

USSR

UDC 621.357.7:669.245'295

SOFRONKOV, A. N., VOLOSHIN, A. G., PRESNOV, V. A., and PERVIY, E. N.

## "Structure of Ni-Ti Alloys Prepared Electrochemically"

Izv. vyssh. ucheb. zavedeniy. Khimiya i khim. tekhnol. (Studies of the Higher Institute of Learning. Chemistry and Chemical Technology), 15, No 10, 1972, pp 1567-1569 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L387 by L. S. Kanevskiy)

Translation: The conditions were studied for the simultaneous electro-deposition of Ni and Ti and the phase compositions of the compound obtained. The alloy is precipitated from a boron hydrogen fluoride and a sulfate electrolyte at a  $D_k$  of 1-20 a/dm<sup>2</sup>. Photoelectrocolorimeter and X-ray studies showed that the concentration of Ti in the alloy fluctuated from 1-10% as a function of the  $D_k$  and the composition of the electrolyte; an increase in  $D_k$  increased the Ti concentration. The Ni-Ti alloys represent solid solutions of Ti substituting for Ni. Calculation of the crystal lattice constant  $a_{Ni-Ti}$  [sic. maybe should read  $a_{Ni-Ti}^0$ ] derived from the quadratic formula, gave a value of  $a_{Ni-Ti}$  of 3.56 and 3.54 Å for alloys obtained from the boron-hydrogen fluoride and from the sulfate electrolyte respectively.

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Electrochemistry

USSR

UDC 541.11

SOPRONKOV, A. N., VOLOSHIN, A. G., ~~PRESNOV, V. A.~~, and PERVIY, E. N.,  
Odessa State University imeni I. I. Mechnikova

"Structure of the Ni-Ti Alloy Prepared Electrochemically"

Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol 15, No 10, 1972, pp  
1567-1569

Abstract: When the simultaneous electrodeposition of titanium and nickel is carried out, the rate of discharge of nickel ions is somewhat lower and that of titanium somewhat higher than for the deposition of each metal individually. The phase composition of such simultaneously deposited alloys was studied. The concentration of Ti, analyzed by colorimetric and X-ray techniques, ranged from 1-10% and varied with the particular acid used in the electrolyte solution and with the surface current.

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USSR

UDC 621.383.546.19'68'

PTASHCHENKO, A.A., PRESNOV, V.A., KRUGLOV, I.I., GOLEMBIYEVSKIY, N.N.,  
OVCHINNIKOVA, A.P.

"Excess Currents And Aging Of Light-Emitting Diodes Based On GaAs"

Elektron.tekhnika. Nauch.-tekhn.sb. Poluprovodn. pribory (Electronic Technics.  
Scientific-Technical Collection. Semiconductor Devices), 1971, Issue 7(64), pp  
16-20 (from RZh:Elektronika i yeye primeneniye, No 4, April 1972, Abstract No  
4B347)

Translation: The aging was studied of GaAs light-emitting diodes with zinc as  
the acceptor. Both conventional and anomalous aging was observed. It is shown  
that the excess currents responsible for aging consist of volume and surface  
components and have a tunnel-thermal nature and are connected with nonuniform-  
ities of the p-n junctions. 5 ill. 5 ref. Summary.

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USSR

UDC 621.382.2

MAMONTOV, A.P., NICHIPURENKO, B.A., OKUNEV, V.D., PRESNOV, V.A.

"Isolation Of p-n Junctions In Gallium Arsenide Under Conditions Of Proton Irradiation"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 717-720

Abstract: Gallium arsenide crystals were irradiated in a cyclotron by protons with various energies. A scheme for obtaining isolated p-n junctions is shown and discussed. The energies of the bombarding protons were measured with the aid of aluminum foil placed before the crystals being irradiated. The results of the studies show that isolation of p-n junctions during proton irradiation is an effective method of improving the characteristics of gallium arsenide p-n junctions. 3 figs. 5 ref. Received by editors, 12 May 1971.

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USSR

UDC: 621.396.6-181.5

BAZHENOV, V. K., D'YAKOV, V. V., PRESNOV, V. A.

"Voltage-Capacitance Characteristics of a Metal-Dielectric-Semiconductor Capacitor With Deep Centers"

Elektron. tekhnika. Nauch.-tekhn. sb. Poluprovodn. pribory (Electronic Technology. Scientific and Technical Collection. Semiconductor Devices), 1970, vyp. 5(55), pp 17-22 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V194)

Translation: The authors study the voltage-capacitance characteristics of MDS structures with deep acceptor and donor centers in the semiconductor layer. Resumé.

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USSR

UDC: 621.382.3

VIKULIN, I. M. and PRESNOV, V. A.

"Controllable Two-Base Diode"

Leningrad, Fizika i tekhnika poluprovodnikov, Vol 4, No 10, October 1970,  
pp 1999-2000

Abstract: The two-base diode is a three-electrode semiconductor with two ohmic contacts at the ends of a filamentary semiconductor and a single injector contact between them. The primary parameter of the two-base diode is the ratio of resistance of one base to the sum of the resistances of both bases. The simplest method of controlling this ratio is by changing the resistance of the first base; such a change can be realized through the field effect. Other characteristics of the device are described in this brief communication. The accompanying diagram shows the connections of the device and its emitter volt-ampere characteristics for various load resistances. It is stated that p-n-p-n structures are being used since the two-base diode does not as yet exist.

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1/2 041 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--LATTICE DEFECTS IN GALLIUM ARSENIDE -U-  
AUTHOR--(04)-BAZHENOV, V.K., BAZHENOVA, G.N., PRESNOV, V.A., FEDOTOV, S.P.  
COUNTRY OF INFO--USSR  
SOURCE--FIZIKA TVERDOGO TELA, VOL. 12, MAR. 1970, P. 908-910  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--IRON, METAL COATING, GALLIUM ARSENIDE, CRYSTAL LATTICE  
STRUCTURE, ELECTRON PARAMAGNETIC RESONANCE, SPECTROSCOPIC ANALYSIS,  
LUMINESCENCE, CRYSTAL LATTICE DEFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1989/1283 STEP NO--UR/0181/70/012/000/0908/0910  
CIRC ACCESSION NO--AP0107759  
UNCLASSIFIED

272 041

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0107759

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE MECHANISMS OF THE INFLUENCE OF LATTICE DEFECTS ON THE ELECTRIC AND LUMINESCENT CHARACTERISTICS OF IRON DOPED GALLIUM ARSENIDE CRYSTALS (3,500,000 OHM CM) ANNEALED FOR 12 HR AT 700 TO 1200 C. THE TYPE OF LATTICE DEFECTS RESPONSIBLE FOR THE EPR SPECTRA IN HEAT TREATED CRYSTALS IS STUDIED, AND THE INTENSITY OF THE EPR SPECTRUM OF TRIVALENT IRON IONS IN GALLIUM ARSENIDE IS PLOTTED VS THE ANNEALING TEMPERATURE IN A VACUUM.  
FACILITY: ODESSKII GOSUDARSTVENNYI UNIVERSITET, ODESSA, UKRAINIAN SSR.

UNCLASSIFIED

Semiconductors and Transistors

USSR

UDC 621.315.592

KUSTOV, V.G., ORLOV, V.P., ~~PRESNOV, V.A.~~, and AZIKOV, B.S.

"Spectral Photosensitivity of Nonuniform Semiconductors"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 669-672

Abstract: This paper considers the problem of the proper approach to the question of semiconductors with nonuniform distribution of recombination parameters over the crystal volume. In deriving the basic relationships for this situation, the authors assume that there is a clearly expressed monopolar photoconductivity in which monopolar diffusion does not play an important part in the formation of the photoconductivity spectrum. Since there is no bipolar diffusion, the diffusion and drift process limited to the surface are negligibly small. They assume further that the specimen under consideration has a laminar nonuniformity in the direction of generation, with each layer having a specified relaxation time for nonequilibrium majority carriers and a specified absorption factor. The results of computations made from an equation they derive are compared with the experimentally obtained photoconductivity spectrum for GaAs at 77° K; the two are found to agree. The authors conclude that for specimens less than 0.01 cm thick, the probability of the formation of clearly expressed nonlinearities in the photoconductivity spectrum due to local non-

1/2 025  
UNCLASSIFIED  
PROCESSING DATE--13NOV70  
TITLE--SIMULATOR OF HARMONIC VIBRATIONS OF AN OPTICAL SOURCE OF RADIATION  
-U-  
AUTHOR--PRESNUKHIN, L.N.  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, PRIBORY I SISTEMY UPRAVLENIYA, NO 2, 1970, PP 39-41  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--VIBRATION SIMULATION, HARMONIC OSCILLATION, RADIATION SOURCE,  
OPTIC RADIATION STABILITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAHE--3004/1519  
STEP NO--UR/0445/70/000/002/0039/0041  
CIRC ACCESSION NO--AP0131874  
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131874

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. THE AUTHORS STUDY PROBLEMS ASSOCIATED WITH THE THEORY AND DESIGN OF A LABORATORY VIBRATION SIMULATOR OF A RADIANT ENERGY SOURCE. THE SIMULATOR IS USED FOR THE REMOVAL OF THE FREQUENCY CHARACTERISTICS AND THE SELF OSCILLATING REGIMES ASSOCIATED WITH THE OPERATION OF PRECISION, AUTOMATIC, ANGLE MEASURING UNITS. THE OPTICAL SCHEME AND THE BASIC PARAMETERS FOR AN ACTUAL UNIT ARE GIVEN.

