UNCLASSIFIED

PROCESSING DATE--20NOV70

1/3   01C
TITLE--PYRIDAZINES. I. SYNTHESIS AND NUCLEOPHILIC SUBSTITUTION OF 3-CHLOROMETHYLPYRIDAZINE -U-
AUTHOR-(04)-NOVITSKIY, K.YU., SADOVAYA, N.K., KASYANOVA, YE.F., SEMINA, L.K.
COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (3), 412--14

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SYNTHESIS, HETEROCYCLIC NITROGEN COMPOUND, EXCHANGE REACTION, THIONYL CHLORIDE, AMINE, ORGANIC AZINE COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0228   STEP NO--UR/0409/70/000/003/0412/0414

CIRC ACCESSION NO--AP0126011
UNCLASSIFIED

UNCLASSIFIED

2/3   010
CIRC ACCESSICN NO--AP0126011
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   TO A SOLN. CF 15 ML SOCL SUB2 IN
20 ML ANHYL CHCL SUB3 WAS ADDED A SCLN. OF 12 G I (R EQUALS OH) IN 60 ML
ANHYD. CHCL SUB3 AND THE WHOLE STIRRED 2 HR TO YIELD 81PERCENT I.HCL (R
EQUALS CL) (II.HCL), M. 121-1.5DEGREES (ETOAC). THIS (3.3 G) IN 30 ML
MEOH WAS ADDED DRCPWISE TO MEONA (FROM 1.84 G NA) IN 30 ML ANHYD. MEOH,
AND THE WHOLE STIRRED 30 MIN AT ROOM TEMP. AND REFLUXED 4-5 HR TO YIELD
76PERCENT I (R EQUALS OME), B SUB11 114-15DEGREES, D PRIME20 1.0978 N
PRIME20 SUBD 1.5C77; PICRATE M. 87-8DEGREES (AQ. ETOH). SIMILARLY WAS
OBTAINED 55PERCENT I (R EQUALS OET), B SUB7 108-9DEGREES, D PRIME20
1.0543, N PRIME20 SUBD 1.4990; PICRATE M. 103-4DEGREES (AQ. ETOH). TO
AN EMULSION OF C.69 G NA IN 2 ML PHME WAS ADDED DROPWISE AT 45-50DEGREES
3.3 G PHSII, STIRRING CUNTINUED 4 HR, II (FROM 3.3G II.HCL) IN PHME
ADDED, AND THE WHOLE HEATED 2 HR ON A BOILING WATER BATH TO YIELD
96PERCENT I (R EQUALS SPH), M. 54-5.5DEGREES (PETROLEUM ETHER); PICRATE
M. 112-13DEGREES (ETOH). A MIXT. OF 2.5 G II.HCL AND 1.2 G (H SUB2
N)SUB2 CS IN 300 ML ANHYD. ME SUB2 CO WAS REFLUXED 10 HR TO YIELD
92PERCENT I (R EQUALS SC(:NH)NH SUB2.2HCL), M. 187-8DEGREES (DECOMPN.)
(HEXANE MEOH). THIS (2.5 G) HEATED 1 HR ON A BOILING WATER BATH WITH
SATD. K SUB2 CO SUB3 SOLN. GAVE 94PERCENT I (R EQUALS SH).

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3/3 010
CIRC ACCESSION NO--AP0126011
ABSTRACT/EXTRACT--II.HCL AND THE APPROPRIATE AMINE REFLUXED 3 HR IN ETHER,
C SUB6 H SUB6 OR IN THE AMINE GAVE THE FOLLOWING I (R, B.P., MM,
M.P.-M.P. DIPICRATE, AND PERCENT YIELD GIVEN): NE SUBT2,
124-5DEGREES-6, MINUS, 145.5-6DEGREES (ETOH), 87; MORPHOLINO,
130-1DEGREES-1, 56-7DEGREES, 169-70DEGREES (ETOH), 85; 1 PYRROLIDINYL,
115DEGREES-1.5, 51-2DEGREES, 148-9DEGREES (ETOH), 96. TO A SOLN. OF
3.25 G NACN IN 5 ML H SUB2 O ON A WATER BATH WAS ADDED 3.3 G II.HCL IN
20 ML ETCH, AND THE WHOLE REFLUXED 1 HR TO YIELD 46PERCENT I (R EQUALS
CN), M. 90-1DEGREES (C SUB6 H SUB6); HCL SALT M. 132-3DEGREES (ETOAC).
THIS (1 G) IN 15 ML 10PERCENT HCL HEATED 5 HR AT 60DEGREES GAVE
100PERCENT I (R EQUALS H), M. 191-2DEGREES (ME SUB2 CO).
FACILITY: MOSK. GOS. UNIV: IM. LOMONOSOVA, MOSCOW, USSR.

TITLE--FIRST TESTS OF ELECTROCHEMICAL SEISMIC DETECTORS -U-

AUTHOR-(04)-GALPERIN, YE.I., GRAFOV, B.M., LUKOVETS, P.D., NOVITSKIY, M.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ZEMLI, NO 2, 1970, PP 81-87

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--SEISMOLOGIC INSTRUMENT, OSCILLATION, ELECTROCHEMICAL PROPERTY, BOREHOLE, SEISMIC SOUNDING, SEISMIC REFLECTION, SEISMIC REFRACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/0729   STEP NO--UR/0387/70/000/002/0081/0087

CIRC ACCESSION NO--AP0110456

CIRC ACCESSION NO--AP0110456

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINCE THE SPRING OF 1965 THE INSTITUTE OF PHYSICS OF THE EARTH AND INSTITUTE OF ELECTROCHEMISTRY HAVE ENGAGED IN JOINT EXPERIMENTAL WORK FOR EVALUATING THE POSSIBILITIES OF USING ELECTROCHEMICAL CONVERTERS FOR REGISTERING SEISMIC OSICLLATIONS. IT IS EMPHASIZED THAT ONLY THE FIRST STEPS IN THIS DIRECTION HAVE BEEN TAKEN, ALTHOUGH THE POSSIBILITIES ARE CLEAR. THE ELECTROCHEMICAL SEISMIC DETECTOR HAS A SOLID HOUSING WHICH HOLDS A SENSING ELEMENT, CONSTITUTING AN ELECTROCHEMICAL CONVERTER. IT CONSISTS OF A CYLINDRICAL PLASTIC CONTAINER TO WHOSE OPPOSITE SIDES ELASTIC MEMBRANES ARE ATTACHED. WITHIN THE SENSOR THERE IS A PARTITION WITH AN OPENING WHICH DIVIDES IT INTO TWO CHAMBERS. THE SENSOR IS FILLED WITH AN ELECTROLYTE WHICH TOGETHER WITH THE MEMBRANE AND THE CHANNEL FORMS A MECHANICAL OSCILLATORY SYSTEM. PLATINUM GRID ELECTRODES ARE INSERTED IN THE CHANNEL. THE ELECTRODES TOGETHER WITH THE ELECTROLYTE CONSTITUTE A REDOX SYSTEM. THE ELECTROCHEMICAL SEISMIC DETECTOR USED IN THE EXPERIMENTS IS A CYLINDER 40 MM IN LENGTH AND 30 MM IN DIAMETER AND WEIGHS ABOUT 70 G. THE SENSOR IS PARAMETRIC. IN THE ABSENCE OF A USEFUL SIGNAL A D-C CURRENT FLOWS THROUGH IT. WITH THE APPEARANCE OF FORCED OSCILLATIONS THE SENSOR HOUSING TOGETHER WITH THE ELECTRODES OSCILLATES RELATIVE TO THE FLUID IN THE CHANNEL AND A VARIABLE COMPONENT, WHOSE FREQUENCY IS EQUAL TO THE FREQUENCY OF THE FORCED OSCILLATIONS, AND WHOSE AMPLITUDE IS PROPORTIONAL TO THE AMPLITUDE OF THE FORCED OSCILLATIONS, APPEARS IN THE SENSOR CIRCUIT.

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3/3   020
CIRC ACCESSION NO--AP0110456
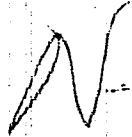ABSTRACT/EXTRACT--FIELD EXPERIMENTS ARE DESCRIBED (REGISTERING NEARBY
IMPACTS, USE IN THE REFLECTED WAVES, REFRACTED WAVES AND DEEP SEISMIC
SOUNDING METHODS, REGISTERING EARTHQUAKES). IT WAS FOUND THAT IN ALL
CASES WHEN REGISTERING EXPLOSIONS AT DIFFERENT DISTANCES AND WHEN
REGISTERING EARTHQUAKES THE ELECTROCHEMICAL SEISMIC DETECTORS HAD A
GREATER RESPONSE THAT THE ELECTRODYNAMIC INSTRUMENTS. THE FREQUENCY
CHARACTERISTIC OF THE TESTED ELECTROCHEMICAL DETECTORS IS CLOSE TO THE
CHARACTERISTIC OF AN ELECTRODYNAMIC DETECTOR WITH A CHARACTERISTIC
FREQUENCY OF 1 CPS. THE SMALL SIZE AND WEIGHT OF THE ELECTROCHEMICAL
SEISMIC DETECTOR AFFORD GREAT POSSIBILITIES FOR INCREASING RESPONSE OF
THE ENTIRE APPARATUS AND CHANGING OBSERVATIONAL TECHNIQUES. IN
PARTICULAR, THERE CAN BE AN INCREASE IN INSTRUMENT RESPONSE BY LOWERING
IT INTO DEEP BOREHOLES. IT IS CLEAR THAT ELECTROCHEMICAL DETECTORS IN
THE FUTURE WILL BE USED EXTENSIVELY IN SEISMIC OBSERVATIONS, BUT ONLY
AFTER MANY PROBLEMS ARE SOLVED.   FACILITY: INSTITUTE OF PHYSICS
OF THE EARTH.   FACILITY: INSTITUTE OF ELECTROCHEMISTRY.

UNCLASSIFIED

1/2   023   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--ELECTROCHEMICAL SEISMIC RECEIVER -U-

AUTHOR--NOVITSKIY, M.A., SIROTINSKIY, YU.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRIRODA, NO. 1, 1970, P 118

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--SOLION, ELECTROLYTE, CAPILLARY, CATHODE, ANODE, EARTHQUAKE,
VIBRATION, ELECTROCHEMICAL EFFECT, SEISMOLOGIC INSTRUMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1435   STEP NO--UR/0026/70/000/001/0118/0118

CIRC ACCESSION NO--AP0104744
                        UNCLASSIFIED

UNCLASSIFIED

2/2   023
CIRC ACCESSION NO--AP0104744
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   THE INSTITUTE OF ELECTROCHEMISTRY
OF THE USSR ACADEMY OF SCIENCES, IN CONJUNCTION WITH THE INSTITUTE OF
THE PHYSICS OF THE EARTH, HAS DEVELOPED A MINIATURE ELECTROCHEMICAL
SEISMIC RECEIVER (BASED ON THE SOLION PRINCIPLE) WHICH HAS HIGH
SENSITIVITY IN THE INFRALOW FREQUENCIES.   THE RECEIVER IS A SMALL HOLLOW
CYLINDER DIVIDED IN TWO BY A WALL HAVING A CAPILLARY BETWEEN THE TWO
HALVES. THE ENDS OF THE RECEIVER ARE FITTED WITH ELASTIC MEMBRANES TO
SEAL AN ELECTROLYTE WITHIN THE CYLINDER. THERE ARE TWO PLATINUM
ELECTRODES MOUNTED ON THE INNER WALLS OF THE CAPILLARY. THE ELECTROLYTE
USED IS AN AQUEOUS SOLUTION OF IODINE AND POTASSIUM IODIDE. THE UNIT IS
POWERED BY A 0.5-VOLT D.C. SOURCE. WHEN A SEISMIC EVENT OSCILLATES THE
FLEXIBLE MEMBRANES, THE ELECTROLYTE MOVES IN THE CAPILLARY AND AFFECTS
THE PARAMETERS IN THE ANODE AND CATHODE. THE RESULTANT CURRENT
FLUCTUATIONS REPRESENT THE OUTPUT SIGNAL FROM THE RECEIVER.   DISTANT
EARTHQUAKES IN THE TIEN SHAN AREA HAVE BEEN RECORDED USING THIS
RECEIVER, AND THE RECORDS WERE IDENTICAL TO THOSE FROM A CONVENTIONAL
SEISMIC RECORDER. ONE STATED ADVANTAGE OF THIS UNIT IS ITS ABILITY TO
REGISTER VERTICAL AND HORIZONTAL VIBRATION COMPONENTS WITHOUT THE NEED
FOR READJUSTMENT.

