastic, the deviator of the rate of creep deformation is proportional to the stress deviator, and stress intensity, creep deformation, and their rates comprise a relationship which does not depend on stressed state type. Original article: seven formulas, three figures, and six bibliographic entries.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

Petroleum Processing Technology

USSR

UDC 665.521.5:66.022.37:546.47

RAVIKOVICH, A. M., BORSHCHEVSKIY, S. B., PETYAKINA, YE. I., and SKUNDIN, O. I.,
All Union Scientific Research Institute of Petroleum Industry

"Antiwear Additives for Lubricating Oils Containing Zinc, Nitrogen, and Phosphorus"

Moscow, Khimiya i Tekhnologiya Topliv i Masel, No 2, 1972, pp 47-50

Abstract: AFO -- a new antiwear oil additive containing zinc, nitrogen and phosphorus elements has been produced from the extract of residual oils of sulfurous petroleum, after preliminary purification with propane. AFO has been shown to possess high antiwear and antioxidation properties, better than the commercial EFO. It is soluble in mineral oils of different viscosity, producing no sediments during storage at low temperature. The comparative tests carried out on models showed that the contact strength of drive gear teeth lubricated with TS-14.5 oil containing AFO is greater than the strength of the driving gear treated with TS-14.5 oil containing the EFO additive.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

RAVILOV, A. Z., SHAFIKOVA, R. A., and SHARAFUTDINOVA, K. N., Veterinary Institute imeni N. E. Bauman, Kazan

UDC 576.858.43.097.5

"The Accumulation of Specific Antibody Against the Foot-and-Mouth Disease Virus in Ascitic Fluid of White Rats"

Moscow, Voprosy Virusologii, No 4, 1973, pp 458-461

Abstract: Ascitic fluid formation was induced in white rats (mostly males), 180-200 g in weight, by intraperitoneal injection of ovary tumor cells. Nine days previously the animals had received a single injection of foot-and-mouth disease virus A22 or 0194, or had been hyperimmunized. The results showed that both sets of animals showed peak CF titers 8 days following the induction of ascitic fluid formation; CF and neutralizing activity (5-7 day old white mice) were parallel for the sera and corresponding ascitic fluids. The ascitic fluids showed no anticomplement activity and, as a rule, appeared 5-6 days after injection of the ovarian cells. Ascitic fluids retained their antibody activities for 8 months at -20°C and at 4°C in the presence of 1:100,000 methiolate.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC 619:576.858.4-809.7

PAVLOV, A. Z., Candidate of Veterinary Sciences, SHAFIKOVA, R. A., Candidate of Biological Sciences and SHARAFUTDINOVA, K. N., Veterinarian, Kazan' Veterinary Institute

"IMMune Ascitic Fluids for Typing Foot-and-Mouth Disease Virus"

Moscow, Veterinariya, No 1, 1972, pp 33-34

Abstract: Ascites production was stimulated in rats by injecting them with testicular tumor cells. Five days later about 70 to 100 ml of ascitic fluid containing specific antibodies to foot-and-mouth disease virus was obtained from each rat. These antibodies were highly specific and had pronounced complement-fixing and precipitating activity (equal to that of blood serum). Anitbodies remained active and specific for 8 months when stored at 4°C with a preservative or at -20° C without a preservative. Thus, immune ascitic fluid is a relatively inexpensive and convenient diagnosticum for typing foot-and-mouth disease virus.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC 621.791.756:669.15-194

REMIZOV, V. YE., RAVIN, M. M., and ISLAMOV, R. N., Moscow

"Electroslag Welding of High-Strength Steel"

Kiev, Avtomaticheskaya Svarka, No 3, Mar 71, pp 49-51

Abstract: In order to improve the process of manufacturing high-pressure containers, it is desirable to replace forged pieces with welded billets of KVK32 sheet steel with σ = 30 mm and an ultimate strength $\sigma_b \geq 160$ kg/mm^2. This article contains a study of the properties of electroslag welds of billets of this type. The experiment was performed in two stages: preliminary checking of the properties of KVK32 steel joints obtained by electroslag welding and selection of the optimal version of the process and, secondly, welding of rings by this process. It was established that the microstructure of the base metal, the weld, and the fusion line is fine-grained and uniform. The structure of the weld metal is larger grained than that of the fusion line. After quenching and annealing, the structure of the weld-affected zone is fine-grained martensitic, and the weld metal is coarse-acicular martensitic. The test demonstrated that

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

REMIZOV, V. YE., et al., Avtomaticheskaya Svarka, No 3, Mar 71, pp 49-51

20KhSNVFA wire with AN-8 and AN-15 fluxes is unsuitable for electroslag welding of high-strength steel, but OKh4MA or SP28 wire and AN-8 and AN-15 fluxes give results on the level of the corresponding indexes of the base metal.

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UNCLASSIFIED

TITLE--EVIDENCE FOR EXTRACHROMOSOMAL LOCATIONOF PROPHAGE N15 -U-

PROCESSING DATE--20NOV70

AUTHOR-(02)-RAVIN, V.K., SHULGA, M.G.

COUNTRY OF INFO--USSR

SOURCE--VIROLOGY 1970, 40(4), 800-7

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BACTERIOPHAGE TYPING, BIOLOGIC MUTATION, DNA, CHROMOSOME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0353

STEP NO--US/0000/70/040/004/0800/0807

CIRC ACCESSION NO--AP0126109

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

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CIRC ACCESSION NO--AP0126109 UNCLASSIFIED

PROCESSING DATE---20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITH THE AID OF TEMP. SHIFT EXPTS., THE TS MUTANTS OF TEMPERATE BACTERIOPHAGE M15 WERE DIVIDED INTO 2 GROUPS, EARLY AND LATE ONES. PHAGE DNA REPLICATION WAS NORMAL IN LATE MUTANTS AT ELEVATED TEMP. BOTH IN THE VEGETATIVE AND PROPHAGE STATES, WHEREAS SUCH REPLICATION WAS DISTRUBED UNDER THE SAME CONDITION IN BOTH STATES IN EARLY MUTANTS. THIS DISTURBANCE RESULTED IN THE INTENSIVE CURING OF EARLY MUTANT LYSOGENS UNDER NONPERMISSIVE CONDITIONS. PHOPHAGE M15 DNA SEDIMENTED IN SUCROSE GRADIENTS SEP. FROM BACTERIAL DNA. THE CONCLUSION WAS DRAWN THAT PROPHAGE M15 WAS NOT INCORPORATED INTO THE BACTERIAL CHROMOSOME. SOME OTHER PROPERTIES OF PHAGE M15 AND ITS DNA WERE DESCRIBED.

FACILITY: INST. GEN. GENET., MOSCOW, USSR.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

Acc. Nr: AP0049050 Ref. Code: UR0357

PRIMARY SOURCE: Vestnik Oftal'mologii, 1970, Nr 1, pp 49-53

DIAGNOSTIC ASPIRATION PUNCTURE IN TUMOUR AND TUMOUR-LIKE GROWTHS OF THE ORBIT

N. D. Ravinskaya

Summary

Diagnostic aspiration puncture was practised by the author in 63 patients with tumour and tumour-like growths of the orbit. Cytological investigations helped to establish the diagnosis of a malignant neoplasm, along with that of a tumour of the lymphoid tissue in 22 patients. In 15 of these cases histological structure of the tumour, and in the remaining patients — malignant character of the newgrowth could be ascertained. Of 21 patients with benign tumours and tumour-like growths in 16 hemangiomas, orbital cysts and lacrimal gland adenomas were discovered. Of 20 patients with inflammatory processes in the orbit, simulating newgrowths and cysts in the accessory sinus of the nose, proliferating into the orbit and difficulty diagnosticated by clinical and roentgenological methods, in 18 of them an accurate citological diagnosis of a chronic inflammatory process, confirmed by an operative intervention and histological anlayses, was established. The method is simple, accesible and safe for the patient. It is a useful adjunct procedure helpful in diagnosing neoplasms of the orbit and aiding the clinician in the choice of the method of treatment.

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REEL/FRAME
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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

UNCLASSIFIED

TITLE--IONIZATION CONSTANTS OF PYROCATECHOL VIOLET IN SOLUTIONS WITH IONIC STRENGTH -U-

PROCESSING DATE--20NOV70

AUTHOR-(02)-BIRYUK, YE.A., RAVITSKAYA, R.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 576-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IONIZATION, PYROCATECHOL, IONIC BONDING, SPECTROPHOTOMETRIC ANALYSIS, CALCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2055

STEP NO--UR/0075/70/025/003/0576/0578

CIRC ACCESSION NO--AP0125642

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

021

CIRC ACCESSION NO--AP0125642 UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- PROCESSING DATE--20NOV70

GROUPS OF PYROCATECHOL VIOLET IN SOLNS. WITH AN IONIC STRENGTH OF C.1-0.5-1.0 WERE DETD. BY THE SPECTROPHOTOMETRIC ISOSBESTIC POINT METHOD. EQUATIONS WERE DEDUCED PERMITTING THE CALCN. OF IONIZATION CONTS. FOR ANY IONIC STRENGTH IN THE 0-1.0 RANGE.