UNCLASSIFIED

USSR

UDC 621.377.622.322.5.001.572

PRESNUKHIN, L. N., NESTEROV, P. V., and SHAKHNOV, V. A.

"Research on Dynamic Switching of Magnetic Thin-Film Elements With the Help of a Digital Model"

Sb. Nauch. Tr. po Probl. Mikroelektron. Mosk. In-t. Elektron. Tekhn. (Collection of Scientific Works on Problems of Microelectronics, Moscow Institute of Electrical Engineering), No 5, 1970, pp 133-141 (from Referativnyy Zhurnal -- Avtomatika, Telemekhanika, i Vychislitel'naya Tekhnika, No 8, 1971, Abstract No 8B113)

Translation: A digital model of a magnetic thin-film element of a memory device is selected and justified. Results of theoretical research on the effect of the front of intensification of the switching field, the initial angular displacement of the magnetization vector, and the magnitude and dispersion of the anisotropy field on the switching of magnetic thin films are cited.

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USSR

UDC 621.396.6-181.5

PRESNOKHIN, L. N., SRISHKEVICH, A. A.

"On the Problem of a Functional Approach to the Design of Large-Scale Integrated Circuits"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Technology. Scientific and Technical Collection. Microelectronics), 1971, vyp. 1(27), pp 53-63 (from RZh-Radiotekhnika, No 8, Aug 71, Abstract No 8V244)

Translation: The article deals with one of the "formal" methods of functional design of large-scale integrated circuits based on tree-like circuits with current switching. It is shown how finite automata with and without storage can be realized in the chosen basis. An algorithm is proposed for minimizing the original tree-like circuit with current switching. Resumé.

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USSR

UDC 543.42.001.4

BOSHNYAK, B. M., ZHIGLINSKIY, A. G., and PRESNUKHINA, I. P.

"Investigation of a Pulse Light Source With a Hollow Cathode"

V Sb "VII Ural'sk. Konf. po Spektroskopii, 1971. Vyp. 1" [In the Collection "Seventh Ural Conference on Spectroscopy, 1971. No 1".], Sverdlovsk, 1971, pp 19-21 (from Referativnyy Zhurnal, No 10, Oct 72. 32. Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 10.32.991 by V. S. K.)

Translation: The installation diagram with a pulsed hollow cathode is presented and the conditions of the separation by time of the admission processes into the discharge of atoms of the cathode material and their excitations are determined. The optical part of the installation consists of the ISP-51 monochromator crossed with the Fabry-Perotetalon. The registration of the emission is carried out photoelectrically by means of synchronous detection. The investigation of the separation of the processes of excitation and admission of atoms into the discharge was carried out on the Cu 1 578.2 nm line, emitted by plasma in the cooled copper hollow cathode. Spectrally pure neon at 0.5-0.7 mm Hg pressure was used as discharge carrier. Two illustr., four biblio. refs.

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005

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--REACTION OF THALLIUM (III) CHLORIDE WITH SODIUM PYROPHOSPHATE -U-

AUTHOR--(03)-GRINEVA, A.V., ZHUKOVA, G.T., PRESNYAK, N.T.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 58485

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORIDE, SODIUM PYROPHOSPHATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0790

CIRC ACCESSION NO--AP0104236

STEP NO--UR/0078/70/015/002/0584/0584

UNCLASSIFIED

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2/2 005

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104236

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TL SUB4(P SUB2 O SUB7) SUB3, NATLP  
 SUB2 O SUB7. 4H SUB2 O (I), AND NA SUB5 TL(P SUB2 O SUB7) SUB2. 8H SUB2  
 O (II) FORM IN THE TLC SUB3-NA SUB4 P SUB2 O SUB7-H SUB2 O SYSTEM AT  
 DIFFERENT CONC. OF COMPONENTS. THESE COMPNDS. ARE SOL. IN DIL. HCL, H  
 SUB2 SO SUB4, AND HNO SUB3, SLIGHTLY SOL. IN H SUB2 O, AND INSOL. IN  
 ORG. SOLVENT. THERMOGRAPHS OF I AND II SH4W LOSS OF H SUB2 O OF  
 CRYSTN. AT 180 AND 220DEGREES, RESP., AND POLYMORPHOUS TRANSITION AT 470  
 AND 450DEGREES, RESP. NATLP SUB2 O SUB7 MELTS AT 580 AND NA SUB5 TL(P  
 SUB2 O SUB7) SUB2 AT 650DEGREES. AT GREATER THAN 770DEGREES THE COMPNDS.  
 DECOMP. WITH REDN. OF TL(III) TO TL(I).

UNCLASSIFIED

USSR

PRESNYAKOV, A., TASS Correspondent

"Metal With Assigned Properties"

Kommunist, No 47, 24 Feb 73, p 4.

Translation: Scientists are penetrating ever deeper into the secrets of the structure of metals. Doctor of Technical Sciences, Professor S. M. Baranov has discovered a new phenomenon, yielding the key to important peculiarities of the structure and properties of iron-based alloys. On 20 February, the Committee for Inventions and Discoveries, Council of Ministers USSR, acknowledged that the studies represent a scientific discovery and recorded it in the State Register of the USSR.

During his extensive experiments, S. M. Baranov discovered that alloys based on iron, having no silicon or containing only its monoxide, have valuable properties. They have increased toughness, high fatigue resistance, excellent low-temperature properties, and good weldability. It is interesting that the secret of Damascus steel is that this alloy contains no silicon.

Leading Soviet scientists have evaluated the new discovery highly. On its basis, a method has been developed for production of high quality types of steel without silicon, with properties assigned in advance. It

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USSR

PRESNYAKOV, A., *Kommunist*, No 47, 24 Feb 73, p 4.

is economical and requires no capital investment for the conversion of furnaces. New iron alloys can be reduced in open furnaces, particularly open hearth furnaces.

The new method of production of iron-based alloys is being used in domestic industry. In particular, it has been put in use at the Moscow ZIL Motor Vehicle Plant and the Cherepovets Plant.

In the opinion of many specialists, the new discovery will be widely used in scientific research and metallurgy in the production of alloys with assigned properties.

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1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--EXPLOSION GENERATES ELECTRIC POWER -U-  
AUTHOR--PRESNYAKOV, A.  
COUNTRY OF INFO--USSR *P*  
SOURCE--VECHERNYAYA MOSKVA, AUGUST 22, 1970, P 2, COLS 6-7  
DATE PUBLISHED--22AUG70  
SUBJECT AREAS--PHYSICS, ORDNANCE  
TOPIC TAGS--MHD GENERATOR, HEXOGEN, EXPLOSION, POTASSIUM COMPOUND/(U)U02  
MHD GENERATOR  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3008/1645 STEP NO--UR/9027/70/000/000/0002/0002  
CIRC ACCESSION NO--AN0138621  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AN0138621

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INSTITUTE OF HIGH TEMPERATURE PHYSICS OF THE SOVIET ACADEMY OF SCIENCES, THE DEVELOPER OF THE FIRST SOVIET MAGNETO HYDRODYNAMIC, MHD, GENERATOR, THE "U-02", HAS COME UP WITH A NEW EXPERIMENTAL MHD. THE NEW UNIT CAN GENERATE 1.1,200 KW SURGE IN 35 MICROSECONDS. IT IS BASED ON THE EXPLOSION OF HEXOGENE POTASSIUM MIXTURE.

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PROCESSING DATE--18SEP70

UNCLASSIFIED

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023

TITLE--AN ELECTRICAL SUN DOES THE WORK -U-

AUTHOR--PRESNYAKOV, A.

COUNTRY OF INFO--USSR

SOURCE--PRAVDA, MAY 28, 1970, P 6. COLS 1-6

DATE PUBLISHED-----70

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

TOPIC TAGS--XENON LAMP, LIGHT ENERGY, STEEL WELDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1987/0369

STEP NO--UR/9012/70/000/000/0006/0006

NO--AN0104019 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/2 023

CIRC ACCESSION NO--AN0104019

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ARTICLE DESCRIBES WELDING OF A STEEL SPECIMEN WITH THE CONCENTRATED LIGHT OF A 1 KW XENON TUBE AT THE MOSCOW AVIATION TECHNOLOGICAL INSTITUTE WHERE THE EXPERIMENTAL AND BASIC RESEARCH IN THE FIELD OF OPTICAL WELDING ARE CONDUCTED BY M. I. OPARIN AND V. V. D. YACHENKO UNDER THE DIRECTION OF PROFESSOR G. D. NIKIFOROV.