UNCLASSIFIED

Acc. Nr.: AP0045868

N

Ref. Code: URO026
JPRS 50052

Electrochemical Seismic Detector

The Institute of Electrochemistry, in collaboration with the Institute of Physics of the Earth, has developed a miniaturized electrochemical (Summary: "Electrochemical Seismic Detector," by M. A. Novitskiy and Yu. V. Sirotinskiy; Moscow, Priroda, No. 1, 1970, p. 116)

seismic detector with a high response in the range of subsonic frequencies. It is designed to react to random tremors in a wide range of low frequencies. This seismic detector is an inertial instrument with a fluid seismic mass which employs an electrochemical method for converting the relative oscillations of the fluid and housing into an electric output signal. The detector is designed in the following way. A hollow cylindrical body of fluoroplastic is divided by a partition arranged perpendicular to the axis of rotation into two chambers to whose end walls are attached elastic membranes of a chemically stable rubber. The partition has a through opening connecting both chambers and within it, parallel to the plane of the partition, there are two electrodes made of a platinum grid. The internal cavity of the housing is filled with an electrolyte: an aqueous solution of iodine and potassium iodine. When a d-c voltage of about 0.5 V is applied across the electrodes of the seismic detector an electric

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Reel/Frame
19780873

AP0045868

current appears in the circuit: at the cathode the iodine molecules are reduced to negatively charged iodide ions and a reverse process occurs at the plate. Since the surface of the cathode and the iodine concentration are smaller than the surface of the plate and the concentration of iodide ions, the main resistance to the electric current is exerted by processes transpiring near the cathode. Before the voltage is applied the iodine concentration at the surface of the cathode and in the electrolyte volume is the same. The electric current leads to an impoverishment of the space near the cathode with iodine. This is partially compensated by the diffusion of iodine from the volume. The flow of electrolyte to the cathode, caused by the oscillation of the seismic detector housing, favors the movement of iodine to the cathode and thereby exerts an effect on the current responsible for its oscillations. These current oscillations are the electric output signal of the detector when seismic phenomena are registered. Field tests have shown that during the registry of distant earthquakes in the Northern Tien Shan the records of the output signal of the electrochemical seismic detector are identical to the records of standard seismic detectors. The miniature size of the new seismic detector is an important advantage when registering seismic phenomena in deep boreholes. The same instrument can be used for investigating both the vertical and horizontal components of oscillations.

13780874

NOVITSKIY, P.V.

NOVITSKIY, P.V.

STANDARDIZATION OF CONCEPTS, DEFINITION, AND TERMS IN THE THEORY OF MEASURING INSTRUMENTS

So: JPRS 5f298
19 June 1972

UDC 681.2:389.6.001.4

The question raised by Professor Yu. I. Iorish in [1] has actually acquired exceptional importance. Professor Yu. I. Iorish is completely right in noting that the accelerated development, now being done, of a large number of standards without sufficient consultation with leading scientists and without attentive study of the existing scientific literature can bring serious harm instead of the expected benefit.

It would appear that the introduction into state standards of certain positions, especially when this relates to the basic concepts of the theory of any branch of engineering, is only legal reinforcement of comprehensively substantiated concepts established as the result of many years of labor of scientists. Such positions and concepts must be borrowed from the existing scientific literature, from courses of the corresponding disciplines of the VUZ, and from scientific articles, and not worked out anew only in the compilation of a standard or solved by agreement of representatives of the "interested" ministries.

However, the introduction into the standards of impromptu or voluntarist solutions in the area of theory does serious damage to the activity of scientific and practical workers of the entire branch. And the examples of voluntarism, the unallowability of which Professor Yu. I. Iorish pointed out in [1], far from exhaust such omissions in standards published in recent years.

Thus, for example, is the situation with respect to normal series in the area of instrument-making. It is generally known that the most economical series is a geometric progression; that is, a series with a constant ratio of all adjacent numbers. That law was understood even by the scientists of antiquity. The Greek astronomer Hipparchus (of the second

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1/2   024   UNCLASSIFIED   PROCESSING DATE--11SEP70

TITLE--EQUIVALENT THREE ELEMENT ELECTRIC CIRCUIT FOR THE ELECTRODE
SOLUTION INTERFACE -U-

AUTHOR--GNUSIN, N.P., NOVITSKIY, S.P.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(3), 299-306

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--MATHEMATIC MODEL, ELECTRIC CURRENT, ELECTRONIC CIRCUIT,
ELECTRODE, ELECTRIC IMPEDANCE, ELECTRIC CAPACITANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0247   STEP NO--UR/0364/70/006/003/0299/0306

CIRC ACCESSION NO--AP0105321
                              UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105321

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MATH. MODEL OF THE ELECTRODE
SOLN. INTERFACE IS COMPUTED BY ANAL. OF THE FREQUENCY DEPENDENCE OF THE
PHASE LAG OF THE INTERFACE. THE MODEL COMPRISES A RESISTANCE, A
CAPACITANCE, AND A WARBURG IMPEDANCE.

UNCLASSIFIED

USSR   UDC: [621.313.322-81:537.312.62]001.24

BORZOV, G. G., GLEBOV, I. A., GNEDIN, L. P., DOMBROVSKIY, V. V., NOVITS-
KIY, V. G., SHAKHTARIN, V. N., Leningrad   .

"Problems in the Development of High-Power Turbogenerators With Super-
conductive Field Windings"

Moscow, Izv. AN SSSR: Energetika i Transport, No 4, Jul/Aug 72, pp 21-28

Abstract: The authors point out the advantages of cryogenic turbo-
generators over conventional units. Elements of construction of high
powered cryogenic turbogenerators are described, and the results of
model tests are presented. The analysis shows that using superconductors
in the field windings increases the unit power of turbogenerators by an
order of magnitude. The results of experimental studies confirm the
feasibility of a synchronous machine with rotating cryostat that has low
liquid helium evaporability and provides torque transfer. The realiza-
tion of high-power cryogenic turbogenerators must wait for a great deal
of research on development of new materials, structural and refrigeration
units, and automatic monitoring and control systems.

1/1

USSR   UDC 621.315.55:537.312.62

KOKHANOVSKIY, S.M., NOVITSKIY, V.G., SHAKHTARIN, V.N.

"Test Of Planning And Creation Of Superconducting Solenoids"

V sb. Vopr. primeneniya sverkhnizk. temperatur v elektrotekhn. (Problems Of The Use Of Ultralow Temperatures In Electrical Engineering—Collection Of Works); Leningrad, "Nauka," 1971, pp 74-90 (from RZh:Elektrotekhnika i energetika, No 6, June 1972, Abstract No 6B69)

Translation: An account is given of a method of calculation and designing, and the results of a test of superconducting solenoids with a magnetic field intensity from 10 to 70 k-oersted for physical experiments. The interior diameter and the magnetic field intensity at the geometrical center of the superconducting solenoids were taken as the initial data. Calculated curves are presented of the dependence of the masses of the superconducting materials of the superconducting solenoids on the current density in the super conductor. Also presented are various configurations of the superconducting solenoids with an increased uniformity of the magnetic field attained because of the exclusion of a part of the turns of the winding. The distinctive features of the technology of the production of superconducting solenoids are described and the principal data on 30 completed superconducting solenoids are presented. 13 ill. 2 tab. 4 ref. Ye.V.Granovskiy.

1/1

USSR

UDC: 537.312.62:538.31.001.24

NOVITSKIY, V. G., SHAKHTARIN, V. N., Leningrad

"Electrodynamic Forces and Mechanical Stresses in Superconducting Magnetic Systems"

Moscow, Izv. AN SSSR:Energetika i Transport, No 4, Jul/Aug 72, pp 50-55

Abstract: A method is proposed for calculating mechanical stresses in a superconducting solenoid as a cylindrically anisotropic body in the presence of a radial body force which depends on the radius. The method accounts for the elastic constants of the material of the winding and the banding. Formulas are presented for calculating the moduli of elasticity and the Poisson ratios of a ribbon solenoid whose winding is made up of a superconductor, a stabilizing material and insulation. Expressions are also given for determining the electrodynamic forces between two circular coils for various relative positions. A stricter solution of the problem of finding mechanical stresses in a winding should take account of the axial component of the electrodynamic force acting on the conductors of the winding.

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USSR   UDC 669.18.658.562

KOPPISHON, E. Yu., NOVITSKIY, V. K., ROMANOV, P. A., SOBOLEV, V. V.,
SOBOLEV, Yu. V.

"Smelting of Steel for the Rotors of Large Turbine Generators"

Moscow, Stal', No 2, Feb 73, pp 116-117.

Abstract: Large ingots for the manufacture of powerful turbine generator
rotors can be produced by mixing of acid open-hearth steel in the required
quantities with basic electric steel in an evacuated ingot mold. The study
of the mechanical properties of the metal taken from various parts of the
resulting ingot, contaminated with nonmetallic inclusions, segregations of
the basic elements, macrostructures, etc., has shown that this type of
mixed ingot satisfies all the basic quality requirements.

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UDC 577.3

USSR

NOVITSKIY, Yu. I., STREKOVA, V. Yu., and TARAKANOVA, G. A.

"Effect of a Constant Magnetic Field on Plant Growth"

Vliyaniye Magnitnykh Poley na Biologicheskiye Ob"yekty, pp 69-88

Abstract: As a result of many years of research, the authors have concluded that the effect of a magnetic field on plants may manifest itself as a result of the effect on the genetic apparatus (either directly on the code or on information transfer), or as a result of direct interference in metabolism or as coordinated mechanisms related to orientation in space and time. The latter is especially likely in fields of the order of the earth's and less, which can be explained not only by resonance effects, but also by the particular sensitivity of the transitional structural states of organic gels to external influences. In intense fields with strong gradient, it is difficult to single out any of the above mechanisms.

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UDC   681.327.2

USSR

NOVOKAYDATSKIKH, A. V.

"A Data Transcriber"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 29, Oct 1972, Author's Certificate No 353244, Class G, filed 18 Sep 70, published 29 Sep 72, p 120

Translation: This Author's Certificate introduces a data transcriber containing registers whose inputs are connected to the outputs of recording and readout AND gates. The device also contains AND and OR logic circuits. As a distinguishing feature of the patent, the speed and reliability of the transcriber are improved by including an interlock device in each register made in the form of a flip-flop with one output connected to the first inputs of the recording and readout AND gates of the respective register. The second inputs of the AND gates are connected to the lines for recording and readout control. The second output of the flip-flop is connected to the first inputs of the recording and readout gates, the second inputs of these gates being connected to the control lines of a unit which controls recording, readout, and reset. The outputs of AND gates for recording,

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USSR

NOVOKAYDATSKIKH, A. V., USSR Author's Certificate No 353244

readout, and reset in the stand-by register are connected to the inputs of
the OR gates, which are connected in turn to the inputs of the record and
readout AND gates in the stand-by register.