LAB., INST. GEN. INORG. CHEM., ODESSA, USSR.

FACILITY:

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

172 013

UNCLASSIFIED

TITLE--REACTION OF INDIUM WITH POLYHYDROXYFLAVONES -U-

PROCESSING DATE--04DEC70

AUTHOR-(02)-BIRYUK, YE.A., RAVITSKAYA, R.V.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(2), 120-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INDIUM COMPOUND, COMPLEX COMPOUND, ABSORPTION SPECTRUM, DYE, KETONE, HYDROXYL RADICAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2114

STEP NO--UR/0073/70/036/002/0120/0124

CIRC ACCESSION NO--AP0125698

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

013

CIRC ACCESSION NO--AP0125698 UNCLASSIFIED PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN PRIME3POSITIVE FORMS WITH QUERCITIN 2 DIFFERENT 1:1 COMPLEXES. THE 1ST, FORMED AT PH GREATER THAN 2, ABSORBS AT 435 NM AND FLUORESCES. IT IS BELIEVED TO INVOLVE IN THE IN PRIME3POSITIVE LINKED TO THE CARBONYL AND O HYDROXYL GROUPS. THE 2ND, FORMED AT PH 6-7, ABSORBS AT 445 NM, IS BELIEVED TO INVOLVE IN(OH) PRIME2POSITIVE BOUND TO THE CARBONYL O AND PERI HYDROXYL GROUP. IT DOES NOT FLUORESCE. MORIN FORMS A COMPLEX SIMILAR TO THE FIRST. ITS ABSORBANCE WAS MEASURED AT 415 NM. RUTIN FORMS A L"1 COMPLEX WITH IN(OH) SUB2 PRIME POSITIVE WHICH RESEMBLES THE 2ND IN STRUCTURE AND PROPERTIES; IT ABSORBS AT 430 NM.

NEORG. KHIM., ODESSA, USSR. FACILITY: LAB., INST. OBSHCH.

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UR 0482

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

244819 SUSPENSION where the cushioned mass (not shown) is connected with cylinder (1) whose deformable volume a above the piston (5) is filled with non-compressible fluid and connected to source (2) of constant flow rate. In parallel to volume a is established and connected to it the programmed throttle (3), whose working slit conductance can change according to a prescribed law. The suspension contains also a unit for static compensation in the form of an amplifier (4) which controls the flow-rate conveyed to volume a through throttling slit b whose conductance changes in dependence on the magnitude of the static load. When the balance is affected, the movement of piston (5) activates the programming unit (7) through the lever system (6), and this adjusts throttle (3), and the slide valve (8) adjusts the pressure in chambers (9) and (10) of amplifier (4).

27.12.67 as 1206848/25-28 G.O. RAVKIN (9.10.69) Bul. 18/20.5.69. Class 47a[illegible], Int. Cl. F 16f, B 62d.

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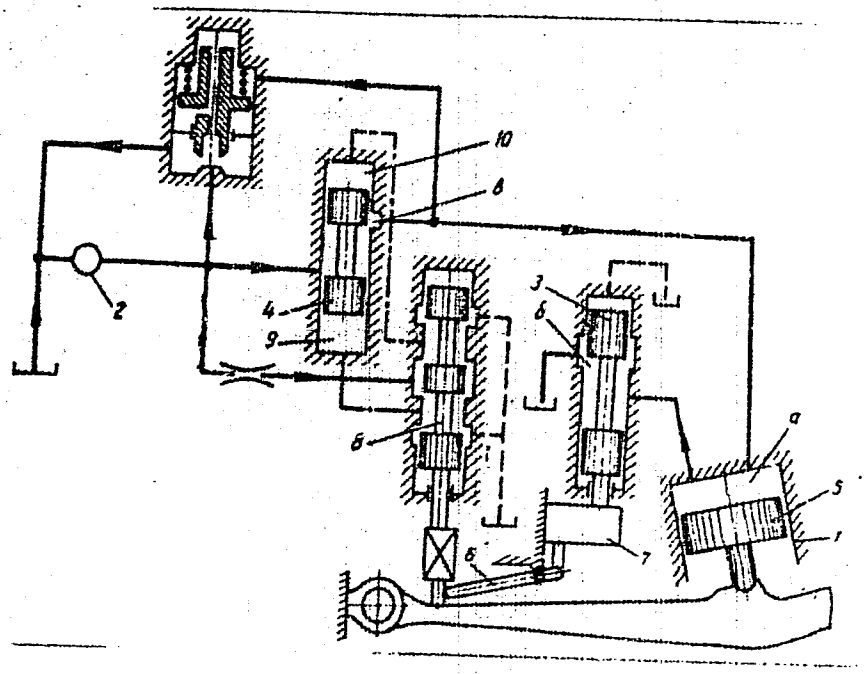

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--OUTPUT CHARACTERISTICS OF AN ALLOYED JUNCTION TRANSISTOR BASED ON N INDIUM ANTIMONIDE AT 78DEGREESK -U-

AUTHOR-(03)-GALAVANOV, V.V., RAVKOV, A.V., ATABEKOV, S.G.

COUNTRY OF INFO--USSR

SOURCE--RADIOTEKH. ELEKTRON. 1970, 15(4), 868

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ALLOY TRANSISTOR, JUNCTION TRANSISTOR, INDIUM ANTIMONIDE, MANUFACTURING PROCESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2186 STEP NO--UR/0109/70/015/004/0868/0868

CIRC ACCESSION NO--AP0125766

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

2/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125766

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF PREPN. IS DESCRIBED, AND THE OUTPUT CHARACTERISTICS ARE GIVEN OF AN ALLOYED JUNCTION TRANSISTOR BASED ON N INSB. FACILITY: FIZ.-TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

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Acc. Nr.: AT0046521

Ref. Code: UR0141

UDC 621.382.3

USSR

GALAVANOV, V.V., RAVKOV, A.V., SAIMKULOV, Z.A.

"Fused-Diffusion n-InSb Transistor"

Splavno-diffuzionnyy tranzistor na baze n-InSb (cf. English above), Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy, Priborostroyeniye, 1970, No 1, pp 13-14

Translation:

A fused-diffusion n-InSb transistor was fabricated, whose emitter junction was created by fusion, while the collector junction was created by exodiffusion. The transistor output characteristics measured in a circuit with common base are presented. The current gain $\alpha = 0.8$.

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USSR UDC 621.382.3

GALAVANOV, V. V., RAVKOV, A. V., SAIMKULOV, Z. A.

"Alloy-Diffusion n - InSb Transistor"

Leningrad, Izvestiya VUZ, Priborostroyeniye, Vol 13, No 1, 1970, pp 13-14

Abstract: Certain characteristics are presented of an alloy-diffusion n-InSb transistor with $7.8 \times 10^{13} cm^{-3}$ concentration of noncompensated donors, and $5,5 \times 10^{5} cm^{2}/v.$ sec electron mobility, designed for low temperature operation (down to 78°K). The emitter junction with $0.09 mm^2$ surface is formed by fusion, while the collector junction with $6 mm^2$ surface is accomplished with the aid of "outward" diffusion. The transistor's output characteristics at 78°C, as presented in the graph for emitter currents I_e = 0, 1, 2, 3, and 4ma, show that the transistor has good amplification properties. Its amplification coefficient is equal to 0.83 at U_c = -1v and I_e = 1mA, and decreases with increasing emitter current when U_c = constant. The collector reverse current does not exceed 10 microampere at U_c = 1.8v. The transistor differential input resistance in a circuit with a common

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

GALAVANOV, V. V., et al, Izvestiya VUZ, Priborostroyeniye, Vol 13, No 1, 1970, pp 13-14

Abstract: emitter is 30 ohms at U_c = -1v. The results indicate the possibility of producing cooled InSb transistors for the use in low temperature circuits. Orig. art has: 1 figure.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR UDC 621.382.3

GALAVANOV, V. V., RAVKOV, A. V., SAIMKULOV, Z. A.