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UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

1/2 043

TITLE--THE BIRTH OF PLASMA -U-

AUTHOR--PRESNYAKOV, A.

COUNTRY OF INFO--USSR

SOURCE--PRAVDA UKRAINY, JULY 30, 1970, P 4, COL 1

DATE PUBLISHED--30JUL70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HEAT TRANSFER, PLASMA DISCHARGE, HIGH ENERGY PLASMA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1999/0877

STEP NO--UR/9013/70/000/000/0000/0000

CIRC ACCESSION NO--AN0122921

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 043

CIRC ACCESSION NO--ANO122921  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. V. YE. TSAREGOROOTSEV, DEPUTY CHAIRMAN, COMMITTEE FOR INVENTIONS AND DISCOVERIES, HAS REVEALED THAT THE HIGH ENERGY ELECTRONICS, A NEW DIRECTION IN SCIENCE PURSUED BY ACADEMICIAN P. L. KAPITSA, LED TO HIS DISCOVERY OF A HIGH ENERGY PLASMA INSIDE OF A DISCHARGE. IN THIS HE WAS AIDED BY THE DEVELOPMENT OF HIGH FREQUENCY GENERATORS, THE "PLANOTRON" AND "NIGOTRON". ACCORDING TO KAPITSA, S THEORY, THE TEMPERATURE ON THE ORDER OF ONE MILLION DEGREES CENTRIGRADE INSIDE THE DISCHARGE IS NOT TRANSFERRED TO THE GAS THAT SURROUNDS IT BECAUSE THE SO CALLED BINARY ELECTRICAL LAYER IS FORMED AT THE PLASMA INTERFACE WHICH INHIBITS THE HEAT TRANSFER. THE FINDINGS HAVE BEEN VERIFIED BY NUMEROUS EXPERIMENTS STAGED AT THE PHYSICAL LABORATORY OF THE ACADEMY OF SCIENCES, U.S.S.R., HEADED BY KAPITSA.

UNCLASSIFIED

AN0033120

UR9013

AUTHOR-- PRESNYAKOV, A.

TITLE-- THE MYSTERY OF THE PI-MESON HAS BEEN SOLVED

NEWSPAPER-- PRAVDA UKRAINY, MARCH 4, 1970, P 3, COLS 1-2

ABSTRACT-- THE COMMITTEE FOR INVENTIONS AND DISCOVERIES, U.S.S.R., HAS REVIEWED THE WORK DONE AT DUBNA BY PHYSICISTS YU. A. BATUSOV, S. A. BUNYATOV, V. M. SIDOROV, AND V. A. YARBA AND ADJUDGED IT AN IMPORTANT DISCOVERY. THE SCIENTISTS DISCOVERED THAT THE POSITIVE MESON CAN TRANSFORM INTO NEGATIVE AND VICE VERSA.

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USSR

UDC 539.37

PRESNYAKOV, A. A., BEGIMOV, T., MELIKHOV, V. D., and CHERNOUSOVA, K. T.  
(Editors)

Vliyanie predvaritel'noy deformatsii na svoystva metallov i splavov (Effect of Preliminary Deformation on the Properties of Metals and Alloys), Collection of Papers, Alma-Ata, "Nauka" Press, 1971, 135 p., illustrations, graphs, tables, 1500 copies printed.

Translation of Annotation:

The papers in this collection deal with studies on the effect of preliminary plastic deformation on the properties of copper, aluminum, nickel, tin, and alloys including eutectic and eutectoid compositions. The papers offer new data on the specific characteristics of changes in plasticity, strength and structure of the above materials. These characteristics become apparent following plastic deformation-induced activation of phase and structural transformations and consist in the development of rheotropic recovery-type phenomena, superplasticity, and transformation of thermal brittleness zones. The papers reflect data on the influence of stretching rates of specimens and their state on the development of these effects. The results of the studies are of interest for the theory of metal alloys, their treatment techniques, and uses. The collection is intended for scientific personnel of institutes and engineers of metal working plants, graduate students, and metallurgical students.

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USSR

PRESNYAKOV, A. A. (Ed.) et al., Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov, "Nauka" Press, 1971, 135 pp.

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USSR

PRESNYAKOV, A. A. (Ed.) et al. Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov, "Nauka" Press, 1971, 135 pp.

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- PRESNYAKOV, A. A. (Ed.), et al., Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov, "Nauka" Press, 1971, 135 pp.
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USSR

PRESNYAKOV, A. A. (Doctor of Techn. Sciences)

"Superplasticity of Metals and Alloys"

Alma-Ata, Vestnik Akademii nauk Kazakhskoy SSR, Aug 71, no 8, pp 10-13

Abstract: The phenomenon of superplasticity, which was first revealed in the forties, became a topic of extensive research in the years following. It was suggested that a metallic substance goes into a peculiar state termed "quasi-liquid". Subsequent research indicates that the effect of superplasticity may be classed into two effects, one of which, being related to transformations, consists of deformations (minus necking) and stress reduction by about one order of magnitude: it is identified as ordinary superplasticity. The second effect, resulting from very extensive deformations, shows stress reduction by about two orders of magnitude and may reflect some necking. The factor responsible for the occurrence of real superplasticity is the metal's transition to a new state close in nature to a liquid. The physical essence of this effect is reduced to the "locking" of metallic bond forces between the atoms within bounded masses having weak interactions. In other words, in superplasticity, one deals

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USSR

PRESNYAKOV, A. A. (Doctor of Techn. Sciences), Vestnik Akademii nauk  
Kazakhskoy SSR, Aug 71, no 8, pp 10-13

with a division of a single collective of electrons within a solid into several loosely bonded and very mobile (relative to one another) "small collectives". All experimental data combined indicate that plastic deformation, in general, and superplasticity, in particular, are the result of specific transformations in the metal generated by either deformations or temperature variations. This, naturally, makes an earlier theory stipulating plastic deformation as a result of crystal dislocations untenable. It is suggested, however, that the development of plasticity may be determined by the properties of the crystal lattice (not its defects). The Institute of Nuclear Physics of the Kazakh Academy of Sciences will continue these studies to gain new and greater insight into solids and metals and their phenomena.

2/2

- 23 -

UDC 669.017:620.172

USSR

PRESNYAKOV, A. A., SOYMIN, N. YA., and AUBAKIROVA, R. K., Alma-Ata

"True Superplasticity"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan 71, pp 106-108

Abstract: The change in strength characteristics of Al-Zn eutectic alloy, type A-85 technical aluminum, and type S2 technical zinc during the process of extension was studied. Flow curves were constructed in the coordinates "flow stress -- elongation." Cylindrical specimens with a gauge portion diameter of  $5 \times 20$  mm were held for 15 minutes at the experimental temperature, then subjected to tension directly in the furnace. With an elongation of about 110%, the deformation resistance drops to values of less than  $0.025 \text{ kg/mm}^2$ . Further flow of the material occurs at strength levels too low to be measured by the available instruments. Analysis of the experimental material indicates that true superplastic flow is a rather common phenomenon

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USSR

PRESNYAKOV, A. A., et al., Izvestiya Akademii Nauk SSSR,  
Metally, No 1, Jan 71, pp 106-108

during plastic deformation of metals and alloys. It is determined that the appearance and development of true superplastic flow of metals and alloys results from the influence of a significant number of factors, depending on which the phenomenon may occur or may not. The nature of development of true superplastic flow (the moment of its appearance and its duration) is determined by the effects of such factors: as preliminary and present deformation experimental temperature, and other which facilitate its appearance.

2/2

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--MICROHARDNESS OF DEFORMED ALUMINUM OF INDUSTRIAL PURITY -U-  
AUTHOR--(02)-BOK, B.I., PRESNYAKOV, A.A. *P*  
COUNTRY OF INFO--USSR  
SOURCE--ALMA-ATA, VESTNIK AKADEMII NAUK KAZAKHSKOY SSR, MARCH 1970, P 71  
DATE PUBLISHED---MAR70  
  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--ALUMINUM ALLOY, METAL DEFORMATION, COLD HARDENING, ALLOY PHASE  
TRANSFORMATION, MICROHARDNESS  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/1327 STEP NO--UR/0031/70/000/000/0071/0071  
CIRC ACCESSION NO--AP0121820  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 024

CIRC ACCESSION NO--AP0121820  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ARTICLE PRESENTS EXPERIMENTAL DATA ON THE MICROHARDNESS OF ALUMINUM AS A FUNCTION OF THE HARDENING TEMPERATURE AND DEGREE OF ROLLING. ALUMINUM WITH A PURITY OF 99.7PERCENT AND DEGREES OF COLD HARDENING OF 0, 13, 30, 50, 60, 70, AND 80PERCENT WAS USED FOR THE STUDY. HARDENING OF THE SAMPLES STUDIED WAS CARRIED OUT WITH TEMPERATURES OF 600DEGREESC AND BELOW AND IMMERSION IN WATER AT ROOM TEMPERATURE. BASED ON AN ANALYSIS OF THE EXPERIMENTAL DATA, A CONCLUSION IS MADE BY THE AUTHORS THAT A TRANSFORMATION IN THE ALUMINUM OCCURS AT ABOUT 400DEGREESC WHICH SETS THE HARDENING.