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1/2   028   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--VISIBLE CRACK FORMATION SITES INITIATED BY LASER BEAMS -U-

AUTHOR-(04)-AGRANAT, M.B., NOVKOV, N.P., YUDIN, YU.I., YAMPOLSKIY, P.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 924-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--LASER BEAM LESION, CRACK PROPAGATION, POLYMETHYLMETHACRYLATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1723   STEP NO--UR/0181/70/012/003/0924/0927

CIRC ACCESSION NO--AP0120435
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0120435
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROSCOPIC EXAMN. OF POLY(ME
METHACRYLATE) (I) SAMPLES IRRADIATED WITH A LASER BEAM (LAMBDA EQUALS
1.06 MU) AT AN AGLE OF 45DEGREES OR 90DEGREES, SUGGESTED THAT THE STRESS
APPLIED ON I (0-300 KG-CM PRIME2) FACILITATED THE OPENING OF MICROPORES
AND FORMATION OF SUBMICROSCOPIC CRACKS WHICH, IN TURN, INITIATED FURTHER
CRACKING AND EVENTUAL BREAKDOWN OF I.   FACILITY: INST. PROBL.
MEKH., MOWCOW, USSR.

UNCLASSIFIED

91289b Vulcanization of rubber with dimethacrylic esters of glycols having molecular chains of different lengths. Novkova, L. A.; Tarasova, Z. N.; Dogadkin, B. A. (Mosk. Inst. Tonkoi Khim. Tekhnol. im. Lomonosova, Moscow, USSR). Vysokomol. Soedin., Ser. A 1970, 12(1), 63-8 (Russ). Butadiene-styrene rubber (Uroprene 1500) (I) was vulcanized with diethylene glycol dimethacrylate (II), triethylene glycol dimethacrylate (III), butylene glycol dimethacrylate, and decamethylene glycol dimethacrylate in the presence of dicumyl peroxide (IV) at 130 and 153°. The reactivity of dimethacrylates (contg. no IV) to initiate crosslinking was inversely proportional to chain length and flexibility. The amt. of dimethacrylate added to I was ~70-80%. The reactivities of ethylene glycol dimethacrylate, II, and III as well as the no. of the crosslinks formed following vulcanization were essentially identical. The tensile strength of I vulcanizates was unaffected by the chain length of the crosslinking agent. A crosslinking mechanism was discussed.   CKJR

REEL/FRAME
19800597

UDC 539.374

USSR

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

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

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

Translation: The structure and mechanical properties of nickel, nichrome
(NKh7) and Kh18N10T steel after hydraulic impulse stamping with impact and with-
out impact of the parts of the matrix were investigated. It was established
that collision occurs in a closed matrix and the central zone of the part under-
goes the strongest impact. The impact of a part of thickness 2 mm causes
strengthening of the material in the middle of the thickness of the part and
weakening in the zone of a depth up to 0.3 mm from the side of the surface of
the part contacting the matrix which is connected with nonuniform plastic deforma-
tion in the impact process. The weakening effect is supported by results of
studying parts of thickness 0.3 mm that have first undergone collision with the
matrix. Authors abstract.

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USSR

UDC 621.224-22:532.5

MIKHAYLOV, I. Ye., and NOVODEREZHKIN, R. A.

"Pressure Losses in the Supply Line of a Hydraulic Turbine"

Sb. Tr. Mosk. Inzh.-Stroit. In-t [Collection of Works. Moscow Construction Engineering Institute], 1971, No 91, pp 143-150 (from Referativnyy Zhurnal, No 10, Oct 72. 49. Turbostroyeniye. Single Issue. Abstract No 10.49-204)

Translation: The investigation of energy losses in the individual members of the flow line of a hydraulic turbine makes possible a more well-founded evaluation of the potential effect of individual members on the energy indices of the hydraulic turbine, a determination of the locations and sources of increased energy losses, and the indication of ways of their reduction. Carried out experimental investigations showed that total losses in the helical chamber, the stator, and the guiding device vary from 1.5 to 5% of total pressure; that is to say, they amount to 30% of all energy losses in the flow line of the hydraulic turbine. Besides, the shape of the helical chamber and also the mutual position of the stator columns and stator blades affect essentially the flow uniformity before the rotor, from which depend the energy losses in the rotor and the suction tube of the hydraulic turbine. Two illustrations, one table, three bibliographic references.
1/1

USSR   UDC 621.224.001.5:621.3.043

NOVODEREZHKIN, R. A.

"Study of the Flow in the Stator Region of Hydroturbines"

Translation: Analysis of the formula for determining the direction of flow formed by the spiral chamber indicates a   difference of the calculated angles characterizing this direction from those determined experimentally. More precise definition of the formula which will permit determination of the angles with greater accuracy is proposed on the basis of the experimental data. There are 3 illustrations and a 3-entry bibliography.
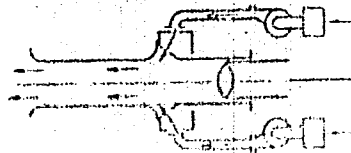
1/1

USSR   UDC: 621.316.6

SIL'VESTROV, V. M., NOVODEREZHKIN, V. P., TOMASHPOL'SKIY, N. F., DUBOVA,
E. S., KISILEV, V. I.

"A Device for Protecting the Front Surface of Optical Systems"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 6, Feb 72, Author's Certificate No 328411, Division G, filed 20 Aug 69,
published 2 Feb 72, p 143

Translation: This Author's Certificate introduces a device for protect-
ing the front of optical systems from atmospheric contaminants. The device
contains a fitting which mates with the mount of the optical system and
has a joint for feeding in compressed gas. As a distinguishing feature
of the patent, in order to preserve image quality, the unit for feeding
in gas is made in the form of a gas-collecting chamber with guide chan-
nels which goes into a blender nozzle.

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USSR

UDC 621.355.2.035.4

BORDT, YE. F., NOVODEREZHKIN, V. V., and KOLIKOVA, G. A.

"Some Questions on the Technology of the Grid Formation in Automobile Type Lead-Acid Batteries"

Sb. rabot no khim, istochnikam toka. Vses n.-n akkumulyator. in-t (Collection of Works on the Chemical Source of Current. All-Union Scientific Study Institute for Storage Batteries), Vyp 7, 1972, pp 48-54 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L228 by V. S. Levinson)

Translation: The factors were considered which influenced the change in the temperature of the electrolyte during the formation of the electrode in lead batteries; the depth of the bottom space of the forming tank, the arched assembly of the electrode. In order to avoid a significant increase in the temperature of the electrolyte during the process of the formation of the electrode, for example, of the types 2STA, for D to a first approximation 0.8-2 amps/decimeter^2, it was necessary to use a tank having a deep bottom space, approximately 260 mm. The transfer to a double assembly for a balance of the amount of positive charge on the electrode in the formed grid was accompanied by an increase in both the temperature of the electrolyte and the voltage and by an extension of the process of formation. The application of the double assembly is necessary during the formation of thin electrodes and traps having an increased electrical conductivity.

1/1

USSR

UDC: 616-036.882-092.9-036.81-008.921.1

BULANOVA, O. N., ZAKS, I. O., and NOVODERZHKINA, I. S., Laboratory of Experimental Physiology for Reanimation of the Organism, Academy of Medical Sciences USSR, Moscow

"Dynamics of the Acid-Base Equilibrium in the Restorative Period After Circulatory Arrest Induced by Asphyxia"

Abstract: After $2\frac{1}{2}$ and 6 min of clinical death induced in 24 dogs by mechanical asphyxia, reanimation was initiated with cardiac massage, injection of epinephrine, and forcing a small amount of blood into an artery. In some experiments, an equal amount of blood was suctioned from the right heart and artificial respiration was conducted. The dynamics of pH, pCO_2, and total organic acids was traced for 24 hours and the results compared with those obtained in earlier experiments in which death was caused by bleeding. Significant differences in these indices were observed only during the agonal stage and first few minutes of the post-reanimation period. Thereafter, uncompensated alkalosis and secondary hypoxia developed, regardless of the manner of death. The six animals in

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USSR

BULANOVA, O. N., et al, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14, No 6, Nov/Dec 70, pp 13-16

which blood was suctioned from the right heart revived after 6 min of clinical death, while none of the six other animals in which this procedure was not carried out survived. All of the animals exposed to anoxia for 12 min. 7 sec survived, but when the period of exposure was extended to 13 min, 42 sec all of the animals died. Even the relatively small time difference (1 min, 35 sec) was apparently sufficient to determine the possibility of restoration of functions.

USSR

UDC 616-001.8-036.882-036.82-07;616.831.088-07

NOVODERZHKINA, I. S., Laboratory of Experimental Physiology of Resuscitation

"Restoration of Vital Functions in Dogs After Clinical Death From Asphyxia in Relation to the Resuscitative Measures Used and Course of the Initial Stages of the Restorative Period"

Abstract: Experiments on dogs showed that success in resuscitation and restoration of neurologic functions after clinical death (3 to 6 min) caused by asphyxia is largely dependent on the procedures followed during the first few minutes of the restorative period. Various groups of animals received different doses of epinephrine and artificial respiration and in some blood was drawn from the right heart. The best results were achieved by prompt injection of large doses of epinephrine (0.1 mg/kg) of a 1:1,000 solution), maintenance of arterial pressure at a high level (200 mm) aspiration of blood from the right heart, and employing artificial respiration until breathing became normal (judged by the disappearance of phase activity in the accessory respiratory muscles). Almost all the dogs died who received low doses of epinephrine and from whose right heart no blood was drawn.

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USSR   UDC 669.24'784;669.25'784;523.612

NAYDICH, YU. V., PEREVERTAYLO, V. M., and NOVODNIK, G. M.

"Surface Properties of Ni-C and Co-C Melts"

Abstract: Surface tension and density of Ni-C and Co-C melts were deter-
mined by the "large drop" method. Electrolytic nickel and cobalt, previously
remelted in a vacuum with an electron beam, were placed in Al_2O_3 or BeO cups
which contained a graphite substrate. Carbon from the substrate mixed with
the molten nickel or cobalt to form a hypereutectic concentration from which
the equilibrium concentration of carbon along the liquidus line could be
calculated in the 1310-1600°C interval.
    Polytherms of the investigated melts showed that carbon significantly
lowers the surface tension of both Co-C and Ni-C melts. This lowering of
surface tension for metals of the iron group was attributed to the molecular-
statistical theory of adsorption. The following ratios were extracted from
plotted data: 370/5.5, 327/3.6, 341/2.8, where the first number is the
magnitude of surface tension lowering (dynes/cm) and the second number is
the percent of carbon introduced into the melt for Fe, Co, and Ni, respectively.
One figure, 11 bibliographic references.
1/1

USSR

VINOKUROV, V. G., ZASTELA, V. V., KOSTELYANSKIY, V. M., NOVOKHATNIY, A. A.

"Use of Minicomputers as Centers for Processing of Data of Remote Automatic Queueing Systems"

Translation: Methods of utilization of minicomputers in remote automatic queueing systems (RAQS) are studied. The range of jobs performed by these systems is defined. The expediency is demonstrated of using minicomputers at various levels of RAQS hierarchy, including at the level of the data processing center. In the last case, the data processing center uses a system of minicomputers in place of one or a few large computers. The structure of the data processing center of an airline ticket reservation system is presented.