"Alloy-Diffusion n - InSb Transistor"

Leningrad, Izvestiya VUZ, Priborostroyeniye, Vol 13, No 1, 1970, pp 13-14

Abstract: Certain characteristics are presented of an alloy-diffusion n-InSb transistor with $7.8 \times 10^{13} cm^{-3}$ concentration of noncompensated donors, and $5,5 \times 10^5 cm^2/v$. sec electron mobility, designed for low temperature operation (down to 78°K). The emitter junction with $0.09 mm^2$ surface is formed by fusion, while the collector junction with $6 mm^2$ surface is accomplished with the aid of "outward" diffusion. The transistor's output characteristics at 78°C, as presented in the graph for emitter currents I_e = 0, 1, 2, 3, and 4ma, show that the transistor has good amplification properties. Its amplification coefficient is equal to 0.83 at $U_c = -1v$ and I_e = 1mA, and decreases with increasing emitter current when U_c = constant. The collector reverse current does not exceed 10 microampere at U_c = 1.8v. The transistor differential input resistance in a circuit with a common

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

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GALAVANOV, V. V., et al, Izvestiya VUZ. Priborostroyeniye, Vol 13, No 1, 1970, pp 13-14

Abstract: emitter is 30 ohms at U_c = -1v. The results indicate the possibility of producing cooled InSb transistors for the use in low temperature circuits. Orig. art has: 1 figure.

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RAYA, E.

Production mechanization

USSR

TAAK, Boris, Sovetskaya Estoniya, 18 Jun 71, p 2

assistance to the young computer centers of the republic, train new personnel, and provide advanced training to the economic and technical chiefs of industrial enterprises and the national economy.

Of course, not everything goes smoothly when solving complicated tasks (and only the complicated tasks are interesting to take care of). Nevertheless, we are fully resolved to go on with the task we have undertaken. This resolve is strengthened by the fact that at present there are in the republic several other organizations besides us that are working on similar topics and with which we have good relations and accurate coordination.

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14. USSR

RAYA, E., Chief, Baltic Branch, Introduction Bureau, Central Scientific Research Institute for Organization, Mechanization, and Technical Aid

"On a Scientific Basis"

Tallin, Sovetskaya Estoniya, 25 Jun 71, p 2

Translation: The Directives of the 24th CPSU Congress on the Five-Year Plan for Development of the USSR National Economy During 1971-1975 envisage broad introduction of computer technology into information processing and administrative processes. The activity of our worker collective is directly connected with fulfillment of this assignment.

On an order from the Tallin Bone Building Combine, we prepared forecasts of the results of certain planned measures in production organization. In this, programs developed by scientists from Leningrad University were used, and the data were processed by the computer center of the Tallin Polytechnical Institute. The directors of the combine, having become familiar with the possibilities of mathematical methods and computer technology, set up a special group at the enterprise which now programs

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USSR UDC: 51

RAYATSKAS, R. L. (editor)

"Modeling of Economic Systems. Problems of Software. No. 5"

Modelirovaniye ekonomicheskikh sistem. Voprosy matematicheskogo obespecheniya. Vyp. 5. Lit. NII nauch.-tekhn. inform. i tekhn.-ekon. issled. (cf. English above. Lithuanian Scientific Research Institute of Scientific and Technical Information and Technical-Economic Studies), Vil'nyus, 1972, 193 pp, ill. 52 k. (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V575 K)

Translation: The collection is devoted to description of the main procedural regulations and software programs for the automated system of planned calculations of the Soviet republic.

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USSR

UDC 634.0.812.719

SHTEYNERS, K. N., GOLDSHTEYNS, A. Ya., ROTSENS, K. A., DOLATSIS, Ya. A., and RAYAVEYE, E. L., Institute of Wood Chemistry, Academy of Sciences Latvian SSR

"Deformation Characteristics of Birch Wood, Modified Chemically by Radiation, as a Function of Polymer Content"

Riga, Izvestiya Akademii Latviyskoy SSR, No 11(304), 1972, pp 35-41

Abstract: The basic components of the pliability tensor of polystyrene which has been modified chemically by radiation as a function of its concentration in birch wood were determined. The module of elasticity and the module of shear were also measured for three groups of samples: a control group, a group exposed to an integrated radiation dose of 14 mrads, and a group containing the chemically modified polystyrene. The components of interest were a_{1111}, a_{2222}, a_{1212}, a_{1313}, and a_{2323}. The mathematical form of these is also given. The components a_{2222} and a_{2323} showed a greater dependence (a second order function) on the polystyrene concentration than the other three components, which had a first order dependence.

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Mechanical Properties

USSR UDC 669.715.5.721.018.29.669.018.2

BABICHEV, B. I., ZOLOTOREVSKIY, Yu. S., NEZHNIKOVSKIY, I. A., RAYAZHSKAYA, T. K.

"The Problem of the Inertia of Natural Aging of Alloys in System Al-Zn-Mg With Mg/Zn 2 and Its Influence on Mechanical Properties"

Metallovedeniye[Metal Science -- Collection of Works], No. 14, Leningrad, Sudostroyeniye Press, 1970, pp. 160-165. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I678 by the authors).

Translation: The kinetics of the decomposition of the solid solution of an alloy in the system Al-Zn-Mg and the mechanical properties produced are studied. 2 figs; 2 tables, 12 biblio refs.

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UDC 519.281

USSR

RAYBMAN, N. S., SHPUNT, M. I., OVSEPYAN, F. A., DURGARYAN, I. S.

"Information Measure of Determinacy and Its Use in Identification of Objects of Control"

Tr. 1 Vses. simpoziuma po statist. probl. v tekhn. kibernet. Identifik i apparatura dlya statist. issled. (Works of the First All-Union Symposium on Statistical Problems in Technical Cybernetics. Identification and Equipment for Statistical Investigation), Moscow, "Nauka", 1970, pp 126-136 (from RZh-Matematika, No 10, Oct 70, Abstract No 10V109)

Translation: The problem of quantitatively evaluating the degree of isomorphism of the mathematical model of an object-original is discussed. The quantitative estimate of the degree of isomorphism proposed, the information measure of determinacy, is based on the fundamental notions of information theory. Let a random quantity X "act" on the input of a one-dimensional inertialess object and the random quantity Y "act" on the output. A certain distribution of the values of Y corresponds to each fixed X. In this case it is proposed that the following quantity be used as a relative information measure of determinacy:

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USSR

RAYBMAN, N. S., et al, Tr. 1 Vses. simpoziuma po statist. probl. v tekhn. kibernet. Identifik i apparatura dlya statist. issled., Moscow, "Nauka", 1970, pp 126-136

$$q_X\{Y\} = I_X\{Y\}/H\{Y\}, \qquad (1)$$

where $I_X\{Y\}$ is the quantity of information on Y contained in the input quantity X and $H\{Y\}$ is the unconditional entropy of the quantity Y. Calculation of the information measure of determinacy by formula (1) involves a large number of calculations in practice. It is shown in the work that under certain constraints on the unconditional and conditional probability density of the quantity Y it is possible to express the information measure of determinacy in terms of more simple characteristics of the object; in particular, in terms of the measure of determinacy based on dispersion methods for random quantities. Such a measure of determinacy was introduced by N. S. Raybman (Avtomatika i Telemekhanika, 1963, 24, No 9). One can similarly introduce an information measure of determinacy for static multidimensional and dynamic objects. Examples of calculating the measure are given. Yu. Shinakov.

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FROM: FBIS, Foreign Press Digest, Cybernetics in the USSR, 28 Jan 70, FPD 0006
33. USSR

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RAYBMAN, N. S., and CHADEYEV, V. M. (Moscow)

"Spheres of Application for Various Identification Methods"

Moscow, Avtomatika i Telemekhanika, No 6, Jun 69, pp 203-204

Abstract: The question of what identification methods are preferable cannot be answered at the present time. Even a generalization of the transactions of the First International Symposium on Identification, held in Prague in 1967, fails to provide an answer. The present article limits itself to the question of whether special signals are to be sent to the inputs of the object to be identified or if its characteristics are to be determined under normal operating conditions. The answer is that, if possible, a special signal should be sent. It should be an optimal signal, which as a rule is a simple orthogonal signal. But a special signal cannot always be sent, especially for complex objects. Whenever possible under production conditions, a planned experiment should be carried out according to controlled inputs. For complex multidimensional, multilink objects in the presence of observable (uncontrolled) input variables the determination of characteristics is possible only

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under normal operating conditions. A universal method might be one that utilizes the advantages of the methods of experimental planning according to controlled inputs and the wide possibilities of the methods of the determination of characteristics during the normal functioning of an object according to observable inputs. But at present there is no such method.

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Lunar geology

(13)

NASA TT F-689

PROBLEMS OF LUNAR GEOLOGY

Edited by A. V. Peyve

Translation of "Problemy Geologii Luny."
"Nauka" Press, Moscow, 1969

RAY BURD, Ts. M.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION January 1973

For sale by the National Technical Information Service, Springfield, Virginia 22151
$8.00

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

ANCIENT SEAS OF THE MOON

A. L. Sukhanov

ABSTRACT. Research on lunar maria performed by American and Russian scientists is discussed. The discussion begins with the analysis of J. E. Spurr in 1944.