UNCLASSIFIED

1/2 028  
 TITLE—EFFECT OF METASTABILITY ON THE PROPERTIES OF PLASTICALLY DEFORMED ALUMINUM —U—  
 AUTHOR—(03)—DZHANBUSINOV, YE.A., BOK, B.I., PRESNIAKOV, A.A.  
 COUNTRY OF INFO—USSR  
 SOURCE—AKADEMIYA NAUK KAZAKHSKOI SSR, IZVESTIYA, SERIYA FIZIKO-MATEMATICHESKAIA, VOL. 8, MAR.—APR. 1970, P. 77-80.  
 DATE PUBLISHED—70

PROCESSING DATE—20NOV70

SUBJECT AREAS—MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
 TOPIC TAGS—PLASTIC DEFORMATION, SUPER PLASTICITY, PLASTIC FLOW, HIGH PURITY METAL, ALUMINUM ALLOY, MECHANICAL PROPERTY

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED  
 PROXY REEL/FRAME—2000/0347

STEP NO—UR/0361/70/008/000/0077/0080

CIRC ACCESSION NO—AP0124104

UNCLASSIFIED

P

PROCESSING DATE--20NOV70

UNCLASSIFIED

212 028

CIRC ACCESSION NO--AP0124104  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. EXPERIMENTAL DEMONSTRATION OF THE PHENOMENON OF SUPERPLASTICITY IN PURE ALUMINUM SUBJECTED TO PRIOR PLASTIC DEFORMATION. IT IS SHOWN THAT THE BRINGING OF ALUMINUM INTO A METASTABLE STATE BY MEANS OF PLASTIC DEFORMATION LEADS TO THE OCCURRENCE OF CERTAIN PHYSICOCHEMICAL PROCESSES WHICH MANIFEST THEMSELVES IN A SUPERPLASTIC FLOW OF THE METAL.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11SEP70

1/2 - 011

TITLE--EXPERIMENTAL DETERMINATION OF THE EXTENT OF LONG RANGE ORDERING IN ALLOYS OF THE COPPER PLATINUM SYSTEM -U-

AUTHOR--KARPENYUK, A.N., PRESNYAKOV, A.A., OZHANBUSINDV, YE.A., MELIKHOV, V.D.

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(1), 140-2

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COPPER ALLOY, PLATINUM ALLOY, ALLOY PHASE COMPOSITION, ORDERED ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1989/1278

STEP NO--UR/0185/70/015/001/0149/0142

CIRC ACCESSION NO--AP0107154

UNCLASSIFIED

2/2 - 011

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107754

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONCN. CHANGES WERE DETD. AS A FUNCTION OF RELATIVE INTEGRAL INTENSITY OF HIGH RESOLN. (321) AND (410) LINES AND AS A FUNCTION OF THE EXTENT OF LONG RANGE ORDER IN A CU,PT ALLOY (ANNEALED FOR 1732 AND 2164 HR). THE EXTENT OF LONG RANGE ORDER CHANGED MARKEDLY AT 12.5-20 ATOM PERCENT PT, APPARENTLY, DUE TO FORMATION OF ORDERED CU SUB7 PT AND CU SUB4 PT PHASES.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--EFFECT OF PRELIMINARY DEFORMATION ON THE PLASTICITY OF ALUMINUM -U-

AUTHOR--(03)-BOK, B.I., DZHANBUSINOV, YE.A., PRESNYAKOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--VESTN. AKAD. NAUK KAZ. SSR 1970, 26(2), 53-7

DATE PUBLISHED-----70

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

TOPIC TAGS--PLASTICITY, ALUMINUM ALLOY, PLASTIC DEFORMATION, METAL DEFORMATION, WORK HARDENING, MECHANICAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1989/1744

STEP NO--UR/0031/70/026/002/0053/0057

CIRC ACCESSION NO--AP0108111

UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108111

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCE WAS STUDIED OF THE PLASTICITY OF AL (99.7PERCENT), WHICH WAS DEFORMED PREVIOUSLY BY VARIOUS DEGREES OF WORK HARDENING BY COLD ROLLING. THE AL SPECIMENS WERE COLD ROLLED WITH DEFORMATIONS 0-80PERCENT (FINAL TEMP. AT THE END OF ROLLING LESS THAN 100DEGREES). SPECIMENS WERE THEN CUT INTO PIECES (WITH AVOIDANCE OF ADDNL. WORK HARDENING). THESE SPECIMENS WERE SUBJECTED TO TENSION WITH THE FOLLOWING ELONGATION RATES: 2,4,10,20,50,100, 500, AND 1000 MM-MIN. THE PLASTICITY WAS DETD. AT 20-600DEGREES AT INTERVALS OF 25DEGREES. INITIAL PLASTIC DEFORMATION HAD A LARGE EFFECT ON THE MECH. PROPERTIES. AT 20-250DEGREES THE PLASTICITY OF PRELIMINARILY DEFORMED AL DECREASED SIGNIFICANTLY, WHILE AT 350-600DEGREES THE PLASTICITY INCREASED. IN THE LOW PLASTICITY ZONE, PLASTICITY MAX. OCCURRED AT 100, 200, AND 300DEGREES. RHEOTROPIC RECOVERY WAS ACCOMPANIED BY AN ABNORMALLY HIGH PLASTICITY AT SIMILAR TO 575DEGREES. THE SUPERPLASTICITY (ACCOMPANIED BY RECRYSTN. WITH STABILIZATION) OCCURRED NOT ONLY WITH ALLOYS BUT ALSO WITH PURE METALS (AL) AND IS THE RESULT OF DEFORMATION AND STABILIZATION.

UNCLASSIFIED

1/3 024

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--SOLUBILITY OF CERIUM IN COPPER AND ITS EFFECT ON THE PROPERTIES OF BRASSES -U-  
AUTHOR--DUISEMALIYEV, U.K., PRESNYAKOV, A.A., SAPAROV, K.S., KOZHAMBERDIN, N.A.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL, 1970, (2), 36-8, 43

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CERIUM CONTAINING ALLOY, COPPER ALLOY, BRASS, ALLOY DESIGNATION, FERROCERIUM, METAL MELTING, PLASTICITY, TENSILE STRENGTH, ELECTRIC RESISTANCE/(U)LS642 BRASS, (U)LS591 BRASS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1938/1342

STEP NO--UP/0129/70/000/002/0036/0043

CIRC ACCESSION NO--AP0106019

UNCLASSIFIED

2/3 024

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106019

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CU ALLOYS CONTG. CE 0.03-0.5PERCENT WERE MELTED 3 TIMES IN AR, THE SPECIMENS OBTAINED WERE SEALED IN EVACUATED QUARTZ AMPULS AND ANNEALED AT 800DEGREES WITH SUBSEQUENT COOLING BY 100DEGREES EVERY 24 HR AND COOLED WITH A FURNACE FROM 400DEGREES. MOREOVER, THE ANNEALED ALLOYS CONTG. CE 0.05PERCENT WERE HELD IN AMPULS AT 300, 500, AND 800DEGREES FOR 3 HR AND QUENCHED FROM THESE TEMPS. IN WATER. THE LS 64-2 AND LS 59-1 BRASSES (CU 63.7 AND 58.6; PB 1.75 AND 1.05PERCENT, RESP.) CONTG. FERROCERMIUM 0.05-0.5PERCENT WERE INDUCTION MELTED UNDER A CHARCOAL LAYER, HELD IN THE MOLTEN STATE FOR 10 MIN, AND CAST INTO CU WATER COOLED MOLDS. CE IS SMALLER THAN OR EQUAL TO 0.1PERCENT CAUSES THE REFINEMENT OF CU STRUCTURE AND FORMS CU-CE SOLID SOLN. FURTHER INCREASE OF ITS CONCN. LEADS TO THE RPTN. OF THE 2ND CECU SUB6 PHASE IN FORM OF POINT INCLUSIONS. THIS INDICATES THAT THE MAX. SOLY. OF CE IN CU AT ROOM TEMP. IS 0.05PERCENT. THE METALLOGRAPHIC EXAMN. OF THE SPECIMENS QUENCHED FROM 300-800DEGREES SHOWED THE MAX. SOLY. OF 0.15PERCENT AT 800DEGREES. CE IMPROVES THE MECH. PROPERTIES OF CU BUT WHILE ITS ADDNS. UP TO 0.5PERCENT INCREASE THE TENSILE STRENGTH 22.5-5.3 KG-CM PRIME<sup>2</sup>, THE PLASTICITY (ELONGATION DELTA AND REDN. IN AREA PSI) INCREASES ONLY UP TO CE 0.1PERCENT (UP TO DELTA EQUALS 68, PSI EQUALS 82.5PERCENT) AND THEN RAPIDLY FALLS TO IS SIMILIAR TO 30PERCENT (PSI AND DELTA), AT 0.5PERCENT CE. THE ELEC. RESISTANCE OF ALLOYS INCREASES FROM IS SIMILIAR TO 1.75 TIMES 10 PRIME NEGATIVE<sup>6</sup> TO IS SIMILIAR TO 2.25 TIMES 10 PRIME NEGATIVE<sup>6</sup> OMEGA CM AT 0.5PERCENT CE. NO EFFECT OF FERROCERMIUM ON THE BRASS STRUCTURE WAS NOTICED.