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USSR

ZHOZHIKASHVILI, V. A., MITSKEVICH, L. A., NOVOKHATNIY, A. A., SILAYEV, V. N.

"The 'Sirena' Time-Sharing Queueing System"

Abstract: A generalized analysis is presented of the requirements placed on remote automatic queueing systems, systems with large numbers of widely separated information sources (and consumers), a widely branched network of information transmission, and centers for storage and processing of information. Study of currently available series-produced equipment for use in such systems has indicated that the available equipment does not satisfy the requirements of such a system, particularly as concerns input-output and information transmission devices with sufficient reliability, devices for concentration of information flow, and devices for interconnection of channels and machines. Therefore, a new series of devices has been developed, including a cathode ray tube information terminal and display unit with a universal information keyboard; an information editor, a memory device for storage of information from the keyboard or information arriving from the information processing center; and a device for parallel printing of documents on standard blanks. This equipment plus equipment already available

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USSR

ZHOZHIKASHVILI, V. A., et al, Pribory i Sistemy Upravleniya, No 9, Sep 70, pp 1-4

has been combined into the "Sirena-I" computerized airline reservation system used for reservation of seats on Aeroflot Aircraft. The first portion of this system is presently being installed in Moscow. The computer used with the system is the M-3000 hybrid computer. A brief analysis of the operation of the system is presented.

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NOVOKHATSKIY, A. S., YERSHOV, F. I., and URBAKH, V. Yu., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Antiviral Action of Ribonuclease"

Abstract: Chick embryo fibroblast cultures were tested for viral infectiousness and hemagglutinating activity and for interferon 24 hours after infection by 5-10 plaque-forming units/cell of Venezuelan equine encephalomyelitis virus. There was approximately linear direct correlation between the dose of pancreatic ribonuclease added to the culture and the suppression of infectiousness, hemagglutinating activity, and interferon production, with significant suppression occurring at doses as low as 0.25 mg/ml. Statistical treatment of experimental data indicated that the degree of suppression of all three indexes can be determined on the basis of information on just one of the indexes. The results support the suggestion that RNA-ase inhibits viral activity and interferon production by suppressing cellular protein synthesis. It is concluded that pancreatic RNA-ase is an effective virus-controlling compound, especially when administered together with interferon.

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USSR   UDC 615.281.8:576.858.098.396.332

NOVOKhATSKIY, A. S., and YERShOV, F. I., Institute of Virology imeni
D. I. Ivanovskiy, Academy of Medical Sciences, USSR

"Inhibition of the Multiplication of RNA-Containing Viruses in a Tissue Culture
With Combined Use of an Inducer of Interferon Production and a Ribonuclease"

Moscow, Antibiotiki, No 7, 1973, Vol 18, pp 629-633

Abstract: The fact that complexes of polynucleotides can stimulate the produc-
tion of interferon leads to consideration of the possible therapeutic and pro-
phylactic use of such preparations. Further, it has recently been established
that nucleases have a definite antiviral effect. In the current investigation,
the combined used of ribonuclease (an active inhibitor of the reproduction of
RNA-containing viruses) and polyIC (a complex of synthetic polynucleotides of
polyinosinic and polycytidylic acids, one of the most active and least toxic of
the synthetic interferonogens) was tested with primary trypsinized cultures of
chick embryo fibroblasts. Previous investigation has showed that complexes
located on the outer part of cell surfaces are sensitive to the action of
pancreatic ribonuclease. Thus it is possible that the antivirus effect of
polyIC manifests itself as the preparation passes from the outer cell surface
into the interior of the cell. The initial ribonuclease-sensitive phase was
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USSR

NOVOKhATSKIY, A. S., and YERShOV, F. I., Antibiotiki, No 7, 1973, Vol 18, pp 629-633

determined; it varies depending on type of cell, species of virus, and other factors. Successful combination of the nuclease and the interferonogen is possible only upon conclusion of this phase. The combined application is based on the principle that the antiviral state developed by the use of the polyIC is maintained when the preparation is not actually present (at least on the cell surface). It is concluded that a combination of the official pancreatic ribonuclease and an interferonogen is possible in principle, and further investigation is required for the extent of animal application.

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USSR

NOVOKHATSKIY, A. S., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Comparative Studies of Thermal Inactivation of Hemagglutination and Infectivity of Venezuelan Equine Encephalomyelitis Virus"

Moscow, Voprosy Virusologii, No 2, 1973, pp 163-167

Abstract: Studies were conducted on the thermal inactivation of Venezuelan equine encephalomyelitis (VEE) virus hemagglutinating and infectious properties. Prior to experimentation, the VEE virus had been passed 28 times in chick embryo fibroblasts. The viral suspensions were prepared in medium 199 with 2% heated bovine serum, heated, and immediately titrated for infectious (IA) and hemagglutinating (HA) activities. Inactivation of HA in the range of 50° to 60°C proceeded at a rate proportional to the temperature. Inactivation rate constants for IA were determined for the 4-60°C range. In the 50-60°C range the Arrhenius plots for the inactivation of IA and HA were superimposable. Eyring's equation was employed to calculate the enthalpy and entropy of activation of the thermal inactivation of HA and IA. The enthalpy of activation for the inactivation of HA and IA of the native VEE virus were, respectively, 68.95 kcal/mole and 75.8 kcal/mole, while the corresponding values for the

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entropy of activation were 152.27 e. u. and 162.8 e. u. For a thermostable
strain of the VEE virus the enthalpy of activation for the inactivation of HA
and IA came to, respectively, 112.2 kcal/mole and 101.9 kcal/mole, and the
corresponding entropies of activation were 271.5 e. u. and 241.08 e. u.
Evaluation of the Arrhenius plots showed that in the 33-36° range dissociation
of HA and IA inactivation would be possible, since inactivation of HA would
proceed at a rate not less than 10-fold lower than that for IA inactivation.
At 36°, the logarithm of the rate constant of inactivation ($\log k_{in}$) was -4.43
for IA and -5.6 for the inactivation of HA. Since difference in the $-\log k_{in}$
was even greater for the thermostable VEE virus, the latter is more suitable for
the preparation of noninfectious hemagglutinins.

2/2

UDC 576.858.25.083.3

USSR

NOVOKHATSKIY, A. S., and YERSHOV, F. I., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Factors Determining the Degree of Virus Production. Report I. The Influence of Multiple Infection on the Production of Venezuelan Equine Encephalomyelitis Virus"

Abstract: Venezuelan equine encephalomyelitis virus was cultured on chick embryo fibroblasts in monolayer stationary culture, in suspension, and in roller culture, with single infection or multiple infection. The greatest virus yields were obtained in roller cultures. The smallest yields were obtained from multiply infected cultures. This was attributed to the presence of interferon.

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Microbiology

USSR

NOVOKHATSKIY, A. S., and YERSHOV, F. I., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Thermal Inactivation of Viruses. Report IV. Factors Determining the Dynamics and Rate of the Process of Inactivation of Venezuelan Equine Encephalomyelitis (VEE) Virus)"

Abstract: The effect of a number of biological, physical and chemical factors on the course of the process of loss of infectious activity at various temperatures was studied on a model of Venezuelan equine encephalomyelitis (VEE) virus. Virus populations obtained on HeLa and MASHA cells were less resistant to heating than virus populations obtained on trypsinized chick embryos and RES cultures. Ultracentrifugation decreased the thermostability of VEE virus and increased its sensitivity to the thermostabilizing effect of 12.5% magnesium sulfate. Lowering the pH of the virus-containing suspension from 9.0 to 7.0 somewhat delayed thermal inactivation of VEE virus according to the nucleic type, and wider pH shifts sharply accelerated dying off of the virus. In all cases changes in the duration and dynamics of the

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USSR

NOVOKHATSKIY, A. S., and YERSHOV, F. I., Voprosy Virusologii, No 2, Mar/Apr 71, pp 143-150

process of loss of infectious activity of VEE virus occurred as a result of regular changes in a limited number of mechanisms of loss of infectious activity, specific manifestations of which are discussed.

2/2

UNCLASSIFIED   PROCESSING DATE--11DEC70

1/2   027
TITLE--CLASSIFICATION OF INFLAMATORY DISEASES AND ATROPHIES OF THE OPTIC
NERVE -U-
AUTHOR--NOVOKHATSKIY, A.S.

COUNTRY OF INFO--USSR

SOURCE--OFTALMOL ZH 25(1): 31-35. 1970.

DATE PUBLISHED------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ENCEPHALITIS, NERVE TISSUE, OPTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605015/F02 STEP NO--UR/0601/70/025/001/0031/0035

CIRC ACCESSION NO--AP0140633
UNCLASSIFIED

2/2   027
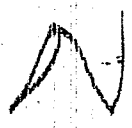CIRC ACCESSICN NO--AP0140633
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN AN ATTEMPT TO CLASSIFY
   INFLAMMATORY DISEASES OF THE OPTIC NERVE IT IS POINTED OUT THAT THE
   OPTIC NERVE, THE CHIASM AND THE OPTIC PATH ARE ONLY FRAGMENTS OF THE
   WHITE SUBSTANCE, AND, THEREFORE, THE INFLAMMATORY DISEASES ARE CALLED
   ENCEPHALITIS. IN ATROPHY OF THE OPTIC NERVE, THE PROCESS OF NERVE FIBER
   LOSS IS NOT RESTRICTED TO THE OPTIC NERVE, BUT INVOLVES THE CHIASM AND
   THE OPTIC PATH. THIS UNFORTUNATELY SUGGESTED BUT NOT EXPRESSED IN THE
   PRESENT DIAGNOSES AND CLASSIFICATIONS.   FACILITY: V. P. FILATOV
   ODESSA RES. INST. EYE DIS. TISSUE THER., ODESSA, USSR.

1/2   012

TITLE--DEVELOPMENT AND SUBSTANTIATION OF PRINCIPLES OF PRODUCTION OF LARGE AMOUNTS OF INTERFERON -U-

AUTHOR--YERSHOV, F.I., NOVOKHATSKIY, A.S.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 1, PP 34-38

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GROUP A ARBOVIRUS, VENEZUELAN EQUINE ENCEPHALITIS VIRUS, INTERFERON, TISSUE CULTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0052   STEP NO--UR/0402/70/000/001/0034/0038

CIRC ACCESSION NO--AP0103732

UNCLASSIFIED   PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103732
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OPTIMAL CONDITIONS FOR PRODUCTION
OF INTERFERON INDUCED BY GROUP A ARBOVIRUSES (VEE AND SINDBIS VIRUSES)
IN PRIMARILY TRYPSINIZED CHICK EMBRYO FIBROBLAST CULTURES USING
DIFFERENT METHODS OF CULTIVATION (ROLLER SUSPENSIONS, MONOLAYER
STATIONARY CULTURES) WERE STUDIED. THE MOST IMPORTANT FACTORS
DETERMINING THE LEVELS OF INTERFERON PRODUCTION WERE FOUND TO BE THE
VIABILITY AND CONCENTRATION OF THE CELLS (CALCULATED PER 1 ML OF THE
MEDIUM). THE MULTIPLICITY OF INFECTION IS IMPORTANT WHEN SUSPENSIONS
ARE USED AND IS OPTIMALLY 1 10. PFU-CELL. INCREASING OF INCUBATION
TEMPERATURE ENHANCES PRODUCTION OF INTERFERON INDUCED BY SINDBIS VIRUS.