FEATURES OF LAVA-SHEET FORMATION ON THE MOON

A. M. Gutkin, Ta. Ju. Raybuyas, M. V. Slonimskaya, N. G. Sushkin, and I. A. Fomina

ABSTRACT. Observations of volcanic activity on the moon are discussed. The heat losses experienced by the lava due to radiation, convection and other processes are analyzed. Other problems analyzed include hardening of the lava, bubble rising in the melt, and other physical phenomena.

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USSR UDC 548.4

RAYCHENKO, A. I., and MARTYNOVA, I. F., Institute of Problems of Material Science, Academy of Sciences UkrSSR

"The Function of Scattering X-Rays by Metals with a Hexagonal Lattice Containing Dislocations"

Kiev, Metallofizika, No 31, 1970, pp 126-132

Translation: Intensity distributions on Debye's powder diagram corresponding to the scattering of roentgen radiation from metals containing dislocations with Burgers's vectors 1/3 [2110] (screw and mixed dislocations) and 1/6 [2023] (edge dislocations) were calculated. The course of radiation intensity scattered by metals with chaotically distributed dislocations is expressed by the Gaussian distribution depending on $\Delta\alpha$ (α the Wulff-Bragg angle). The distribution dispersions pertaining to the dislocations mentioned differ in factors ("orientational factors") depending on Miller's indices, elastic constants, and the relationship of crystal lattice parameters.
Bibliography: 14 entries, 1 illustrations, 2 tables.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

Steels

USSR UDC 620.192.45:669.141.247

LITVINOVA, T. I., RAYCHENKO, T. F., PETROV, A. K., and PIROZHKOVA, V. P., UkrNIIspetsstal' [Ukrainian Scientific Research Institute of Special Steels, Alloys and Ferroalloys]

"Mechanism of Magnesian Spinel Formation in Steels"

Moscow, Stal', No 7, Jul 71, pp 650-653

Abstract: The authors made a detailed petrographic study of cobbings from the working layer of industrial electric-furnace hearths in melts of steels ShKh15, 45G17YuZ, Kh18N10T, 25KhGSA, and 30KhGSNA and studied the phase composition of melting slags and nonmetallic inclusions forming in these steels. In addition, these same brands of steel were obtained under laboratory conditions in a 50-kg induction furnace with a magnesite rammed lining, and iron, manganese, chromium, aluminum, and other metals were smelted in magnesite crucibles with a one-hour holding time. All laboratory melt products (metals, slags, fettling), as well as products of the interaction of the smelted metals with periclase were studied by the petrographic method. Solid solutions and complex chemical compounds were studied by the X-ray analysis method.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

LITVINOVA, T. I., et al., Stal', No 7, Jul 71, pp 650-653

It was found that the source of magnesian spinel inclusion formation in the steels is the magnesite furnace lining, which undergoes mechanical erosion and is exposed to the chemical action of the main steel components during melting. Results of the petrographic study of the working zone of the furnace hearth, melting slags, and nonmetallic inclusions indicate that the fine-crystalline variety of magnesian spinel inclusions (up to 5 microns) is formed directly in the liquid phase (metal and slag) and that this process develops most intensively during teeming of the steel as a result of reoxidation of the metal (as per the findings of YU. A. SHUL'TE). The presence of periclase relics in the macrocrystalline variety of spinel inclusions (20-40 microns) suggests that the inclusions get into the metal with the slag emulsion. On the basis of the described conditions of formation, magnesian spinel inclusions cannot be grouped as either exogenous or endogenous, but are the product of their interaction with each other.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC 669.14.018292:549.12

LITVINOVA, T. I., RAYCHENKO, T. F., PIROZHKOVA, V. P., and MOSHKEVICH, L. D.

"Petrographic Investigation of Rough Globular Elements in ShKh15 Steel"

Moscow, Stal', No 2, Feb 71, pp 166-168

Abstract: The coarse, globular nonmetallic elements found in ShKh15 steel and determined by X-ray analysis to be largely of magnesian spinels, markedly debase the quality of the steel and adversely affect its characteristics, often leading to the discard of individual alloys. This article describes the method used by the authors to determine the phase state of these elements by the petrographic method, in which sections of the steel were examined under the microscope after metallographic study. The elements are from 100 to 150 microns in size, and were discovered in the ShKh15SG alloy as well as in the ShKh15, both manufactured by the "Dneprospetsstal'" plant. They can be classified in three groups, differing in shape, reflective capability, and behavior under polarized light. Most of them had the chemical composition of $2CaO \cdot SiO_2$. The petrographic examination, yielding results which agreed closely with the X-ray study, showed that the elements correspond in phase and structure to slag, from which they probably originate.

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1/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--INTERACTION OF CHROMIUM AND TITANIUM WITH A MAGNESITE REFRACTORY -U-

AUTHOR-(03)-LITVINOVA, T.I., RAYCHENKO, T.F., PIROZHKOVA, V.P.

COUNTRY OF INFO--USSR

SOURCE--OGNEUPORY 1970, 35(1), 46-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHROMIUM, TITANIUM, HIGH TEMPERATURE HEAT TREATMENT, REFRACTORY MATERIAL, MAGNESIUM OXIDE, CHEMICAL REACTION, CHROMATE, TITANATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0916 STEP NO--UR/0131/70/035/001/0046/0049

CIRC ACCESSION NO--AP0113751

UNCLASSIFIED

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UNCLASSIFIED PROCESSING DATE--09OCT70

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CIRC ACCESSION NO--AP0113751

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CR AND TE WERE MELTED AT 1800DEGREES FOR 20 MIN IN CRUCIBLES PREPD. FROM MAGNESITE OF D. 3.57 G-CM PRIME3, CONTG. MGO 92, CAO 1.10, FE SUB2 O SUB3 1.82, AL SUB2 O SUB3 0.50, AND SIO SUB2 2.74PERCENT. AS A BINDER, SULFITE,ALC. SPENT LIQUOR WAS USED. THE CRUCIBLES AFTER MELTING CR HAD A 0.5 MIM BROWNISH GREEN COVERING OF MGCR SUB2 O SUB4 SEPD. IN PERICLASE AND METALLIC CR. MELTING OF TI LED TO THE PRODUCTION OF A 3-5 MM THICK BLACK LAYER IN THE CRUCIBLE, CONTG. PERICLASE, MGTIO SUB3, AND TI OXIDES, MAINLY TIO.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC 542.61:543.544:546.794

RAYCHEV, KH., and KHALKIN, V.

"Extraction-Chromatographic Method for Isolation of Polomium From Bismuth Oxide Irradiated With Target Protons"

Leningrad, Radiokhimiya, Vol 12, No 5, 1970, pp 778-779

Abstract: Model experiments on the sorption of polomium on tributylphosphate [TBP]-fluoroplast column from 6 M HCl supported the contention that the extraction chromatography is suitable for a rapid separation of polomium from macroquantities of bismuth. Eluates containing bismuth showed no traces of polomium, all of it being adsorbed by the column. Reextraction of polomium from TBP was achieved by means of diluted HF, from which polomium could be electrodeposited on platinum. Optimal conditions for electrodeposition were: current -- 160 ma, duration of the electrolysis -- 5 min, temperature -- 80°C.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

1/2 010 UNCLASSIFIED

TITLE--THE YULEMISTE, A NEW VESSEL HAS BEEN DELIVERED TO THE OKEAN -U-

PROCESSING DATE--04DEC70

AUTHOR--RAYD, A.

COUNTRY OF INFO--USSR

SOURCE--SOVETSKAYA ESTONIYA, AUGUST 20, 1970, P 4, COLS 1-3

DATE PUBLISHED--20AUG70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--REFRIGERATION EQUIPMENT, SHIPBUILDING ENGINEERING/(U)YULEMISTE REFRIGERATION TRAWLER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1669

STEP NO--UR/9017/70/000/000/0004/0004

CIRC ACCESSION NO--AN0138645

UNCLASSIFIED

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UNCLASSIFIED

CIRC ACCESSION NO--AN0138645 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE "YULENISTE", A REFRIGERATION TRAWLER, HAS BEEN CONSTRUCTED FOR THE SOVIET UNION AT SHTRALSUND, EAST GERMANY.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC 632.95

PROTOPOPOVA, G. V., RAYDALOVA, L. I., KOLODYAZHNYY, O. I., SAMARAY, L. I., and DERKACH, G. I., Institute of Organic Chemistry, Academy of Sciences of the UkrSSR

"A Pesticide"

USSR Author's Certificate No 253483, filed 25 Nov 68, published 8 Apr 70 (from RZh-Khimiya, No 3, 10 Feb 71, Abstract No 3N553 P)

Translation: N-(O-alkyl-S-alkylthiophosphono)-S-ethylurethanes have LD_{50} 170 mg/kg for warm-blooded animals and have systemic and contact insecticidal and acaricidal action. Most toxic for houseflies is $(CH_3O)(CH_3S)$-$(P(O)NHCOSC_2H_5$ (I); 0.01 mg per fly, this compound was 92% fatal (the corresponding figure for chlorophos is 53%); for weevils of the rice and cereal type, most toxic is $(CH_3O)(C_2H_5S)P(O)NHCOSC_2H_5$ which was 100% fatal at 0.25 mg/dm^2 and 100% lethal for aphids at 0.005 mg/dm^2. Compound I is most effective for systemic action on aphids. In field experiments on controlling beet weevils, compound I in a dose of 1 kg/ha was nearly as effective as heptachlor at 2 kg/ha, and is at least as persistent in its effect. Compound I at 0.5 kg/ha was nearly as effective against beet aphids as rogor at 0.3 kg/ha.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC 621.565.83:428.84

GANIN, YE. A., KARICHEV, Z. R., LEBEDEV, V. F., RATNER, V. M., RAYETSKIY, A. S., SIMONOV, V. A.