UNCLASSIFIED

3/3 024

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106019

ABSTRACT/EXTRACT--ITS ADDNS. MARKEDLY DECREASE PSI OF THE LS 64-2 BRASS AT 20-250DEGREES (FROM SIMILIAR TO 45 TO SIMILIAR TO 37PERCENT FOR 0 AND 0.5PERCENT FERROCERIUM AT 20DEGREES), BUT BEGINNING AT 250DEGREES THE PSI VS. TEMP. CURVES FOR ALL ALLOYS ALMOST COINCIDE EXCEPT OF THAT FOR THE 0.05PERCENT FERROCERIUM ALLOY THAT AT 400, 500, 600, AND 800DEGREES SHOWS PSI EQUALS 20, 8, 45, AND 32PERCENT, RESP., COMPARED TO SIMILIAR TO 5, 0-5, 0-5 AND 5-10PERCENT FOR OTHER ALLOYS. THE RESULTS OBTAINED FOR THE LS 59-1 BRASS SHOWED THAT MOST EFFECTIVE ARE THE FERROCERIUM ADDNS. TOGETHER WITH THOSE OF NI, SI, AND MN. THIS ALLOY CONTG. FERROCERIUM 0.15, NI 0.35, SI 0.11, AND MN 0.18PERCENT SHOWED TWO PLASTICITY MAX. OF 700 AND 850DEGREES (DELTA EQUALS 190 AND 170PERCENT, RESP., AND PSI EQUALS 100PERCENT). NEVERTHELESS, ITS PLASTICITY AT 20-500DEGREES, SIMILAR TO THAT OF THE LS 59-1 BRASS WITHOUT ADDNS., IS RATHER LOW (PSI 20-40PERCENT) AND SHOWED MIN. (20PERCENT) AT 100 AND 300DEGREES.

UNCLASSIFIED

USSR

FRESNYAKOV, A. P

"Polywater -- Major Scientific Discovery"

Tashkent, Pravda Vostoka, 27 May 70, p 4

Translation: The architects of new molecules have created an original "structure" -- and obtained "polywater." This substance differs from ordinary water even though it is obtained by the condensation of water vapor in quartz capillary tubes. The Committee on Matters of Inventions and Discoveries in the Council of Ministers USSR has examined this work of Corresponding Member of the Academy of Sciences USSR B. V. DERYAGIN and Candidate of Physicomathematical Sciences N. N. FEDYAKIN and has registered it as a major scientific discovery.

We asked Deputy Chairman of the Committee on Matters of Inventions and Discoveries V. YE. TSAREGORODTSEV to comment on this important research of Soviet scientists.

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USSR

PRESNYAKOV, A., Pravda Vostoka, 27 May 70, p 4

"Despite its seeming simplicity the water surrounding us conceals many still unknown 'secrets,'" he said. "This is indicated by the fact of obtaining 'polywater,' for example. Research on it has been under way for a long time at the Institute of Physical Chemistry of the Academy of Sciences USSR.

"What are its distinctive aspects? Its density reaches 1.4, while its refractive index is 1.49 (that of normal water is 1.33).

"In its consistency this water is reminiscent of petroleum jelly. It has very low volatility and does not freeze at even very low temperatures. For example, due to its increase in viscosity it passes into a glass-like state only at  $-50^{\circ}$  C. Investigators have long studied the decomposition of the state of this 'super-dense water' by heating it to  $300^{\circ}$  C. During the experiments the vapor con-

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- 118 -

USSR

PRESNYAKOV, A., Pravda Vostoka, 27 May 70, p 4

densed, and the resultant liquid had the same properties as 'poly-water' prior to distillation. It has been established that the structure of this water decomposes only on heating to 700-800°, and it is transformed into ordinary water. This experiment confirms that there aren't any impurities participating in the production of 'poly-water.'

"What is the nature of the origin of 'super-dense water?' Scientists have not yet given a definitive answer to this question. However, it is thought that it is formed by the polymerization of ordinary water during the condensation of its vapor. The actual mechanism of this polymerization, in the opinion of foreign scientists, is unique and is based on the appearance of especially stable varieties of hydrogen bond between two oxygen atoms.

"The Soviet scientists' discovery has had wide repercussions

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USSR

PRESNYAKOV, A., Pravda Vostoka, 27 May 70, p 4

in various countries and especially in the U.S., England and Belgium. At present, 'polywater' is being investigated in at least 10 U.S. scientific centers. Theoreticians and specialists in quantum chemistry have been drawn into the work and have confirmed many findings of the Soviet investigators.

"As acknowledged by many world scientists, the Soviet investigators' discovery of a new state of water is of general scientific interest and will be studied thoroughly. In December 1969 research results were reported at a scientific meeting in Florence. The program of a symposium, which will be held in the U.S. in June 1970, includes more than 10 reports by Soviet and foreign scientists on 'polywater' investigations.

"For the time being," said V. YE. TSAREGORODTSEV in conclu-

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USSR

PRESNYAKOV, A., Pravda Vostoka, 27 May 70, p 4

sion, "'super-dense water' is obtained in minute quantities, and it is still early to speak of practical applications. However, reports have appeared in the foreign press on the possibility of its use for neutron shielding. It can be assumed that biologists will also engage in future research on this water."

5/5

USSR

BOK, B. I., PRESNYAKOV, A. A.

"Microhardness of Deformed Aluminum of Industrial Purity"

Alma-Ata, Vestnik Akademii Nauk Kazakhskoy SSR, March 1970, p 71.

Abstract: The article presents experimental data on the microhardness of aluminum as a function of the hardening temperature and degree of rolling. Aluminum with a purity of 99.7% and degrees of cold hardening of 0, 13, 30, 50, 60, 70, and 80% was used for the study. Hardening of the samples studied was carried out with temperatures of 600°C and below and immersion in water at room temperature.

Based on an analysis of the experimental data, a conclusion is made by the authors that a transformation in the aluminum occurs at about 400°C which sets the hardening.

1/1

USSR

UDC 621.385

YELISEYEV, V.I., and PRESNYAKOV, I.N.

"Control Device for TBPM 16/1200 Using Semiconductor Devices"

Vestn. Khar'kov. politekhn. in-ta (Herald of Khar'kov Polytechnic Institute), 1971, No 54, pp 82-85 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 72, Abstract No 1A446 by B. U.)

Translation: Signals generated in the TBPM 16/1200 synchro generator go to a control pulse shaping unit, in which pulses are shaped according to amplitude, shape, and duration and then go to a decoder. On the other hand, a potential level shaping unit sends to the decoder voltages fixed in value corresponding to the state of the dynamic flip-flops in the counter decade. The decoder generates a pulse coinciding in time with a certain digit on the TBPM 16/1200 digital drum, located opposite the printing hammer. This pulse triggers the current pulse shaping circuit in the printing unit. The current pulse, going to a certain electromagnet of the hammer, causes its actuation. A pulse is formed to run the paper at the moment when there is no printing. This pulse goes to the paper transport unit, where a current pulse is formed, causing actuation of the TBPM 16/1200 step mechanism. 3 illustrations. Bibliography with 3 titles.

1/1

USSR

UDC 621.317.42

KISELEV, V. A., PRESNYAKOV, P. D.