UNCLASSIFIED

USSR

UDC 576.858.095.363.083

YERSHOV, F. I., and NOVOKHATSKIY, A. S., Institute of Virology
imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"Means of Inducing the Production of Large Quantities of Interferon"

Moscow, Voprosy Virusologii, No 1, 1970, pp 34-37

Abstract: Optimum conditions for the production of interferon in-
duced by group A arboviruses (VEE and Sindbis) in primary trypsinized
chick embryo fibroblast cultures were studied using different methods
of cultivation - monolayer stationary cultures, roller cultures
(grown in rotating vessels), and suspensions. It was found that
under identical conditions the level of interferon production was
determined mainly by the viability of cells and their concentration.
There is a distinct relationship between the intensity of viral re-
plication (infectious and hemagglutinating activity) and the amount
of interferon formed, especially when roller cultures were used.
Elevating the incubation temperature increased the yield. For ex-
ample, at 39° C and higher temperatures, interferon titers reached
1600 IU_{50}/ml, but at 37° C they did not exceed 400 IU_{50}/ml. This

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USSR

YERSHOV, F. I., et al., Moscow, Voprosy Virusologii, No 1, 1970,
pp 34-37

was true only in the case of Sindbis virus, for in the case of VEE
virus, interferon production steadily decreased as the temperature
rose, an example of the individual differences that exist in the
interferon-inducing capacity of viruses within the same group.

2/2

TITLE--VIRUS INDUCED SYNTHESES ON PREFORMED SUBCELLULAR CULTURES -U-

AUTHOR--ZHDANOV, V.M., YERSHOV, F.I., URYAYEV, L.V., NOVOKHATSKIY, A.S.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 1, PP 38-46

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROTEIN SYNTHESIS, TISSUE CULTURE, EASTERN EQUINE ENCEPHALITIS
VIRUS, VENEZUELAN EQUINE ENCEPHALITIS VIRUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0053   STEP NO--UR/0402/70/000/001/0038/0046

CIRC ACCESSION NO--AP0103733
                        UNCLASSIFIED

2/2   013
CIRC ACCESSION NO--AP0103733
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE STUDY, SYNTHESIS OF RNA AND
PROTEIN WAS INVESTIGATED IN MITOCHONDRIAL MICROSOMAL FRACTION DERIVED
FROM CHICK EMBRYO FIBROBLASTS INFECTED WITH EEE VIRUS. IN THIS FRACTION
REPLICATIVE COMPLEX OF THE VIRUS WAS FOUND AND THERE OCCURRED INTENSIVE
SYNTHESIS OF CELLULAR AND VIRUS SPECIFIC RNA AND PROTEINS. PRODUCTS OF
THE SYNTHESIS INCLUDED RIBONUCLEOPROTEINS DIFFERING FROM EACH OTHER IN
SEDIMENTATION AND DENSITY CHARACTERISTICS. ONE OF RIBONUCLEOPROTEINS
HAD SEDIMENTATION CONSTANT 160 S AND DENSITY OF 1.43G-CMPRIME3 WHICH
CORRESPONDED TO PARAMETERS OF RIBONUCLEOPROTEINS OF VEE VIRUS VIRIONS.

TITLE--THE FACTORS, DETERMINING THE REPRODUCTION OF THE VIRUS REPORT 1 THE
INFLUENCE OF THE INFECTION MULTIPLICITY ON THE REPRODUCTION OF

AUTHOR-(02)-NOVOKHATSKIY, A.S., YERSHOV, F.I.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 3, PP 265-269

DATE PUBLISHED------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VENEZUELAN EQUINE ENCEPHALITIS VIRUS, INTERFERON, CULTURE
METHOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1746   STEP NO--UR/0402/70/000/003/0265/0269

CIRC ACCESSION NO--AP0125364
UNCLASSIFIED

CIRC ACCESSION NO--AP0125364
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE PRESENT PAPER THE INFLUENCE
OF THE IDFFERENT CONDITION OF THE CULTIVATION AND THE MULTIPLICITY OF
THE INFECTION ON THE REPORDUCTION OF THE VENEZUELAN EQUINE
ENCEPHALOMYELITIS VIRUS WERE INVESTIGATED. THE VARIOUS TYPES OF
CULTURES WERE USED: MONOLAYER STATIONAL CULTURES, ROLLER CULTURES AND
SUSPENSION OF THE CELLS. THE HIGHEST VIRUS YIELD WAS OBTAINED IN THE
ROLLER CULTURES. IT WAS SHOWN THAT IF THE LESS MULTIPLICITY OF THE
INFECTION HAVE BEEN USED, THEN THE VIRUS YEALD WAS HIGHER. THE
MECHANISM DETERMINING THIS FENOMEN AND THE POSSIBLE ROLE OF THE
INOCULATED AND NEWLY FORMED INTERFERON ARE DISCUSSED.   FACILITY:
INSTITUT VIRUSOLOGII IMENI D. I. IVANOVSKOGO AMN SSSR, MOSKVA.

USSR

NOVOKHATSKIY, I. A., and VELYUKHANOV, V. P., Donets Physico-Technical Institute, Academy of Sciences Ukrainian SSR

"Determining the Crystalline Grain Sizes in Sitals"

Abstract: The method of small-angle scattering of polarized light is used to determine the crystalline grain sizes in sitals made from acid slags. An LG-56 gas laser with a wavelength of 0.6328 microns is used as the polarized light source. The size of crystalline grains, dispersed in the glass-like base of the investigated sitals, amounted to 1.5 microns as computed with the aid of this method. One figure, one bibliographic reference.

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1/3   021   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--DIFFUSION OF NITROGEN IN MOLTEN IRON -U-

AUTHOR-(02)-YERSHOV, G.S., NOVOKHATSKIY, I.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL METALLOVED. 1970, 29(4), 876-8

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GAS DIFFUSION, FERROUS LIQUID METAL, NITROGEN, GAS CONTAINING
METAL, DIFFUSION COEFFICIENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0407   STEP NO--UR/0126/70/029/004/0876/0878

CIRC ACCESSION NO--AP0126161
                        UNCLASSIFIED

2/3   021
CIRC ACCESSION NO--AP0126161

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ORDER TO INCREASE SIGNIFICANTLY
THE SENSITIVITY AND THE ACCURACY OF THE VOLUMTERIC METHOD DURING THE
STUDY OF THE TITLE PROBLEM, A RINGLIKE SLIT WAS EMPLOYED FOR THE
ATTENUATION OF THE CONVECTION IN THE MELT INSTEAD OF A CAPILLARY, FORMED
BY 2 COAXIALLY LOCATED CORUNDUM TEST TUBES, THEREBY MAKING IT POSSIBLE
TO WORK WITH LARGE MASSES OF THE LIQ. METALS. THE DISTANCE BETWEEN THE
TEST TUBES WAS 1.5-2.5 MM. PRIOR TO ENTERING THE TEST TUBES, THE N USED
WAS PURIFIED OF O AND MOISTURE. THE INTERNAL TEST TUBE SERVED
SIMULTANEOUSLY ALSO FOR INSTALLATION OF A W-RE THERMOCOUPLE. THE
METALLIC MELT WAS FORMED FROM CAREFULLY PURIFIED ELECTROLYTIC FE WITH
THE TOTAL IMPURITY CONTENT OF LESS THAN 0.1 WT. PERCENT. TYPICAL TESTS
WERE PERFORMED AT 1600 AND 1650DEGREES. THE DIFFUSION COEFFS. FOR N IN
MOLTEN FE WERE CALCD. THE ACTIVATION ENERGY OF N DIFFUSION WAS 11.0
KCAL-MOLE. THE TEMP. DEPENDENCE OF THE AVERAGED DIFFUSION COEFFS. WAS
DETD. THE DIFFUSION MOBILITY OF N IN MOLTEN FE IS SIGNIFICANTLY LESS
THAN THAT FOR THE REMAINING GASES. THE DIFFUSION COEFF. FOR N WAS 5.5
TIMES 10 PRIME NEGATIVE5 AT 1600DEGREES AND 6.3 TIMES 10 PRIME NEGATIVE5
CM PRIME2-SEC AT 1700DEGREES. THE DIFFUSION COEFFS. OF H AND O AT
1600DEGREES ARE 1.32 TIMES 10 PRIME NEGATIVE3 AND 1.22 TIMES 10 PRIME
NEGATIVE4 CM PRIME2-SEC, RESP. ON THE OTHER HAND, THE DIFFUSION COEFF.
FOR N IS SIMILAR 1 ORDER OF MAGNITUDE LARGER THAN THE SELF DIFFUSION
COEFF. OF FE, THE LATTER BEING 1.7 TIMES 10 PRIME NEGATIVE6 CM
PRIME2-SEC AT 1620DEGREES.

3/3   021
CIRC ACCESSION NO--AP0126161
ABSTRACT/EXTRACT--THE FLUCTUATION DIFFUSION MECHANISM AS PREVIOUSLY
PROPOSED IS NOT APPLICABLE FOR DESCRIBING THE DIFFUSION PROCESSES OF
IMPURITY ATOMS IN MOLTEN FE IN THE REGION OF RELATIVELY SMALL
OVERHEATINGS (FOR FE, OF THE ORDER OF 100-200DEGREES) ABOVE THE MELTING
TEMP.   FACILITY: DONETS. FIZ.-TEKH. INST., DONETSK, USSR.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--16OCT70

TITLE--HYDROGEN DIFFUSION IN MOLTEN IRON -U-

AUTHOR-(04)-ARKHAROV, V.I., NOVOKHATSKIY, I.A., YERSHOV, G.S., KUVALENKO, A.M.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(6), 1329-32

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--HYDROGEN, GAS DIFFUSION, FERROUS LIQUID METAL, IRON, METAL CONTAINING GAS, GAS CONTAINING METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1134   STEP NO--UR/0020/70/190/006/1329/1332

CIRC ACCESSION NO--AT0116599
                    UNCLASSIFIED

2/2   024
CIRC ACCESSION NO--AT0116599
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SENSITIVITY AND THE ACCURACY
OF THE VOLUMETRIC METHOD USED IN THE STUDY OF H DIFFUSION IN MOLTEN FE
WERE INCREASED BY THE SUBSTITUTION OF A RING GAP FOR THE CAPILLARY. THE
ANNULAR SPACE WAS FORMED BY 2 CONCENTRIC TUBES. AT 1560-1650DEGREES,
THE WIDTH OF THE GAP FILLED WITH MOLTEN FE DID NOT AFFECT THE DIFFUSION
COEFF., D SUBH. THE AMT. OF H ABSORBED, V SUBH, INCREASED LINEARLY
WITH TAU PRIMEONE HALF, WHERE TAU IS TIME. EXPTL. D SUBH EQUALS 5.21
TIMES 10 PRIME NEGATIVE2 EXP(MINUS 10,000-RT). THE ACTIVATION ENERGY IS
10.0 KCAL PER MOLE. THE D SUBH IS LARGER THAN D SUBN AND D SUBO.
DIFFUSION IS AN ADDITIVE CHARACTERISTIC DUE TO THE EXISTENCE IN THE
MOLTEN FE CLUSTERS, PSI SUBCL, AND DISORDERED, PSI SUBDIS, REGIONS,
WHERE PSI SUBCL PLUS PSI SUBDIS EQUALS 1. D EQUALS PSI SUBCL D SUBCL
PLUS PSI SUBDIS D SUBDIS.   FACILITY: DONETSK. FIZ.-TEKH. INST.,
DONETSK, USSR.