"Experimental Thermoelectric Air Conditioner"

Moscow, Kholodil'naya tekhnika, No. 9, Sep 71, pp 12-15

Abstract: The thermoelectric room air conditioner developed by the authors that has thermobatteries with a coaxial flow of heat and electric current is described. The air conditioner consists of a thermoelectric battery unit, a power supply unit, and a system for automatically maintaining a given temperature level. Air conditioning occurs in the thermoelectric battery unit where the air is heated, cooled and cleaned of dust depending on the operating regime of the batteries. Air from the room is pumped through the battery unit as a result of rarefaction produced by a turbine fan and again enters the room. The hot junctions of the air conditioner are cooled by tap water. The thermoelectric battery unit consists of 24 batteries which are fastened in a circle on two bands of brackets forming a complete cylinder, with the internal diameter connected with the input opening of the turbine. The semiconducting materials of the thermocouples were the trinary alloys Bi Te Sb and Bi Te Se which are widely used in thermo-

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GANIN, YE. A., et al, Kholodil'naya tekhnika, No. 9, Sep 71, pp 12-15

electric refrigeration devices. The power supply of the thermobatteries was 220 amp and was chosen on the basis of their maximum cold productivity which was 90-100 kcal/hr. Tests showed that for a water temperature of 20°C and an air temperature of 25°C, the refrigeration capacity of the air conditioner was about 2200 kcal/hr. This required a power of 3.2 kW and the air was cooled in the conditioner to 9°C. When the air conditioner was used as a heat pump, tests showed that for temperatures of the cooling order of 6°C and air temperatures of 12°C, the amount of heat obtained was approximately 3100 kcal/ /hr. The air conditioner weighed about 100 kg. It is noted that despite the greater requirement for electrical energy as compared with compression air conditioners, the cost of using thermoelectric conditioners may be lower since the necessity for expensive maintenance and capital repairs is avoided.

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Nuclear Science and Technology

USSR

UDC 621.039.55:621.039.542.32

RAYETSKIY, V. M., ZAVGORODNIY, A. YA., and GOMOZOV, L. I.

"Effect of Irradiation on Electrical Resistance of Uranium-Zirconium-Niobium Alloy"

Moscow, Atomnaya Energiya, Vol 29, No 5, Nov 70, pp 379-380

Abstract: Studies were made of uranium-8 at. percent zirconium-12 at. percent niobium alloy, which has a higher equilibrium gamma-state transition temperature (660° C) than an alloy of uranium with 20 at. percent molybdenum. Specimens were placed in ampoules and filled with lead-tin solder (melting point 183° C) at 200° C. Irradiation was carried out in an SM-2 reactor to an integrated flux of $\Phi_1 = 3 \cdot 10^{19}$ thermal neutrons/cm^2 at 70° C and $\Phi_2 = 9 \cdot 10^{20}$ thermal neutrons/cm^2 at 200° C. Electrical resistance was measured by the potentiometric method in the -196 to + 100° C temperature range. Irradiation results in an increase in the mean temperature electrical-resistance coeffi-

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USSR

R[illegible]YETSKIY, V. M., et al., Atomnaya Energiya, Vol 29, No 5, Nov 70, pp 379-380

cient for uranium-zirconium-niobium alloy (negative for the initial state of the alloy). It becomes positive after irradiation with flux Φ_2. There is a decrease in the electrical resistivity found at -196° C and an increase in the value found at +100° C with irradiation dose. Variations in the temperature dependence of the electrical resistance as a result of changes in the phase state of unirradiated uranium-zirconium-niobium alloy were determined in specimens cooled from the homogeneous state (T = 800° C) at a rate of ~ 300 (water hardening), ~ 3, and 0.1 deg/sec, as well as in specimens annealed at 500° C for 140 hours. Water hardening gave a homogeneous state, annealing at 500° C an equilibrium heterogeneous state. The mean temperature coefficient of the alloy increases with decreased cooling rate, reaching the greatest value after annealing at 500° C.

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USSR

RAYETSKIY, V. M., et al., Atomnaya Energiya, Vol 29, No 5, Nov 70, pp 379-380

A comparison of variations in the mean temperature resistance coefficient for thermal decomposition and irradiation indicates that the uranium-zirconium-niobium alloy decomposes under irradiation. Decomposition of the homogeneous alloy indicates that uranium fission events may promote not only homogenization, but also the initiation of decomposition centers and accelerated decomposition of unstable alloys.

The authors thank S. T. KONOBEYEVSKIY for his interest in and discussion of the work, and V. S. SANDAKOV and L. M. KISELEV for their assistance in the experiments.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

1/2 044 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--RADIATION HARDENING OF SOME NICKEL, CHROMIUM, AND IRON ALLOYS -U-

AUTHOR-(02)-RAYETSKY, V.M., VOTINOV, S.N.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 284-290

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--NEUTRON IRRADIATION, CRYSTAL DISLOCATION, YIELD STRESS, DUCTILITY, TEMPERATURE DEPENDENCE, CHROMIUM NICKEL ALLOY, CHROMIUM NICKEL STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1677 STEP NO--UR/0126/70/029/002/0284/0290

CIRC ACCESSION NO--AP0129047

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2/2 044 UNCLASSIFIED

CIRC ACCESSION NO--AP0129047 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF NEUTRON IRRADIATION ON THE MECHANICAL PROPERTIES OF NI,CR AND FE,NI,CR ALLOYS WERE STUDIED. THE YS INCREASED WITH INCREASING NEUTRON FLUX, REACHING SATURATION FOR AN INTEGRAL NEUTRON DOSE OF 10 PRIME21 N-CM PRIME2 (ENERGY 1 MEV) AT 70DEGREESC. TESTS AT 350 AFTER IRRADIATION AT 70DEGREESC REVEALED THE EXISTENCE OF A SOFTENING EFFECT APPARENTLY ASSOCIATED WITH AN EXCESS OF VACANCIES ARISING FROM THE DECOMPOSITION OF VACANCY AGGREGATES. THE HARDENING CAUSED BY THE IRRADIATION WAS ATTRIBUTED TO THE PINNING OF DISLOCATIONS BY VACANCY AGGREGATES COMPRISING AT LEAST FIVE VACANCIES.

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AA0040695 R Rayev, M. A.

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

241152 JET TO ATOMISE SOLUTIONS comprising body, diaphragm and locking needle, differing in the locking needle being fixed on the diaphragm, under which is a spring adjusted by a screw. This provides for applying the covering evenly, when used in the glass industry to apply conductive covering to horizontal glass. The jet consists of body 1, in which is diaphragm 2 carrying locking needle 3 covering channel 4 for supplying the solution. The diaphragm is loaded by adjustable working spring 5 and by the compressed air supplied for atomising. Air under pressure is supplied into air chamber 6 and flows out through nozzle 7. Due to displacement of the diaphragm, channel 4 is closed and opened by needle 3 at a given pressure of compressed air, fixed by the setting of spring 5. When air pressure is removed from chamber 6, the needle closes channel 4, and no trace of liquid is left on the edge of nozzle 7.

16.11.67 as 1197004/29-33. KRASNOIARSKII IU.S. & RAEV M.A. (26.8.69.) Bul 13/1.4.69. Class 46c. Int.Cl. F 02f.

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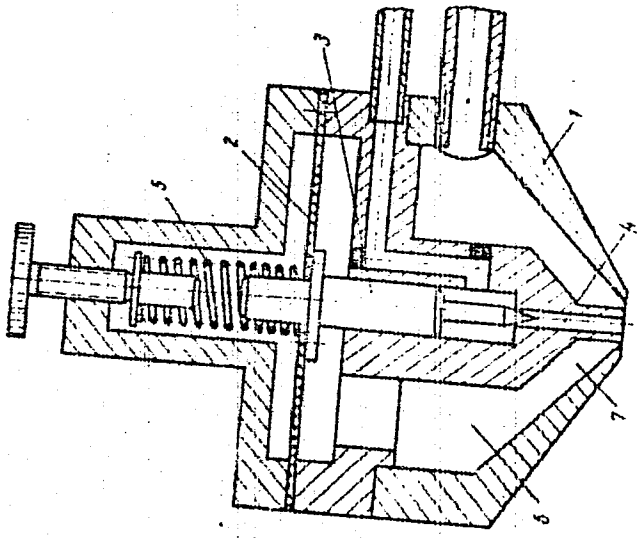

AUTHORS: Krasnoyarskiy, Yu. S.; and Rayev, M. A.