"Device for Measuring and Automatic Recording of the Induction Distribution and Controlling the Thermal Stability of Magnetic Systems in a Broad Temperature Range"

Elektron. tekhnika. Nauchno-tekhn. sb. Kontrol'no-izmerit. apparatura (Electronic Engineering. Scientific and Technical Collection. Measuring and Control Equipment), 1970, vyp. 3 (21), pp 94-106 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A267)

Translation: A description and calculation of the errors of an experimental magnetometric device for measuring and automatically recording the distribution and variation of the induction in the working gap of magnetic systems in the temperature range from -70 to +200° C are presented. The device is based on a two-coordinate potentiometer with an accuracy of 1%. The possibility of compensation of the signal of the basic magnitude of the induction of the measured field and recording insignificant variations of it with variation of the temperature in a small measurement limit on a magnified scale insure a

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USSR

KISELEV, V. A., PRESNYAKOV, P. D., Elektron. tekhnika. Nauchno-tekhn. sb. Kontrol'no-ismerit. apparatura, 1970, vyp. 3(21), pp 94-106

reduction in errors in the relative measurements of the magnetic inductance to hundredths of a percent. The device permits the thermal stability of the magnetic system with a temperature coefficient of  $0.2-0.002\%/^{\circ}\text{C}$  to be controlled.

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USSR

KISELEV, V. A., PRESNYAKOV, P. D., Elektron. tekhnika. Nauchno-tekhn. sb. Kontrol'no-izmerit. apparatura, 1970, vyp. 3(21), pp 94-106.

reduction in errors in the relative measurements of the magnetic inductance to hundredths of a percent. The device permits the thermal stability of the magnetic system with a temperature coefficient of  $0.2-0.002\%/^{\circ}\text{C}$  to be controlled.

2/2



USSR

UDC 620.178.16:669.973

PRESNYAKOVA, G. N., LYUBARSKIY, I. M., UDOVENKO, V. F., MAR'YAK-HINA, YE. I., CHERNYAK, S. S., Physico Technical Institute of Low Temperatures, Academy of Sciences Ukrainian SSR

"Friction and Wear at Low Temperatures"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 3, 1971, pp 9-12

Abstract: The friction and wear of G13L steel with respect to 40Kh steel were investigated in a high vacuum ( $5 \cdot 10^{-7}$  mm Hg) and in air at room temperature and at  $-190^{\circ}\text{C}$ . Low-temperature vacuum manipulators made it possible to cool the samples to cryogenic temperatures, create normal loading, and transmit data to a measuring system outside the chamber. It was found that in the presence of friction in air and in a vacuum, low temperatures had no effect on wear for the indenters (steel G13L). For a ring (steel 40Kh), lowering the temperature in the atmosphere does not change the wear, but lowering the temperature with friction in a vacuum increases the wear sharply. The friction coefficient increases on lowering the test temperature in a vacuum; when testing in air, it is less than in a vacuum and is  $1/2$

USSR

PRESNYAKOVA, G. N., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 3, 1971, pp 9-12

independent of the temperature. The surface layer was strained in the presence of friction more intensely in a vacuum than in air.

2/2

- 46 -

USSR

UDC 620.178.16:669.973

PRESNYAKOVA, G. N., LYUBARSKIY, I. M., UDOVENKO, V. F., MAR'YAK-HINA, YE. I., CHERNYAK, S. S., Physico Technical Institute of Low Temperatures, Academy of Sciences Ukrainian SSR

"Friction and Wear at Low Temperatures"

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Abstract: The friction and wear of G13L steel with respect to 40Kh steel were investigated in a high vacuum ( $5 \cdot 10^{-7}$  mm Hg) and in air at room temperature and at  $-190^{\circ}\text{C}$ . Low-temperature vacuum manipulators made it possible to cool the samples to cryogenic temperatures, create normal loading, and transmit data to a measuring system outside the chamber. It was found that in the presence of friction in air and in a vacuum, low temperatures had no effect on wear for the indenters (steel G13L). For a ring (steel 40Kh), lowering the temperature in the atmosphere does not change the wear, but lowering the temperature with friction in a vacuum increases the wear sharply. The friction coefficient increases on lowering the test temperature in a vacuum; when testing in air, it is less than in a vacuum and is 1/2

USSR

PRESNYAKOVA, G. N., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 3, 1971, pp 9-12

independent of the temperature. The surface layer was strained in the presence of friction more intensely in a vacuum than in air.

2/2

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USSR

UDC 632.95

YUKHTIN, N. N., MOLCHANOV, A. V., KELEKHSAYEVA, YE. A., BAZANOVA, S. S.,  
LEBEDEVA, L. I., GRISHINA, YE. A., and PREGNYAKOVA, S. N.

"Propanid -- A Highly Effective Herbicide for Weed Control in Rice Paddies"

V sb, Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 156-163 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N514 by. O. A. Korotkova)

Translation: As a result of a study of propanid yield dependence on the solvent, reactant molar ratios and crystallization conditions, it is suggested that propanid be obtained by acylation of 3,4-Cl<sub>2</sub>C<sub>6</sub>H<sub>3</sub>NH<sub>2</sub> Ercos H [sic] in a petroleum solvent medium at a 3,4-Cl<sub>2</sub>C<sub>6</sub>H<sub>3</sub>NH<sub>2</sub> and solvent ratio of 1:0.5.

The reaction is conducted for 12-15 hours with stirring and at 140-160°, distilling the aqueous azeotrope at 90-95° at the beginning of the process, and 135° at the end. The unreacted starting materials are recycled. The resultant propanid has a purity of 98.5-99.5 percent, melting point 89-91°, yield 83-98 percent.

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USSR

UDC 547.551.4 + 541.49

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GARNOVSKIY, A. D. KOLODYAZHNIY, YU. V., ALIYEVA, S. A., ~~KROKHINA,~~  
N. F., GRANDBERG, I. I., OSIPOV, O. A., and PRESNYAKOVA, T. M.,  
Rostov-on-Don State University and All-Union Agricultural Academy  
imeni K. A. Timiryazev

"Complex Compounds of Metals With Nitrogen-Containing Ligands. XIX.  
Complexes of Tin Tetrachloride With 1-Pyridylpyrazoles and Their  
5-Hydroxy(amino) Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 1114-  
1120

Abstract: Continuing their study of complexing in systems with  
several donor centers, the authors studied the interaction of tin  
tetrachloride with 1-( $\alpha$ ,  $\beta$  or  $\gamma$ -pyridyl)pyrazoles and their  
5-hydroxy and amino derivatives. The dipole moments of the resul-  
tant complexes were determined and their IR spectra studied for  
purposes of solving the question of the configuration and tautomer-  
ism of the ligands. A comparative study was made of the IR spectra  
of ligand and complex molecules in order to establish the localiza-  
tion site of the coordination bond.  
1/1

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--ASYMPTOTIC SOLUTION TO THE TWO DIMENSIONAL PROBLEM OF THE  
DIFFRACTION OF ELECTROMAGNETIC WAVES ON AN IDEALLY CONDUCTING PLANE WITH  
AUTHOR--(02)-PIMENOV, YU.V., PRESS, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL TEKHNIKESKOI FIZIKI, VOL. 40, MAY 1970, P. 889-894

DATE PUBLISHED----MAY70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ASYMPTOTIC SOLUTION, ELECTROMAGNETIC WAVE DIFFRACTION,  
RECTANGULAR WAVEGUIDE, VECTOR ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605007/D10 STEP NO--UR/0057/70/040/000/0889/0894

CIRC ACCESSION NO--AP0139889

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139889

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. APPLICATION OF A 'SHADOW CURRENT' METHOD PROPOSED BY GRINBERG (1957) TO THE DERIVATION OF CONVENIENT ASYMPTOTIC FORMULAS FOR CALCULATING THE FAR DIFFRACTION FIELD OF AN ELECTROMAGNETIC WAVE INCIDENT ON AN IDEALLY CONDUCTING PLANE WITH AN INFINITE RECTILINEAR SLOT. THE FORMULAS ASSUME THAT THE VECTOR OF THE WAVE FIELD IS PARALLEL TO THE EDGE OF THE SLIT. THEY ARE VALID FOR ANY ARBITRARY ANGLES OF INCIDENCE AND OBSERVATION. GOOD AGREEMENT IS OBTAINED BETWEEN THE RESULTS OF THIS METHOD AND EXACT RESULTS.  
FACILITY: MOSKOVSKII ELEKTROTEKHNICHESKII INSTITUT SVIAZI, MOSCOW, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--EMISSION FROM AN INFINITE LINEAR SLOT MADE IN AN IDEALLY CONDUCTING  
STRIP -U-  
AUTHOR--(02)-PINENOV, YU.V., PRESS, A.A. *P*  
COUNTRY OF INFO--USSR  
SOURCE--RADIOTEKHNIKA, VOL. 25, APR, 1970, P. 57-61  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ASYMPTOTIC SOLUTION, ANTENNA RADIATION PATTERN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3007/1023 STEP NO--UR/0108/70/025/000/0057/0061  
CIRC ACCESSION NO--AP0136450

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136450

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF AN ASYMPTOTIC SOLUTION TO THE PROBLEM OF THE EXCITATION OF AN IDEALLY CONDUCTING INFINITE STRIP BY A LINEAR SLOT PARALLEL TO THE EDGES OF STRIP. THE SOLUTION IS OBTAINED FOR THE CASE WHERE  $KA$  ( $K$  IS THE WAVE NUMBER AND  $A$  THE STRIP HALF WIDTH) IS MUCH LARGER THAN UNITY (IN WHICH THE CONVENTIONAL FOURIER METHOD IS NO LONGER VALID). THE FORMULAS OBTAINED ARE USED TO CALCULATE THE RADIATION PATTERN OF A STRIP WITH A CENTRAL SLOT FOR  $KA$  EQUALS  $\pi$ .