A70-24271 #   Effect of nonmetallic inclusions on the viscosity of metallic melts (Vliianie nemetallicheskikh vkliuchenii na viazkost' metallicheskikh rasplavov). V. I. Arkharov, G. S. Ershov, I. A. Novokhatskii, and A. M. Kovalenko (Akademiia Nauk Ukrainskoi SSR, Fiziko-Tekhnicheskii Institut, Donetsk; Ukrainskii Nauchno-Issledovatel'skii Institut Spetsial'nykh Stalei, Kharkov, Ukrainian SSR). *Akademiia Nauk SSSR, Doklady*, vol. 190, Jan. 11, 1970, p. 366-368. 6 refs. In Russian.

Study of the kinematic viscosity of molten steel of a single composition containing various amounts of nonmetallic oxide (mainly corundum) inclusions in the temperature range from 1600 to 1825 C. The viscosity values were determined by the method of torsional vibrations of a crucible containing liquid metal in an inert atmosphere. It is found that the viscosity of liquid steel increases substantially with an increase in the quantity of corundum dispersed in it. This relative increase in viscosity due to the presence of nonmetallic inclusions decreases with an increase in temperature.
A.B.K.

REEL/FRAME
19800013

USSR   UDC   539.2+539.171+669-154

NOVOKHATSKIY, N. A., LAD'YANOV, V. I., ARKHAROV, V. I., Academician of the
UkrSSR Academy of Sciences, VELYUKHANOV, V. P., Donetsk Physicotechnical
Institute, UkrSSR Academy of Sciences

"The Two-Isotherm Method in Diffractometry of Melts"

Abstract: A "two-isotherm" method based on Fourier analysis is proposed
for interpreting the diffraction patterns of melts with regard to the
specific characteristics of their micrononhomogeneities. The procedure
shows the partial diffraction effects of structural components, in
principle, is applicable to multicomponent melts consisting of several types
of clusters and a general disordered zone, and can be extended to analysis
of the diffraction patterns of molten salts, oxides, and so forth.

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USSR

UDC 621.791.756.011:546.821

GUREVICH, S. M., BLASHCHUK, V. Ye., NOVOKOV, V. I., and LEBEDEV, V. K.,
Institute of Electric Welding imeni Ye. O. Paton

"Local Thermal Processing of Welded Vessels Made of AT3 Titanium Alloy"

Abstract: A study was made of the possibilities for removing the residual
stresses in the weld seams of AT3 vessels and in the area near the seams by
local thermal processing. Because there were no available data on the re-
sidual stresses in the AT3 alloy, the nature and amount of these stresses
in welded joints of thick sections of the metal had to be studied through
experimentation, which was done on approximately square specimens of the
alloy. Preliminary work, consisting of heating the specimen to 600-650°C
for two hours, then cooling, was to determine the extent to which the
residual stresses in the welded seam and its surroundings were removed
and whether local heating could reduce the longitudinal residual stresses.
The latter received special attention since cracks in titanium alloy welds
are usually at right angles to the seam. The residual stresses were mea-
sured with DK-20 tensometers. It is conlcuded that local thermal treatment
1/2

USSR

GUREVICH, S. M., et al, Avtomaticheskaya Svarka, Kiev, No 2, 1971, pp 12-14

is effective in reducing or eliminating residual longitudinal stresses,
and such treatment is recommended for circular welds on vessels. A table
of the stresses measured with and without local thermal processing is
given.

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USSR   UDC 681.32.001

UMOV, V. S., NOVOKOVSKIY, Ye. M., FILATOV, A. G., and KRANKOV, Ye. S.

"A Connector for a Printed-Circuit Board"

USSR Author's Certificate No 294269, filed 17 Apr 69, published 17 Mar 71
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct
71, Abstract No 10B147 P)

Translation: The invention pertains to inspection facilities, specifically
to devices for checking disconnected circuits on solid-state circuit boards.
There are well-known devices designed for inspection of the output contacts
of circuit boards which are made in the form of metal strips arranged in
a parallel row with a definite spacing about the perimeter of the board.
However, such devices are cumbersome and do not allow contact with the work-
ing areas of the solid-state circuit which are located on the flat surface
of the board. The purpose of this invention is to improve the operational
reliability of the connector for printed-circuit boards. To this end, the
contact-holders in the proposed connector are made in the form of L-shaped
strips fastened on round pins, and the housing has openings which accom-
modate the contact elements made in the form of multiple-leaf springs. Two
illustrations.
1/1

Microelectronics

USSR

UDC: 621.3.049.75

UMOV, V. S., NOVOKOVSKIY, Ye. M., FILATOV, A. G., KRANKOV, Ye. S.
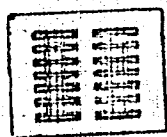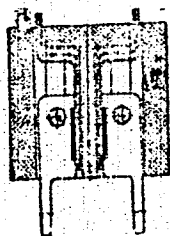
"A Connector for a Printed Circuit Board"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 6, Feb 71, Author's Certificate No 294269, Division H, filed 17 Apr 69, published 26 Jan 71, p 180

Translation: This Author's Certificate introduces a connector for a printed circuit board. The device contains a dielectric housing which accommodates contact holders with contacts between which the printed circuit board is inserted. As a distinguishing feature of the patent, the operational re- liability of the connector is improved by making the contact holders in the form of L-shaped strips fastened to circular pins and fitting the housing with apertures which hold the contact elements made in the form of multiple- -leaf springs.

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USSR

UMOV, V. S. et al., USSR Author's Certificate No 294269

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Polymers and Polymerization

USSR

UDC 678.664-408.8/01.53

KRYUCHKOV, F. A., ANISTMOVA, A. N., and NOVOKRASHCHENOVA, L. N.

"New Semirigid Foam Polyurethane"

Moscow, Plasticheskiye Massy, No 4, 1972, pp 24-26

Abstract: A new semirigid foam polyurethane is described which is based on activated ordinary polyester, triethanolamine and polyisocyanate. A study was made of the rigidity of the foam polyurethane as a function of the water content in the compound, the foam factor, the amount of cross-linking agent and the time from obtaining a specimen of foam polyurethane to testing it.
 The rigidity of the specimens of semirigid foam polyurethan increases during the first month, and by the end of the second month the rigidity is 1.5-2.5 times greater than that of the initial specimen. Thereafter the rigidity remains constant. With an increase in the foam factor, the rigidity increases noticeably. An increase in the amount of cross-linking agent leads to an increase in rigidity. With an increase in the amount of cross-linking agent the system becomes more active since the triethanolamine is simultaneously a catalyst of the chemical reactions with the participation of the isocyanate groups.

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MAL'TSEV, G. V., MARTYNOVA, N. K., and NOVOKRESHCHENOV, P. D.

"Influence of Mercury on Strength of Copper Subject to Ultra-sonic Vibrations"

Abstract: Tensile tests of amalgamated copper specimens subject to ultrasonic vibrations were conducted.

The specimens were of 1 mm diameter. The coating of mercury was 0.001 mm thick. One end of the specimen was connected to a vibrator operating at 22 and 17.5 kilohertz frequency. The other end was subject to a static load. The grain size was varied by varying the annealing temperature.

1/2

USSR

MAL'TSEV, G. V., et al, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 7, No 5, 1971, pp 29-32

On Fig. 1 the tensile strength is plotted versus the square of the vibratory stress. The tensile strength of copper specimens without mercury is affected little by the vibratory stress. The tensile stress of amalgamated specimens is lower than of the specimens without mercury, it remains constant for small values of vibratory stress, then decreases linearly with the square of the vibratory stress. Curves for six different grain sizes are given, the strength decreases with the size of grain.

The explanation of these results is that the vibratory stress destroys the intermetallic bond between copper and mercury and makes it possible for the liquid mercury to penetrate into the cracks between the grains of copper.

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UDC 539.67

USSR

ZUBEKHIN, V. P., NOVOKRESHCHENOV, P. D., POPOV, V. I., and MAKSIMOV, V. P.

"On the Problem of Metal Internal Friction Mechanism in the Process of Plastic Deformation"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 73-76

Abstract: Results are presented of a study of the nature of internal friction in nickel and NTsm-2.5 alloy, measured in the process of their plastic deformation at various temperatures.
It is shown that a certain relationship is observed between changes in Q^{-1} and creeping stages.
Problems related to the onset and propagation of cracks are discussed on the basis of general dislocations. 3 figures, 8 references.

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USSR   UDC   621.378.325

BYKOV, V. P., VAKHITOV, N. G., NOVOKRESHCHENOV, V. K., SHKUNOV, N. V.

"Effect of Resonator Matching on the Power of Solid-State Lasers"

Moscow, Kvantovaya Elektronika, No 2, 1971, pp 53-56

Abstract: Conditions are determined for matching of the various sections
of the optical cavity of a solid-state laser in which the active element
is a nonhomogeneous dielectric, and an experimental study is made of the
effect which such matching has on emission power. It is shown that greater
power is generated in the matched than in the unmatched mode, other things
being equal. The authors thank V. G. Dmitriyev for assistance with the
work.

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UDC 614.2

USSR

SIDOROVA, L. N., RUZIYEV, Kh. R., NOVOKRESHCHENOVA, F. A., and AYDARALIYEV,
K. A., Ministry of Health Kirgiz SSR

"From the Fight Against Malaria and Steps Taken to Prevent the Disease From
Entering Kirgizia"

Frunze, Sovetskoye Zdravookhraneniye Kirgizii, No 6, 1972, pp 29-32

Abstract: The Soviet Central Asian republic of Kirgizia had long been an
endemic focus of malaria. In 1933, for example, it accounted for 30% of all
cases of infectious diseases with a morbidity rate of 1.090 per 10,000 popula-
tion. The rate began to decline after World War Two because of systematic
efforts to eradicate the disease and by 1959 not a single local case was recorded
throughout the republic. To prevent the importation of malaria, all persons
arriving from parts of the Soviet Union where it is still prevalent as well as
visitors from Africa and Asia are registered and carefully examined. All persons
with a history of the disease are checked from time to time. Other steps
include the drainage of swamps within a radius of 3 to 5 km from inhabited
localities, introduction of gambusia and grass carp into bodies of water infested
with mosquito larvae, and continuous monitoring of changes in the mosquito
population to determine whether active control measures may be required.

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USSR

SADCHIKOV, P. I., NOVOKRESHCHENOVA, O. Ye., MAKAROV, V. A.

"Strength of Contact Joints in Hybrid Thin-Film Circuits"

Translation: The effect of the welding process on the physicomechanical (strength) properties of contact joints in hybrid microcircuits is considered. The causes of development of defective joints are determined. Resumé.

1/1

USSR   UDC: 621.396.69:621.316.8

NOVOKSHONOV, V. I.

"Ultrasonic Cleansing of Variable Wire Resistor Parts and Circuits"

V. sb. Ul'trazvuk. metody intensfik. tekhnol. protsessov (Ultrasonic Methods of Accelerating Technological Processes) Moscow Institute of Steel and Alloys, 60, Moscow, 1970, pp 230-233 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3V445)

Translation: Experimental investigation of ultrasonic cleaning of the parts and circuits of variable wire resistors showed that in the cleaning process, mechanical connections, greasy films, and flux left over from the soldering procedure were completely eliminated. It was established that after the cleaning, the contact resistance of the contact-resistive element sliding pair was reduced 3-5 times, and there was no shift in the windings of the resistance wire. It was also found that, due to cavitation effects, the quality of soldered joints in the resistance elements can be controlled (poorly soldered joints are destroyed under the action of intense ultrasonic radiation). Two illustrations.
N. B.

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1/2   029   UNCLASSIFIED   PROCESSING DATE--11DEC70

TITLE--AUTOMATED CONTROL SYSTEMS -U-

AUTHOR--NOVOKSHCNOV, YU.