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USSR

UDC: 621.372.51

RAYEV, M. D. and SHVARTS, N. Z.

"Matching Complex Impedances in UHF Miniature Devices"

Kiev, Izvestiya VUZ SSSR--Radioelektronika, No 6, 1972, pp 728-738

Abstract: Because it is very difficult to match complex loads for obtaining broad-band transmission, especially when using integrated circuit techniques, this paper attempts a more complete explanation of this matching problem than heretofore presented. Specifically, the paper examines arbitrary, two-component complex loads in which oscillators are a particular case; the two components may be resistive and reactive. Matching in circuits with lumped components or with distributed parameters is considered. Tables of circuits and matching formulas are given. The circuits considered have resonance characteristics for ideal matching at the central frequency and with increased reflection coefficient for increased detuning. Effects of the matching on the band pass of the circuits are also analyzed.

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USSR

UDC 621.375.147.3

BOYARCHENKOV, M. A., KERBNIKOV, F. I., RAYEV, V. K., and ROZENBLAT, M. A.

Magnitnyye Reshayushchiye Elementy (Magnetic Decision Elements), Moscow, "Sovetskoye Radio," 1971, 280 pp, Annotation p 2, Table of Contents pp 278-279

Translation of Annotation and Table of Contents: The book is devoted to a systematic consideration of the theory, construction principles, and methods for the practical realization of magnetic decision elements used for data processing in analog form in automatic control systems. Along with elements designed to perform the typical functions of summation, multiplication, integration, etc., the book also considers memory elements for analog quantities, memory integrators, sensitive measuring amplifiers for data input into an analog computer, etc. Methods are given for stabilization of the characteristics of zero drift reduction, for increasing the precision and improving the dynamic characteristics of decision elements, as well as the principal parameters of elements which have been realized in practice.

The book is intended for engineers and scientists engaged in the creation and use of automation and computer equipment, as well as for students of the corresponding specialties.

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USSR

BOYARCHENKOV, M. A., et al., Magnitnyye Reshayushchiye Elementy, Moscow, "Sovetskoye Radio," 1971

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BOYARCHENKOV, M. A., et al., Magnitnyye Reshayushchiye Elementy, Moscow, "Sovetskoye Radio," 1971

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC 612.822.3.08

RAYEVA, S. N., MASLOV, P. I., and KOKAREV, A. A., Department of Memory Study, Institute of Biophysics, Academy of Sciences USSR, Pushchino on Oka, and the Institute of Neurochemistry, USSR Academy of Medical Sciences imeni Academician N. N. Burdenko, Moscow

"A Device for Following the Activity of Individual Neurons in the Deep Structures of the Human Brain"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 59, No 11, Nov 73, pp 1,761-1,763

Abstract: A micrometric micromanipulator has been constructed for use in human stereotaxic surgery for recording the electrical activity of individual subcortical neurons or their populations, depending on the electrode employed. A tungsten electrode 0.3 mm in diameter, tapered to 1-2 microns, and insulated with laquer was made for individual neuron recording. In essence, the instrument consisted of a cannula with a micrometer for introducing the electrodes. In addition to recording potentials, the same instrument may be used for stimulation. The instrument described has been used with success in 45 operations.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

USSR

UDC 612.822.3

RAYEVA, S. N., and KADIN, A. L., Department of Memory Problems, Institute of Biophysics, Academy of Sciences USSR, Pushchinona-Oke, and Institute of Neurosurgery, Academy of Medical Sciences USSR, Moscow

"Spontaneous and Evoked Activity of Neurons in Deep Structures of the Human Brain During Voluntary Movements"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 2, 1973, pp 198-205

Abstract: Spontaneous and evoked activity of 365 neurons in the ventrolateral thalamic nucleus, globus pallidus, putamen, and n. caudatus were studied in parkinsonian patients during stereotaxic surgery performed under local anesthesia. The records show that each structure has its own characteristic pattern of spontaneous activity, by which it can be differentiated from neighboring structures. During voluntary contraction of skeletal muscles (bending and stretching the fingers, moving the hand, and lifting the arm) on the ipsi- and contralateral side, the ventrolateral thalamus responds with tonic evoked activity (in 90% of the cases) of the excitatory, inhibitory, or intermediate type, which lasts almost throughout the motor activity. The evoked activity in the extrapyramidal system, especially in the globus pallidus and putamen, is phasic, that is, the

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

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RAYEVA, S. N. and KADIN, A. L., Fiziologicheskiy Zhurnal SSR imeni I. M. Sechenov, Vol 59, No 2, 1973, pp 198-205

neurons fire a brief valley of impulses at the beginning and upon termination of the voluntary movement. It is believed that these functional differences may serve as an additional diagnostic tool in brain surgery.

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UDC 547.1'118'112

ARBUZOV, B. A., VIZEL', A. O., VERESHCHAGIN, A. N., RAYEVSKIY, O. A., and ZVEREVA, M. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"1-Halogen-1-thioxophospholenes"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71, pp 2489-2493

Abstract: For the purpose of synthesizing isomeric 1-halogen-1-thioxophospholenes and studying some of their properties, the authors isolated three pairs of isomers containing chlorine and bromine at the phosphorus atom. The chlorides were obtained by the interaction of the corresponding isomers of 1-chloro-1-oxophospholene with P_2S_5, bromides by the interaction of the diene adduct of phosphorus tribromide with H_2S. A mixture of isomers with a preponderance of 3-phospholene was formed in this case. All the products were considered pure when further distillations failed to change physiochemical characteristics and their IR spectra contained no signs of isomeric products. IR and Raman spectra were taken of the oxygen- and sulfur-containing derivatives of 2-phospholene and 3-phospholene and their dipole moments determined.

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USSR

UDC 547.341+547.772.2

PUDOVIK, A. N., GAREYEV, R. D., AGANOV, A. V., RAYEVSKAYA, O. E., and STABROVSKAYA, L. A., Kazan State University

"The Reaction of Diphenyldiazomethane with Tertiary Vinyl- and Allylphosphine Oxides"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 1008-1016

Abstract: The thermal reaction (75°-80°) of diphenyldiazomethane with tertiary phenylphosphine oxides proceeds with the formation of the corresponding Δ^1-pyrazoline intermediates. The further reaction sequence, either reduces the pyrazolines to the related cyclopropane derivatives liberating nitrogen, or forms the isomeric Δ^2-pyrazolines. The comparative reactivity of oxides with diphenyldiazomethane decreases in the series:

$$(C_2H_5)_2P(O)CH{=}CH_2 > C_2H_5(C_6H_5)P(O)CH{=}CH_2 > (C_6H_5)_2P(O)CH{=}CH_2$$

All structures were confirmed by IR, UV and NMR spectroscopy.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

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UDC 547.512+547.341+547.772.2

PUDOVIK, A. N., GAREEV, R. D., RAYEVSKAYA, O. E., Kazan State University imeni V. I. Ul'yanov Lenin

"Synthesis and Properties of 3-Dialkoxyphosphono-5,5-diphenyl-Δ^1-and Δ^2-pyrazolines"

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, pp 1189-1195

Abstract: The reactions of diphenyldiazomethane (I) with diethyl and dimethyl vinylphosphonates were studied. Whereas in the reaction with diethyl vinylphosphonate the Δ^2-pyrazoline derivative, namely 3-diethoxy-phosphono-5,5-diphenyl-Δ^2-pyrazoline, is obtained, the Δ^1-analog is obtained when dimethyl vinylphosphonate reacts with I. The characteristic P-O-CH_3 IR bands at 1030, 1060, and 1190 cm^{-1} are observed together with the characteristic bands of the P=O group, the C-H bonds of the benzene rings, and the N=N bond. The Δ^1-pyrazolines are easily isomerized into the thermodynamically more stable Δ^2-pyrazolines. Strong bases and acids catalyze this transformation. Thus, the reaction of dimethyl vinylphosphonate with I in acetonitrile at room temperature yields within 1 hr the Δ^2-pyrazoline derivative in 70.1% yield. It could be shown in a special experiment that the Δ^1-pyrazoline is completely transformed into the Δ^2-pyrazoline within 10 hours at room temperature.