UNCLASSIFIED

USSR

UDC: 621.382.323

GALSTYAN, V. G., NOSIKOV, S. V., PRESS, F. P., PASTUSHKOV, V. V.

"Use of a Scanning Electron Microscope to Study Defects in Dielectric Films and Semiconductor Structures"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1911-1919

Abstract: A scanning electron microscope was used to study defects in films of silicon dioxide, processes of dopant penetration through defects during diffusion, and the influence of localized diffusion regions on the properties of MOS structures. A procedure is developed for studying semiconductor objects on the scanning electron microscope and interpreting the observed patterns in accordance with the nature of the contrast.

1/1

USSR

UDC: 621.396.6.002

PRESS, F. P.

"An Organic Developer for Positive Photoresists Based on Naphthaquinone Diazides"

Elektron. tekhnika. Nauchno-tekhn. sb. Poluprovodn. pribory (Electronic Technology. Scientific and Technical Collection. Semiconductor Devices), 1970, vyp. 1 (51), pp 175-181 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract 12V468)

Translation: The paper describes a developer for positive photoresists which contains no ions of alkali metals. The organic developer was used for making an experimental batch of planar transistors. Verification over a period of half a year showed that the process is sufficiently reproducible. Bibliography of four titles. Ye. M.

1/1

USSR

UDC: none

PRESS, R., Candidate of Technical Sciences, BOKUT', V., Engineer

"An Inductive Pressure Gauge"

Moscow, Radio, No 5, May 71, p 32

Abstract: The article describes a device developed at the Institute of Technical Cybernetics, Academy of Sciences of the Belorussian SSR for measuring small air pressures of constant value or changing at a high frequency. Pressure on an elastic pickup diaphragm changes the inductance of differential windings. In addition to this pickup element, the device consists of a measurement bridge, oscillator, amplifier, demodulator and output gauge. The inductive pickup used in the device is cylindrical with a variable gap. The pickup is connected in one arm of the measurement bridge in such a way that when pressure acts on the diaphragm the bridge becomes unbalanced, and the resultant signal is amplified and sent to the demodulator. The demodulated signal can be made visible by using any low-voltage oscilloscope with a sensitivity of at least 100 mV/cm. The output microammeter gives the absolute value of constant pressure. The device uses a battery power supply with current drain of no more than 10 mA.

1/1

USSR

UDC: 551.511

PRESSMAN, A. Ya.

"A Model for Calculating Fallout of a Heavy Nonhomogeneous Impurity From a Volumetric Source Under the Effect of a Wind Which Varies With Altitude"

V sb. Atomn. vzryvy v mirn. tselyakh (Atomic Explosions for Peaceful Purposes--collection of works), Moscow, Atomizdat, 1970, pp 98-102 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4B887)

Translation: For a heavy impurity, the equation of turbulent scattering is written in the form

$$\frac{\partial c}{\partial t} + u_x(t) \frac{\partial c}{\partial x} + u_y(t) \frac{\partial c}{\partial y} - w \frac{\partial c}{\partial z} = K \left( \frac{\partial^2 c}{\partial x^2} + \frac{\partial^2 c}{\partial y^2} \right)$$

where  $c$  is the volumetric concentration of particles of a given weight fraction,  $K$  is the coefficient of horizontal turbulent diffusion;  $u_x(z)$ ,  $u_y(z)$  are the horizontal components of wind velocity given as functions of altitude in the range  $0 \leq z \leq h$ ;  $w$  is the rate of fall of particles of the given fraction. It is assumed that  $c|_{z=0} = \delta(x) \delta(y) \delta(z-h)$ . The concentration of an individual weight fraction falling out onto the surface  $z = 0$

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PRESSMAN, A. Ya., Atomn. vzryvy v mirn. tselyakh, Moscow, Atomizdat, 1970, pp 98-102.

is found in the form-

$$P_1(x, y; h, \omega) = \int_0^\infty \text{acc}'_{x=0}(x, y, t; h, \omega) dt =$$

$$= \frac{1}{2\pi\sigma} \exp \left\{ -\frac{[x - U_x h / \omega]^2 + [y - U_y h / \omega]^2}{2\sigma^2} \right\}$$

$$\sigma^2(t) = 2 \int_0^t K(\tau) d\tau \text{ — дисперсия}$$

$$U_x(h) = \frac{1}{h} \int_0^h u_x(z) dz; \quad U_y(h) = \frac{1}{h} \int_0^h u_y(z) dz$$

or

$$P_1(x, y, h) = \int_0^\infty N(h, \omega) P_1(x, y, \omega) d\omega$$

$$N(h, \omega) = \frac{\omega^{n+1}}{\Gamma(n+1)} e^{-a\omega} \quad a(h) > 0; \quad n(h) > -1$$

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PRESSMAN, A. Ya., Atomm. vzryvy v mirn. tselyakh, Moscow, Atomizdat, 1970, pp 98-102

$N(h,w)$  is the function of distribution of particles by sizes. A formula is presented for calculating the density of fallout of an impurity from an instantaneous volumetric source onto an underlying surface where the initial density is  $M(h)$  characterizing the distribution of the impurity with respect to the altitude of the source in the layer  $0 \leq h \leq H$ . Two examples are given of calculation of the surface concentration ( $z = 0$ ) with uniform distribution of matter in the source at the initial instant of time for the case where the wind changes considerably with height, and where the wind does not change at all with height. The results of the calculation are presented in illustrations. O. S. Berlyand.

UNCLASSIFIED

PROCESSING DATE--23OCT70

1/3 027

TITLE--RELATIONSHIP BETWEEN SUMMATION REACTION AND CONDITIONED REFLEX -U-

AUTHOR--(02)-PRESSMAN, YA.M., TVERITSKAYA, I.N.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL VYSSHEY NERVNOY DEYATEL'NOSTI, 1970, VOL 20, NR 3, PP 569-577

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--CONDITIONED REFLEX, ELECTRIC DISCHARGE, NEUROPHYSIOLOGY, EYE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1906

STEP NO--UR/0247/70/020/003/0569/0577

CIRC ACCESSION NO--AP0120564

UNCLASSIFIED

2/3 027

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120564

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COMPARISON WAS MADE ON FOUR DOGS OF THE CHARACTERISTICS OF SUMMATION REACTIONS AND OF THOSE PROCEEDING ALONG TEMPORARY FORWARD AND BACKWARD CONNECTIONS. THE FOLLOWING CHARACTERISTIC WERE ESTIMATED: FREQUENCY OF EMERGENCE OF EACH TYPE OF RESPONSES IN THE COURSE OF REPEATED APPLICATION OF STIMULI, STATISTICAL SUCCESSION OF APPEARANCE OF POSITIVE AND NEGATIVE EFFECTS OF THE REACTIONS, AND THEIR LATENCIES DURATION. THE STIMULI WITH PRONOUNCED PROPER EFFECTS (AIRPURR INTO THE EYE AND ELECTRIC CUTANEOUS STIMULATION) WERE APPLIED IN DIFFERENT TEMPORAL COMBINATIONS. SIMILARITY HAS BEEN ESTABLISHED OF A NUMBER OF PROPERTIES OF SUMMATION REACTION, OF REACTIONS ACHIEVED ALONG A BACKWARD CONNECTION AND OF REACTIONS PROCEEDING ALONG A DIRECT CONDITIONED CONNECTION AT EARLY STAGES OF ITS FORMATION. IN AGREEMENT WITH PREVIOUS RESEARCHES, THE AUTHORS CONSIDER THE CONNECTION OF THE SUMMATION TYPE AS THE MOST GENERAL TYPE OF TEMPORARY CONNECTION; IT IS CHARACTERIZED BY A COMPARATIVELY LOW PROBABILITY OF EMERGENCE AND A TWO WAY, OR CIRCULAR MOVEMENT OF EXCITATION BETWEEN THE NERVOUS STRUCTURES, INVOLVED IN REALIZATION OF THE REACTIONS. AT THE INITIAL PERIOD OF CONDITIONING IT IS THE SUMMATION MECHANISM THAT ACTS. AS THE PAIRINGS CONTINUE, ANOTHER MECHANISM BEGINS TO ACT, PROVIDING FOR DIRECT CONDITIONED CONNECTION OF THE SIGNAL TYPE; THE CONNECTION IS CHARACTERIZED BY ONE WAY CONDUCTION FROM THE NERVOUS STRUCTURES OF THE SIGNAL STIMULUS TOWARDS THOSE OF THE REINFORCING STIMULUS. DIRECT CONDITIONED CONNECTION IS CHARACTERIZED BY A HIGH PROBABILITY OF EMERGENCE OF POSITIVE EFFECTS APPEARING IN THE FORM OF LONG SERIES.