COUNTRY OF INFO--USSR

SOURCE--VYSHKA, JULY 23, 1970, P 3, COLS 1-2

DATE PUBLISHED--23JUL70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, MECH., IND., CIVIL AND
   MARINE ENGR
TOPIC TAGS--AUTOMATIC CONTROL SYSTEM, LABOR PRODUCTIVITY, INDUSTRIAL
   MANAGEMENT, PERSONNEL MANAGEMENT, MACHINERY MANUFACTURING PLANT, FIVE
   YEAR PLAN, INDUSTRIAL ORGANIZATION, INDUSTRIAL PRODUCTION, INDUSTRIAL
   FACILITY ORGANIZATION, INDUSTRIAL PLANNING, FACILITY PRODUCTION
   CAPACITY, DATA RETRIEVAL, DESIGN BUREAU, RESEARCH FACILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0501   STEP NO--UR/9059/70/000/000/0003/0003

CIRC ACCESSION NO--AN0124207
                    UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AN0124207
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN A PRESS INTERVIEW, K. N.
RUDNEV, MINISTER OF INSTRUMENT CONSTRUCTION, AUTOMATION, AND CONTROL
SYSTEMS, HAS STATED THAT THE MAIN MISSION OF HIS MINISTRY IS TO ADVANCE,
INASMUCH AS POSSIBLE, THE INDUSTRIAL ORGANIZATION AND MANAGEMENT. A
90.4 PERCENT INCREASE IN THE PRODUCTION VOLUME, AND 53 PERCENT INCREASE
IN LABOR PRODUCITIVITY RUDNEV ATTRIBUTED TO THE FACT THAT THE MAIN
ADMINISTRATIONS OF THE MINISTRY DEALT WITH TIS PLANTS ON THE PRINCIPLE
OF SELF SUPPORTING ECONOMY. AS OF TODAY, THE INDUSTRIAL COMPLEXES OF
THE MINISTRY EMPLOY EIGHT COMPUTERIZED MANAGEMENT SYSTEMS. BY THE END
OF 1970 THIS NUMBER WILL GO UP TO THIRTEEN. SINCE 1966, THE MINISTRY
HAS BEEN USING A SUBSYSTEM OF OPERATIONAL PLANNING. ACCOUNTING,
LOGISTICS, SELLING, AND FINANCING ARE ALSO BECOMING SUBJECT OF
AUTOMATION. A SYSTEM FOR AUTOMATED INFORMATION SEARCH FOR RESEARCH AND
DESIGN PLANNING ORGANIZATIONS, AND PLANTS OF THE MINISTRY IS BEING
INITIATED. BY THE END OF THIS FIVE YEAR PLAN, 186 PLANTS OF THE
INDSUTRY WILL HAVE THEIR MACHINE COMPUTATION STATIONS AND BUREAUS.
CURRENTLY THE ORGANIZATIONS OF THE MINISTRY ARE WORKING ON ABOUT 100
AUTOMATED CONTROL SYSTEMS FOR LARGE PLANTS OUTSIDE OF THE MINISTRY.
AMONG THEM ARE THE GOR,KIY AND MINSK AUTOMOBILE PLANTS, THE IZHORA PLANT
OF HEAVY MACHINE CONSTRUCTION, THE PAVLODAR TRACTOR PLANT, ETC.

UNCLASSIFIED

USSR   .   UDC 669.71.053.4

NOVOLODSKAYA, A. A., AVDEYEVA, T. I.

"Conditions of Formation of Cancrinite-Like Sodium Hydroalumosilicates in
Alumina Production Solutions and Their Physical-Chemical Characteristics"

Sb. tr. Vses. mezhvuz. nauch. konferentsii po teorii protsessov tsvetn, metal-
lurgii (Collected Works of the All-Union Interuniversity Scientific Conference
on the Theory of Processes in Nonferrous Metallurgy), Alma-Ata, 1971, pp 431-
439 (from RZh-Metallurgiya, No 7, Jul 1971, Abstract No 7G201)

Translation: In low-module aluminate solutions containing Na_2CO_3 or Na_2SO_4
along with silica, the formation of hydrocancrinite aluminate is possible
during the crystallization of the aluminum silicate residue for 45 hours at
175° in a sulfate-containing solution and for 72 hours at 220° in a carbonate-
containing solution. The cancrinite-like sodium hydroalumosilicate can be
distinguished from the sodalite-like hydroalumosilicate by means of crystal-
optical and thermal analyses and also infrared spectroscopy. There are 7
illustrations and a 10-entry bibliography.

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UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--CONCENTRATION HETEROGENEITY OF STEEL 110G13L CONTAINING NIOBIUM -U-

AUTHOR-(03)-ANIKIN, P.S., NOVOMEISKIY, YU.D., RASKOLENKO, L.G.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZVOD. 1970, (3), 36-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ALUMINUM, STEEL DEOXIDATION, NIOBIUM STEEL/(U)110G13L NIOBIUM
STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1926   STEP NO--UR/0128/70/000/003/0036/0037

CIRC ACCESSION NO--AP0132188
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0132188
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF NB ADDNS. (0.15,
0.35, AND 0.65PERCENT) ON THE NONUNIFORMITY OF THE TITLE STEEL WAS
STUDIED. THE STEEL WAS MELTED IN 120-KG INDUCTION FURNACE WITH BASIC
LINING AND ALLOYED IN THE LADLE AFTER CAREFUL DEOXIDN, WITH AL. THE
NONUNIFORMITY WAS EVALUATED BY DETG. MICROHARDNESS ON POLISHED SECTIONS
PREPD. WITH MIN. COLD HARDENING. ABOUT 90-100 DETNS. WERE MADE ON ONE
SECTION; GRAIN BOUNDARIES WERE EXCLUDED. THE DEGREE OF CONCN.
UNIFORMITY WAS DETD. BY THE RATIO OF THE MAX. OF FREQUENCY CURVE TO THE
WIDTH OF THE HISTOGRAM (FREQUENCY POLYGON). THE MAX. OF THIS RATIO
(1.75) OCCURRED AT 0.35PERCENT NB, WHICH WAS THE RECOMMENDED NB ADDN.

UNCLASSIFIED

USSR   UDC: 681.327.6

NOVOPASHENNYY, G. N., POTAPKIN, V. K., Leningrad "Order of Lenin" Poly-
technical Institute imeni M. I. Kalinin

"A Buffer Memory Device"

Translation: This Author's Certificate introduces a buffer memory device
which contains switches with their first inputs connected together and
tied to storage flip-flops while their outputs are connected to shift
register cells. The device also contains recording and readout lines.
As a distinguishing feature of the patent, the reliability of the device
is improved by adding a reversible counter with one of its inputs con-
nected to the readout bus and the other to the recording bus, while the
outputs of the counter cells are connected to the second inputs of the
switches.

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A

USSR

BALASHOV, O. M., NOVORUSSKIY, V. V.

"Concerning Conditions of Invariance of an Open System for Control of a Probabilistic Finite Automaton"

Irkutsk, Nekotoryye vopr. optimiz. i upr. v sistemakh energetiki--sbornik (Some Problems of Optimization and Control in Power Engineering Systems-- collection of works), 1972, pp 4-10 (from RZh-Matematika, No 9, Sep 73, abstract No 9V440 by A. Muchnik)

Translation: For the finite probabilistic automaton $\mathfrak{A}$ defined by the input alphabet $X = \{x_0, \ldots, x_{N-1}\}$ and the output alphabet $Y = \{y_0, \ldots, y_{K-1}\}$ with the set of states $A = \{a_0, \ldots, a_{M-1}\}$ and the set KN of square $M \times M$ matrices $\|p(a_l y_l / a_l x_s)\|$, where the element $p(a_l y_l / a_l x_s)$ is equal to the probability that the finite probabilistic automaton will go to state a_j after receiving symbol x_j in state a_i, giving symbol y_l at the output, the authors define the inverse finite probabilistic automaton $\mathfrak{A}^{-1}$ (generally speaking, nonuniquely) in the following way: $\mathfrak{A}^{-1}$ induces the probabilistic mapping $\Phi: Q \to P$, where Q and P are sets of output and input words of automaton $\mathfrak{A}$ respectively and each solution from the set $\{p_i = \Phi(q_i)\}$ being an argument of the probabilistic

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USSR

BALASHOV, O. M., NOVORUSSKIY, V. V., Nekotoryye vopr. optimiz. i upr. v
sistemakh energetiki, 1972, pp 4-10

mapping $\varphi:P \to Q$ produced by finite probabilistic automaton $\mathfrak{A}$ gives the set
of solutions $\{q_i = \varphi(p_i)\}$ necessarily incorporating word q_j such that $q_j = q_i$.
    $\mathfrak{A}^{-1}$ is given by the set KN of matrices $\|q(b_j x_s / b_i y_l)\|$. Each matrix $q(s, l)$
is constructed on the basis of matrix $p(l, s)$ for the pair (y_l, x_s) of autom-
aton $\mathfrak{A}$. The nonzero elements of matrix $q(s, l)$ which designate the proba-
bilities of transitions $q(b_j x_s / b_i y_l)$ are determined by the same indices i, j
as the nonzero elements $p(a_j y_l / a_i x_s)$ of matrix $p(l, s)$ of automaton $\mathfrak{A}$. But
the values of these probabilities must be determined from supplementary
"nonzero" conditions on the inverse finite probabilistic automaton (of the
type of minimization of some functional on a set of words or the like).
A control system scheme (of the "open principle") is considered which is
a superposition of an inverse finite probabilistic automaton $\mathfrak{A}^{-1}$ and a
finite probabilistic automaton $\mathfrak{A}$. Two problems are solved relative to
this scheme.
    The first problem consists in finding the probability of appearance
of a signal sequence $y^*(t)$ at the output of the circuit if a sequence
$z^*(t) \equiv y^*(t)$ has been sent to the input. The second (dual) problem is to

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USSR

BALASHOV, O. M., NOVORUSSKIY, V. V., Nekotoryye vopr. optimiz. i upr. v
sistemakh energetiki, 1972, pp 4-10

determine the class of controlling words $z^*(t)$ in relation to which the
system is invariant; i. e.,it retains them at the output with a probability
of no worse than p. Two methods are proposed for solving the first problem,
one of which saves time but uses a large memory, and the other saves the
memory volume but requires a large number of operations. According to
the authors, solution of the second problem is based on solution of the
first problem.

3/3

USSR

BALASHOV, O. M. and NOVORUSSKIY, V. V.

"Conditions of Invariance of a Closed Control System for a Probabilistic Finite Automaton"

Nekotoryye Vopr. Optimiz. i Upr. v Sistemakh Energetiki   [Some Problems of Optimization and Control in Power Systems -- Collection of Works], Irkutsk, 1972, pp 4-10 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V440)

Translation: For a finite probabilistic automaton $\mathfrak{A}$ (FPA), defined in input alphabet $X = \{x_0, \ldots, x_{N-1}\}$, ouput alphabet $Y = \{y_0, \ldots, y_{K-1}\}$ with set of states $A = \{a_0, \ldots, a_{M-1}\}$, by set KN of quadratic M×M matrices $\|p(a_j y_l / a_i x_s)\|$, where element $p(a_j y_l / a_i x_s)$ is equal to the probability that the FPA, receiving input symbol x_j while in state a_i will be converted to a_j, producing output symbol y_l, the reverse finite probabilistic automaton (RFPA) $\mathfrak{A}^{-1}$ is defined (generally unambiguously) as follows: $\mathfrak{A}^{-1}$ induces the probabilistic mapping $\phi: Q \to P$, where Q and P are the sets of output and input words of automaton $\mathfrak{A}$ respectively, where each solution from set $\{p_i = \phi(q_i)\}$, being an arugment of the probabilistic map-

1/3

USSR

BALASHOV, O. M. and NOVORUSSKIY, V. V., Nekotoryye Vopr. Optimiz i
Upr. v Sistemakh Energetiki, Irkutsk, 1972, pp 4-10

ping $\phi:P \to Q$, produced by FPA $\mathcal{U}$, yields the set of solutions $\{q_j = \phi(p_j)\}$
in which word q_j such that $q_j = q_i$ must be found.