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PUDOVIK, A. N., et al, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, pp 1189-1195

if triethylamine is present. The Δ^1-pyrazoline, when heated for half-an-hour at 75°, was completely decomposed to yield quantitatively N_2 and 1-dimethoxyphosphono-2,2-diphenylcyclopropane (II) (92.5%), whereas the Δ^2-pyrazoline derivative remains unchanged under these conditions and is transformed into II only after heating to 160-170°. This indicates that the reaction of diphenyldiazomethane with vinylphosphonates yields first Δ^1-pyrazolines which in a second stage can be isomerized to the corresponding Δ^2-pyrazolines or which can be decomposed to N_2 and the corresponding cyclopropanes. The presence of the cyclopropane ring could be shown by NMR spectra. IR spectral studies showed that the Δ^2-pyrazolines form associations as a result of intermolecular hydrogen bonds.

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UDC 547.26'118

PUDOVIK, A. N., SUDAKOVA, T. M., RAYEVSKAYA, O. YE., and GEDECHKINA, V. A.,
Kazan State University imeni V. I. Ul'yanova-Lenina

"Reactions of Phosphonous Acids with the Malononitrile"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 8, 1972, pp 1727-1730

Abstract: On the basis of the rather large reactivity of the dialkyl- and diarylphosphonous acids, a study was made of the addition of diphenyl, dibutyl-, dihexyl-, and dioctylphosphonic acids to malononitrile. Heating a mixture of the phosphonic acids with malononitrile in benzene or hexane to 80°C for 2-3 hours resulted in the following reaction:

$$R_2P(X)H + CH_2(CN)_2 \xrightarrow[R = C_6H_5,\ C_4H_9,\ C_6H_{13},\ C_8H_{17};\ X = O,\ S]{R'ONa} R_2P(X)-C(=NH)-CH_2CN \rightleftarrows R_2P(X)-C(=NH_2)=CHCN$$

Both a 1:1 mixture of the reagents and amixture containing an excess of the phosphonous acid resulted in a product containing 1 atom of each reactant. IR spectra indicate that the simple addition product undergoes imino-amino tautomerization, as in the above equation, and also intermolecular hydrogen bonding.

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TITLE--TAUTOMERISM OF P,P DIETHYL N,N PRIME DIARYLPHOSPHAMIDINES -U-

PROCESSING DATE--27NOV70

AUTHOR-(04)-KABACHNIK, M.I., GILYAROV, V.A., KOROLEV, B.A., RAEVSKAYA, T.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970 (4), 772-80

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TAUTOMERISM, ANILINE, TRIETHYLAMINE, ORGANIC PHOSPHORUS COMPOUND, AMINE DERIVATIVE, POTENTIOMETRIC TITRATION, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1431

STEP NO--UR/0062/70/000/004/0772/0780

CIRC ACCESSION NO--AP0135103

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

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CIRC ACCESSION NO--AP0135103 UNCLASSIFIED PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING 15.5 G ET SUB2 PCL TO 11.6 G PHNH SUB2 AND 13.86 G ET SUB3 N IN ET SUB2 O, AND KEEPING THE MIXT. OVERNIGHT GAVE 54PERCENT ET SUB2 PNHPH (I), B SUB0.1 70-1DEGREES, N PRIME20 SUBD 1.5628, D PRIME20 0.9979; SIMILARLY WERE PREPD. THE P ANISIDIDE, 32PERCENT, B SUB0.1 114-15DEGREES, 1.5619, 1.0494; AND P TOLUIDIDE, B SUB0.02 73-4DEGREES, 1.5573, 0.9718. I AND P AZIDOBENZO TRIFLUORIDE MIXED SLOWLY AT 50-60DEGREES IN PETROLEUM ETHER AND THE MIXT. HEATED 0.5 HR AT 50-60DEGREES GAVE ET SUB2 P(:NC SUB6 H SUB4 X)NHC SUB6 H SUB4 Y (X EQUALS P CF SUB3, Y EQUALS H), M. 156.5-57DEGREES. SIMILARLY WERE PREPD. THE ANALOGS (X AND Y SHOWN): P ME SUB2 N, H, M. 148-9DEGREES; P MEO, H, M. 148-8DEGREES; P F, H, M. 160-1DEGREES; M F, H, M. 153-4DEGREES; P CL, H, M. 147-8DEGREES; M NO SUB2, H, M. 116-17DEGREES; P NO SUB2, H, M. 131-2DEGREES; P CN, H, M. 131-2DEGREES; M F, P MEO, M. 112-13DEGREES; M CL, P ME, M. 134-5DEGREES; P CL, P MEO, M. 165-6DEGREES; P NO SUB2, P MEO, M. 143-4DEGREES; P CL, P ME, M. 163-3.5DEGREES; M F, P ME, M. 126-7DEGREES; P CF SUB3, P ME, M. 153-4DEGREES; M NO SUB2, P ME, M. 131-2DEGREES; AND P NO SUB2, P ME, M. 119-21DEGREES. FROM POTENTIOMETRIC TITRN. DATA OF THESE AMIDINES WITH HCLO SUB4 IN MENO SUB2 THE CONCENTRATIONAL DISSOCN. CONSTS. OF THESE WERE CALCD. AND TABULATED AS PKA VALUES. FROM THESE BY THE METHOD OF INTERSECTING STRAIGHT LINES (K., ET AL., 1962) IT WAS POSSIBLE TO EST. THE TAUTOMERISM AMONG THESE AMIDINES. THE EQUIL. CONSTS. OF THE AMIDINES FOLLOW THE HAMMETT EQUATION AND CAN BE CALCD. FROM PK SUBT EQUALS 0.03 PLUS 1.793 SIGMA X WHERE SIGMA X IS THE SUBSTITUENT CONST.

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3/3 019

CIRC ACCESSION NO--AP0135103 UNCLASSIFIED PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--THE BASICITIES OF THE AMIDINES WERE GENERALLY LOWER THAN THOSE OF METHYLATED DERIVS., OWING TO THE INDUCTIVE EFFECT OF THE ME GROUP IN THE LATTER. THE TAUTOMERIC EQUIL. CONSTS. FOR THE ABOVE AMIDINES WERE TABULATED ALONG WITH PKA VALUES.

FACILITY: INST. ELEMENTOORG. SOEDIN. MOSCOW, USSR.

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USSR

UDC 541.623 661.718.1

KABACHNIK, M. I., GILYAROV, V. A., KOROLEV, B. A., and RAYEVSKAYA, T. A., Institute of Organo-Elemental Compounds, Moscow, Academy of Sciences USSR, and Scientific Research Institute for Organic Semi-Products and Dyes, Moscow, State Committee for Chemistry

"Tautomerism of P,P-Diethyl-N,N'-diarylphosphamidines"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 772-780

Abstract: This study is concerned with quantitative investigation of tautomeric relationship of phosphamidines in a nitromethane solution. The phosphamidines were obtained by reacting diethylchlorophosphine with substituted anilines in the presence of triethylamine, yielding P,P-diethylanilidophosphinites, which when reacted with substituted phenylazides in benzene at 50-60° gave various phosphamidines. The basicity constants were determined for these compounds in nitromethane solution at 25 ± 0.3° by potentiometric titration; all were found to be strong bases in nitromethane solution. Tautomeric equilibrium constants were determined by three methods: "method of inter-

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

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KABACHNIK, M. I., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 772-780

secting lines" and by two methods of comparison of effective basicity of tautomeric compounds with that of corresponding methylated derivatives. All methods gave similar results. Donor substituents shift the equilibrium towards the form in which the proton would be fixed close to the donor substituent, while the opposite occurs with the acceptor substituents.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

1/2 009 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--ALKYLATION OF PHENOL BY TERT BUTYL CHLORIDE IN THE PRESENCE OF ZEOLITES -U-

AUTHOR-(02)-YUKELSON, I.I., RAYEVSKAYA, V.I.

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COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(5), 333-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALKYLATION, PHENOL, ZEOLITE, ALKYL RADICAL, CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0860 STEP NO--UR/0064/70/046/005/0333/0335

CIRC ACCESSION NO--AP0137888

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

2/2 009 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137888

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REGRESSION EQUATIONS WERE OBTAINED CORRELATING THE TOTAL AND SEP. YIELDS OF MONO AND DI,TERT,BUTYLPHENOLS WITH THE REAGNET RATIO, CATALYST CONCN., AND TEMP. DURING ALKYLATION OF PHOH BY TERT,BUCL ON ZEOLITES OF 0.25-0.5 MM PARTICLE SIZE. WHEN PHOH,TERT,BUCL WAS 1:1.2, THE YIELDS OF O AND P,TERT,BUC SUB6 H SUB4 OH ON 15PERCENT CAY AT 100DEGREES, 10 PERCENT CAX AT 175DEGREES, 5PERCENT NAY AT 100DEGREES, 10-20PERCENT NAX AT 100DEGREES, AND 10PERCENT NAM AT 60DEGREES WERE 84.8, 87.4, 70.1, 96.2, AND 65.1PERCENT, RESP. AT A RATIO OF 1:3 ON 20PERCENT CAY AT 100DEGREES, 10PERCENT CAX AT 125 DEGREES, 20PERCENT NAY AT 60DEGREES, 10-20PERCENT NAX AT 100DEGREES, AND 10PERCENT NAM AT 100DEGREES, THE YIELDS OF 2,4 AND 2,6,(TERT,BU) SUB3 C SUB6 H SUB3 OH WERE 58.4, 31.5, 90.3, 64.9, AND 79.2PERCENT. AT THIS RATIO ON 20PERCENT CAY AT 100DEGREES, 25PERCENT CAX AT 175DEGREES, 10PERCENT NAY AT 60DEGREES, 10-20PERCENT NAX AT 100DEGREES, AND 10PERCENT NAM AT 100DEGREES, THE TOTAL YIELDS WERE 99.8, 94.8, 100, 96.23, AND 93.7PERCENT. THE ZEOLITES DECREASED IN STABILITY IN THE ORDER NAX, CAY, CAX, NAM, NAY.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

1/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--INHIBITION OF THE OXIDATION OF ISOPRENE RUBBER BY QUINONE IMINES -U-

AUTHOR-(05)-RAEVSKIY, A.B., ROMANOVA, A.B., YESINA, T.I., SHISHKINA, V.V., KOVRIZHKO, L.F.

COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA, 1970, 29(3), 9-10

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--OXIDATION INHIBITION, ISOPRENE, QUINONE, IMINE, SYNTHETIC RUBBER, EPR SPECTRUM, FREE RADICAL/(U)SKI3 POLYISOPRENE RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0453 STEP NO--UR/0138/70/029/003/0009/0010

CIRC ACCESSION NO--AP0119389

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

2/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119389

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF SIMILAR TO 1.0PERCENT N, N-DIPHENYL,P,BENZOQUINONEDIIMINE (I) OR N,BETA,NAPHTHYL,P,BENZOQUINONEDIIMINE (II) TO SKI-3 (POLYISOPRENE RUBBER) IMPROVED ITS RESISTANCE TO OXIDN. AT 120DEGREES. EPR SPECTROSCOPY SHOWED THAT I AND II FORM, DURING HEATING, FREE RADICALS OF LARGE MOL. WTS., WHICH PARTICIPATE IN THE INHIBITION OF SKI-3 OXIDN.

FACILITY: VORONEZH, FILIAL VSES. NAUCH.-ISSLED., INST. SIN. KAUCH, IM. LEBEDEVA, VORONEZH, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--KINETICS OF THE THERMAL DECOMPOSITION OF A MIXTURE OF AMMONIUM AND GUANIDINIUM PERCHLORATES -U-

AUTHOR-(03)-RUBTSOV, YU.I., RAEVSKIY, A.V., MANELIS, G.B.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 47-51

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PERCHLORATE, THERMAL DECOMPOSITION, AMMONIUM COMPOUND, CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1889 STEP NO--UR/0076/70/044/001/0047/0051

CIRC ACCESSION NO--AP0118851

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

2/2 021 UNCLASSIFIED PROCESSING DATE--23OCT7(

CIRC ACCESSION NO--AP0118851

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE M.P. UPON COMPN. WAS EXAMD. FOR A MIXT. OF AMMUNIUM AND GUANIDINIUM PERCHLORATES. THE THERMAL DECOMPN. OF NH SUB4 CIO SUB4 (I) TAKES PLACE BELOW THE TEMP OF THE PHASE CHANGE I.E. IN THE SOLID STATE. IN THE PRESENCE OF THE LIQ. PHASE, THE DECOMPN. REACTION IS RETARTED. THE LIQ. PENETRATES INTI THE CRYSTALS OF (I) DISSOLVING POSSIBLE ACTIVE CENTERS. THE INITIAL DECOMPN. RATE OF THE LIQ. MIXT. OF PERCHLORATES IS LOW AND THE REACTION HAS AN AUTOCATALYTIC CHARACTER. FACILITY: INST. KHIM. FIZ., CHERNOGOLOVKA, USSR.

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RAYEVSKIY, A. V., MANELIS, G. B., NADGORNYY, E. M., and IVANOV, A. P., Institute of Chemical Physics, Academy of Sciences USSR, Moscow, and Institute of Solid State Physics, Academy of Sciences USSR, Chernogolovka, Moscow Oblast

"Whisker Crystals of Ammonium Perchlorate. Their Mechanical Properties"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 157-159

Abstract: In earlier work by Rayevskiy, Manelis, etal (DAN SSSR, 151, No 4, 886, 1963; 160, No 5, 1136, 1965) the assumption was made that dislocations play a significant role in the thermal decomposition of orthorhombic crystals of NH_4ClO_4. In the present work, whisker crystals of NH_4ClO_4 were grown by utilizing the capacity of moist NH_4ClO_4 to creep during crystallization. Into a layer of moist crystals of NH_4ClO_4 placed in a beaker the open end of a glass cylinder closed on top was inserted. On the outer surface of the cylinder lengthwise rough strips with a width of 5 mm were ground to facilitate creeping. Outside of the beaker an open glass cylinder was placed to produce a humidity gradient. The arrangement was kept for several days at room temperature in a chamber with a constant humidity. Whisker crystals grew on the outer surface of the closed cylinder. The whiskers had a circular cross section, a tubular

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

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RAYEVSKIY, A. V., et al., Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 157-159

shape, a wall thickness of 1.5-10 μ, and an outer radius up to several tens of microns. The length of the whiskers was $\sim$50 mm. The whisker crystals had a tensile strength up to a level above 13 kg/mm^2 vs. $\sim$0.5 kg/mm^2 for ordinary NH_4ClO_4 crystals and a higher elastic deformation up to the fracture point ($\sim$0.2-1%) than that of the latter. The tensile strength decreased with an increasing wall thickness, but did not depend on the outer radius. X-Ray diffraction measurements carried cut by Yu. A. Sokolov showed that the whiskers grew in the direction of the z axis. Whisker crystals with similar properties were grown from NH_4ClO_4 containing $\sim$1 mole % $KMnO_4$. The mechanical properties of the whisker crystals indicated that they were practically free of dislocations. (Submitted by Academician N. N. Semenov, 31 Jul 72).

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

Reaction Kinetics

USSR UDC 541.124/.128

KUBISOV, YU. I., RAYEVSKIY, A. V., MAIELIS, G. B., Chernogolovka Branch, Institute of Chemical Physics, Academy of Sciences USSR

"Kinetics of Thermal Decomposition of the Mixture of Ammonium and Guanidinium Perchlorates"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 1, Jan 1970, pp 47-51

Translation: A diagram of fusibility was obtained and a study was made of the kinetics of thermal decomposition of the mixture of ammonium and guanidinium perchlorates. It was shown that the decomposition of ammonium perchlorate in the solid phase takes place below the temperature of phase transition. In the presence of liquid phase there is no drastic slowing down of the reaction after a 30% transformation. During phase transition, the liquid permeates the crystals of NH_4ClO_4. Thereafter, the course of the reaction in the solid phase is inhibited due to dissolution of the potential centers of the initial reaction. The initial rate of decomposition of the liquid mixture of ammonium and guanidinium perchlorates is low. Acceleration of the reaction is related to the accumulation in the system of gaseous products of the reaction, which act as catalysts. The authors thank K. V. Titova for submitting the guanidinium perchlorate specimen.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620011-5

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UDC 621.373.431(088.8)

GRYZLOV, A. I., SOLOV'YEV, YU. V., RAYEVSKIY, A. YE. BELOV, YU. V.

"High-Power Oscillator"

USSR Author's Certificate No 275114, Filed 6 Sep 68, Published 15 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G207P)

Translation: A high-power oscillator is proposed. It contains a power supply, a resonance charge choke, a shaping line, a synchronizer, a delay line, a commuting thyratron and a pulse transformer. In order to reduce the cutoff duration and improve the deionization conditions, a shunting thyratron is included in parallel to the primary coil of the transformer. The control electrode of the thyratron is connected to the output of the delay line.

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Controls

USSR

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"Device for Fixing the Bias"

USSR Author's Certificate No 253171, Filed 5 Sep 67, Published 24 Feb 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D338P)

Translation: This author's certificate introduces a device for fixing the bias in a grid circuit of a powerful modulator tube included in series with the source of control pulses to the grid circuit of the modulator tube. In order to decrease the rectifier power, a circuit of series connected thyratrons and a capacitor is connected in parallel to the filter capacitor. A circuit made up of another series connected thyratron and resistor is connected in parallel, in turn, to the thyratron and the capacitor, and the grids of the indicated thyratrons are connected to the source of the synchronous pulses via a delay line.

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