$\mathcal{U}^{-1}$ is fixed by the set KN of matrices $||q(b_j x_s / b_i y_l)||$. Each

matrix $q(s,l)$ is constructed on the basis of matrix $p(l,s)$ for the pair
(y_l, x_s) of automaton $\mathcal{U}$, where the nonzero elements of matrix $q(s,l)$,

representing the probability of transitions $q(b_j x_s / b_i y_l)$, are defined by

the same subscripts i and j as the nonzero elements $p(a_j y_l / a_i x_s)$ of

matrix $p(l,s)$ of automaton $\mathcal{U}$. The values of these probabilities must
be determined from the supplementary "goal" conditions of the RFPA
(such as minimization of a certain functional in a set of words, etc.).
The plan of a control system ("open principle") which is a superposition
of RFPA $\mathcal{U}^{-1}$ and FPA $\mathcal{U}$ is studied. Two problems are solved concerning
this system.
    The first problem consists in determination of the probability of
appearance at the output of the system of a sequence of signals $y^*(t)$,
if the sequence $z^*(t) \equiv y^*(t)$ appears at the input of the system. The

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USSR

BALASHOV, O. M. and NOVORUSSKIY, V. V., Nekotoryye Vopr. Optimiz i
Upr. v Sistemakh Energetiki, Irgutsk, 1972, pp 4-10

second, double problem consists in determination of the class of control
words $z^*(t)$, in relation to which the system is invariant, that is re-
tains them at the output with probability no worse than p. Two methods
are suggested for solving the first problem, one of which saves solution
time while using much memory, while the other saves memory while re-
quiring many operations. The solution of the second problem, the authors
affirm, is based on the solution of the first problem.

A. Muchnik

3/3

Simulations

USSR

UDC 8.74

NOVORUSSKIY. V. V.

"Data Inversion in Control Problems"

V sb. Mat. modelir. i teoriya elektr. tsepey (Mathematical Modeling and the Theory of Electric Circuits -- Collection of Works), vyp. 8, Kiev, "Nauk. Dumka," 1971, pp 26-42 (from RZh-Matematika, No 5, May 72, Abstract No 5V576 by V. MIKHEYEV)

Translation: The article describes a plant control method which uses the principle of data inversion accomplished by means of an inverse mathematical logic model of the plant. Here the aggregate of control actions is regarded as a certain alphabet X, given on a set of values of independent variables (arguments); the aggregate of plant reactions as alphabet Y, given on a set of values of dependent variables (functions); and the plant itself as data converter δ, which realizes the mapping of elements of the first alphabet into the second $y = \delta(x)(y \in Y, x \in X)$. By an inverse mathematical logic model of a controlled plant is meant the relation $x = \delta^{-1}(y)$, which effects the mapping of elements of alphabet Y into alphabet X. The essence of the inverse-operators method is shown from the viewpoint of the invertibility of cause-and-effect networks and the possibility of using it for the control of plants which

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USSR   UDC 8.74

NOVORUSSKIY, V. V., Mat. modelir. i teoriya elektr. tsepey, vyp 8, 1971,
pp 26-42

realize an automatic operator. The author reveals the nature of the constraints
with regard to the use of the inverse-operators method for the synthesis of
invariant control systems, and he finds the relationship between the properties
of control systems synthesized by the method of inverse operators described by
continuous real functions and automation functions.

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Translation: The paper described a method of controlling an object by
using the principle of inverse data processing implemented by means of
an inverse mathematical logic model of the object. In this regard the
aggregate of controlling actions is treated as a certain alphabet X given
on a set of independent variables (arguments); the set of responses of the
object is treated as an alphabet Y given on a set of dependent variables
(functions); and the object itself is treated as a data converter δ which
realizes mapping of the elements of the first alphabet into the second
$y = \delta(x)$ $(y \in Y, x \in X)$. An inverse mathematical logic model of a controlled
object is understood to mean the relation $x = \delta^{-1}(y)$ which maps the elements
of alphabet Y into alphabet X. The essence of the method of inverse oper-
ators is demonstrated from the standpoint of reversibility of cause-and-
-effect networks, and it is shown that it can be used to control objects
which realize an automaton operator. The nature of the limitations with

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USSR

NOVORUSSKIY, V. V., Mat. modelir. i teoriya elektr. tsepey, vyp. 8, Kiev, "Nauk. dumka", 1971, pp 26-42

regard to use of the method of inverse operators for synthesizing invariant control systems is discussed. A relation is found between the properties of control systems synthesized by the method of inverse operators described by continuous real functions and automaton functions. V. Mikheyev.

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USSR   UDC 621.791.011:621.9-419

NOVOSADOV, V. S., and SHORSHOROV, M. Kh., Institute of Metallurgy imeni
A. A. Baykov

"Liquid Wedge-Like Probe for Investigating the Interaction of Iron and Molten
Aluminum"

Abstract: A liquid wedge-like probe was developed which makes possible easy
and fast determination of the conditions for obtaining a good quality fusion
(without intermetallides) through the interaction of solid and liquid phases
of heterogeneous materials. An experimental, very low density installation
(5×10^{-6} mm Hg) for determining the admissible time of contact as a function
of temperature between a sample and molten aluminum is described. The experi-
mental procedure, installation, and liquid wedge-like probe are described and
a schematic diagram of the probe is included. After cooling, the wedge-like
probe is disassembled, and the samples obtained are cut and investigated by
locat x-ray spectral analysis. The typical concentration curves and those il-
lustrating the development rate of heterodiffusion in the contact zone along
the length of wedge build-up, are presented in graphs for the case of inter-
action between Armco iron and aluminum.
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USSR

NOVOSADOV, V. S., and SHORSHOROV, M. Kh., Avtomaticheskaya Svarka, No 9, Sep 70, pp 4-7

The results show good agreement between the experimental and theoretical data obtained from a retardation equation, which makes it possible to determine the temperature and time necessary for obtaining a good quality fusion.

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USSR

NOVOSADOV, V. S.

"Argon-Arc Welding of Titanium and Niobium"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 70, pp 68-69

Abstract: This short article is devoted to research into the argon-arc method of welding together titanium and niobium, a butt-welding process involving the use of very pure argon for preserving the seam. The process is a function of the intensity and nature of turbulent liquid metal flow in the welding bath, of the linear energy and pressure of the arc, and the departure of the heat source from the seam. The research was done in such a way as to eliminate the effect of the seam configuration on the mechanical characteristics of the joint. Alloys with a titanium base (types VT1-1, VT6S, IRM2, 014) and a niobium base (VN1, VN2, VN2A) were used. A table of the mechanical characteristics of welds made by this method is given along with graphs showing the depth and angle of bending as functions of the alloys used.

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UDC 621.385.623

USSR

KORNILOV, S.A., LOMAKIN, G.V., LOSEV, V.L., NOVOSELETS, V.I.

"Investigation Of Fluctuations In Mixer Klystrons"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 6, pp 40-50 (from RZh--Elektronika i yeye primeneniye, No 10, October 1970, Abstract No 10A150)

Translation: Theoretical and experimental investigations of fluctuations in mixer klystrons caused by the noise of an electron beam show that with a small modulation index of the beam (m $\approx$ 0.1) it is possible by a reasonable tuning of the resonant cavities (the first two resonant cavities are tuned to the frequency of the input signal and the remainder to the frequency of the biased signal) to reduce the level of the phase fluctuations in equal parts of the spectrum by approximately 10 db. Summary.

USSR N' UDC 621.372.85(088.8)

SOKOLOV, V. V., ARTEMYEV, S. M., NOVOSELETS, V. I.

"Frequency Tuning Device"

USSR Author's Certificate No 259203, Filed 11 Oct 66, Published 17 Apr 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B154P)

Translation: The proposed frequency tuning device for vacuum volumetric
resonators of superhigh frequency electronic devices contains a rod con-
nected to a flexible resonator tuning element, for example, a diaphragm
and an adjustment screw used for axial displacement of the rod. In order
to improve the vibration resistance of the device, a smooth bushing with
an inside thread encompassing the lower part of the two-step screw and
attached inside the removable sectional housing is used. The upper part
of the screw is turned into the auxiliary bushing equipped with a flange
which is installed on the housing of the device. There are two illustra-
tions.

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1/2   009   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--DETERMINATION OF GLYCOLS BY GAS LIQUID CHROMATOGRAPHY -U-

AUTHOR-(04)-NOVOSELOV, A.I., AFANASYEV, A.M., KALYAZIN, YE.P., ZAKHAROV,
    V.F.
COUNTRY OF INFO--USSR

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    BUTANE/(U)PEG600 CHROMATOGRAPH PACKING, (U)PE62000 CHROMATOGRAPH
    PACKING, (U)INZ600 CHROMATOGRAPH PACKING, (U)TNDSM CHROMATOGRAPH
    PACKING, (U)SPHEROCAROMI CHROMATOGRAPH PACK, (U)STERCHAMOL CHROMATOGRAPH
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TECHNIQUE FOR THE GAS
CHROMATOGRAPHIC DETN. OF ETHANE, 1, 2 PROPANE, 2,3 BUTANE(RACEMATE)-, 2,
3 BUTANE (MESO FORM)-, 1,3 BUTANE-, 1,4 BUTANEDIOL AND DIETHYLENE GLYCOL
IN DILD. SOLNS. OF ALCS. OR H_2O ALCSS. MIXTS. IS SUGGESTED. SOME
CORRELATION OF THE RESPONSE IN A FLAME IONIZATION DETECTOR WITH THE
STRUCTURE OF GLYCOL MOLS. IS OBSERVED. THE SEPN. WAS CARRIED OUT ON A 2
M LONG COLUMN FILLED WITH 12- 15PERCENT POLY (ETHYLENE GLYCOL) PEG 600
OR PEG 2000 ON INZ 600 TND SM, SPHEROCHROM 1, OR STERCHAMOL, AT A COLUMN
TEMP. OF 105-30DEGREES, WITH N CARRIER GAS AT 80-100DEGREES ML- MIN.
FACILITY: MOSCOW STATE UNIV., MOSCOW, USSR.

UNCLASSIFIED

UDC 621.382.2

USSR

DOMANEVSKIY, D.S., LIBOV, L.D., LITVINOV, V.L., LOMAKO, V.M., NOVOSELOV, A.M., RAVICH, V.N., TKACHEV, V.D., UKHIN, N.A.

"Effect Of Radiation On Gallium Phosphide P-N Junctions"

V sb. Radiats. fiz. nemet. kristallov. T.3. Ch.2. (Radiation Physics Of Non-metallic 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)

Translation: The p-n junctions were obtained by the method of liquid epitaxy with n-GaP. The epitaxial p-region was doped with C_2 and Zn. Irradiation was done with reactor neutrons and also electrons with 28 Mev energy at temperatures above $50°$ C. The current-voltage characteristics and the electroluminescent spectra were investigated at room and nitrogen temperatures. After irradiation, the forward branch of the current-voltage characteristics is shifted to the region of smaller voltages (the lifetime of minority carriers is decreased) and subsequently with an increase of the flux -- to the side of the larger voltages (increase of the resistivity of the initial material). After irradiation the intensity of all the spectral bands of electroluminescence are decreased. The

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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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