UNCLASSIFIED

3/3 027

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120564

ABSTRACT/EXTRACT--THE BACKWARD CONNECTION IS A CONNECTION OF THE SUMMATION TYPE AND IS PRESERVED TO A CERTAIN DEGREE THROUGHOUT THE EXISTENCE OF THE CONDITIONED REACTION...

FACILITY: INSTITUTE OF HIGHER NERVOUS

ACTIVITY AND NEUROPHYSIOLOGY, USSR ACADEMY OF SCIENCES, MOSCOW.

UNCLASSIFIED

UDC: 621.374.5(088.8)

USSR

PRESTIN, V. M.

"A Pulse Shaper"

USSR Author's Certificate No 264443, filed 22 Jul 65, published 4 May 70  
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11G230 P)

Translation: This Author's Certificate introduces a pulse shaper which contains a shaping transistor with tunnel diode and feedback transistor connected to the base and emitter. To extend the frequency range of the input signals, a flip-flop based on a tunnel diode and the anode of a semiconductor diode are connected to the base of the feedback transistor, and the cathode of a second semiconductor diode is connected to the collector of this same transistor. The cathode and anode of both semiconductor diodes are tied together and connected to the input signal source.

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USSR

UDC 621.374.33(088.8)

*P*  
PRESTIN, V. M.

"Tunnel Diode Switching Circuit"

USSR Author's Certificate No 248768, Filed 12 Sep 66, Published 13 Jan 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9G279P)

Translation: This author's certificate introduces a tunnel diode switching circuit containing two series included tunnel diodes, an inductance connected by one terminal to a common point of the tunnel diode and two power supplies. In order to increase the speed and improve reliability, a nonlinear current bias source consisting of two semiconductor diodes is connected between the second terminal of the inductance and the common point of the power supplies. The anodes of the two semiconductor diodes are joined to each other, and they are connected via a resistor to the positive voltage source, and the cathode of one of the semiconductor diodes is connected via a resistor to the negative voltage source.

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USSR

UDC 536.2:669.24'25

RAD'KOV, A. I., KALMYKOV, A. N., and PRET'YAKOVA, S. M., Central Scientific Research Institute of Ferrous Metallurgy

"Thermal Conductivity of the 29NK Alloy at 80-293°K"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1970, pp 38-44

Abstract: Alloys corresponding to 29NK in chemical composition or differing from it in lower contents of nickel and cobalt were used to study the thermal conductivity and the effect of martensite conversion on thermal conductivity, and to determine compositions in which the  $\gamma \rightarrow \alpha$  conversion does not occur down to liquid nitrogen temperatures. The thermal conductivity of the austenitic component of 29NK alloy was found to be 70-80% lower than that of the martensitic component. The thermal conductivity of alloys in which the  $\gamma \rightarrow \alpha$  conversion occurs depends on the quantity of  $\alpha$  phase and is intermediate between the  $\gamma$  and  $\alpha$  phases. The conversion is observed not only in alloys in which the composition differs from that of 29NK in lower content of nickel and cobalt, but also in alloys with chemical compositions corresponding to 29NK. As the content of nickel is

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USSR

RAD'KOV, A. I., et al, Metallovedeniye i Termicheskaya Obrabotka Metallov,  
No 10, 1970, pp 38-44

increased, the temperature of martensitic conversion drops, while the  
quantity of  $\alpha$  phase separated upon cooling is simultaneously decreased.

2/2

7433

CSO: 1840-W

1/2 046 UNCLASSIFIED PROCESSING DATE--040EC70  
TITLE--HYDRO EROSION OF METALS IN AN ACID MEDIUM -U-  
AUTHOR-(03)-NEKOZ, A.I., PREYS, G.A., SOLOGUB, N.A.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ.-KHIM. MEKHAN. MAT., 1970, 6, (2), 109-111  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--CARBON STEEL, AUSTENITIC STAINLESS STEEL, CAST IRON, BRONZE,  
JET FLOW, FLUID FLOW, WATER, EROSION, CITRIC ACID, PHOSPHATE, METAL  
CRACKING/(U)KH18NIOT STAINLESS STEEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/1674 STEP NO--UR/0369/70/006/002/0109/0111  
CIRC ACCESSION NO--AP0129044  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129044

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESISTANCE OF A NUMBER OF C STEELS, AUSTENITIC STAINLESS CR-NI STEEL KH18NIOT, GREY CAST IRON, AND A STANDARD BRONZE TO HYDRO EROSION IN NORMAL TAP WATER AND A SOLUTION OF CITRIC ACID CONTG. VARIOUS PHOSPHATES AT P H 6.5 WAS STUDIED. THE TESTS WERE CARRIED OUT IN A JET IMPACT TEST APPARATUS WITH A LIQUID TEMP. OF 50DEGREESC, THE SAMPLES BEING ROTATED AT 60 M-SEC. CRACK FORMATION AND RUPTURE DEVELOPED AFTER A CHARACTERISTIC TIME FOR EACH METAL, THE MECHANISMS DIFFERED FROM ONE CASE TO ANOTHER.

UNCLASSIFIED

USSR

UDC: 621.9.06-229.64

IOFFE, B. A., LAPIDUS, M. Kh., and PFEYS, V. V. [Physics Institute, Latvian Academy of Sciences]

"Device for Sorting Nonmagnetic Bodies Asymmetrical in Electrical Conductivity"

Avt. sv. SSSR, kl. B 23 d 33/02, No 312322, zayavl. 25.12.68, opubl. 26.01.72  
(Author's Certificate, USSR, class B 23 d 33/02, No 312322, claimed 25 December 1968, published 26 January 1972) (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 2, 1973, Abstract No 2A485P)

Translation: A device is proposed for sorting nonmagnetic bodies which are asymmetrical in electrical conductivity and located in a pulsed magnetic field formed by an electromagnet creating a concentrated magnetic flux. Two illustrations.

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USSR

UDC 531.252.3

PREYSS, A. K.

"Determination of the Three-Dimensional Stressed State Within the Volume of an Elastic Body on the Basis of Stresses on the Surface"

Moscow, Mashinovedeniye, No 4, 1972, pp 71-76

Abstract: A method is presented for determining stresses at points within the volume of machine parts and structural elements in the shape of a cylinder or a prism of arbitrary cross section, or a body of revolution with an arbitrary generatrix, on the basis of known values of normal and tangential stresses on their surface, and given laws of distribution of the mass forces and the temperature field. The method combines experimental investigation of the deformation and stresses on the surface of the body with theoretical analysis of the stressed state within the volume. Experimental methods are used as a means for obtaining boundary conditions, on the basis of which the equations of elasticity theory are solved. 1 figure. 12 references.

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1/2 012  
UNCLASSIFIED  
PROCESSING DATE--04DEC70  
TITLE--NON EMPIRICAL COMPUTATION OF THE BENZYL RADICAL ELECTRONIC  
STRUCTURE -U-  
AUTHOR--(03)--KRUGLYAK, YU.A., PREYSS, KH., YANOSHCHER, R.  
COUNTRY OF INFO--USSR  
SOURCE--UKRAYIN. FIZ. ZH. (USSR), VOL. 15, NO. 6, P. 980-8 (JUNE 1970)  
DATE PUBLISHED---JUN70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ELECTRON STRUCTURE, BENZENE DERIVATIVE, FREE RADICAL, ELECTRON  
SPIN RESONANCE, SPECTRUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605029/F05 STEP NO--UR/0185/70/015/006/0980/0988  
CIRC ACCESSION NO--AP0141770  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0141770

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS ARE PRESENTED OF NON EMPIRICAL COMPUTATION OF THE BENZYL RADICAL BY THE UNRESTRICTED SCF METHOD ON THE GAUSSIAN BASIS WITH AN ACCOUNT FOR ALL 49 ELECTRONS. CLOSE ANALOGY IS FOUND BETWEEN SEMIEMPIRICAL PI ELECTRONIC AND NONEMPIRICAL DESCRIPTION OF HTE FILLED PI SHELLS. SPIN DENSITY DISTRIBUTION COMPUTED DIRECTLY AT THE PROTONS AGREES QUALITATIVELY WITH EXPERIMENTAL ESR SPECTRA OF BENZYL. NOTICEABLE ALTERNATION OF PI ELECTRONIC DENSITY ON CARBON ATOMS IS FOUND. .

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--NATIONAL DRUG METISAZON IN TREATMENT OF POSTVACCINATION DERMATIC  
COMPLICATIONS -U-  
AUTHOR--(02)-BELYAYEV, N.V., PREZHEVOZINSKAYA, L.I.  
COUNTRY OF INFO--USSR  
SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 3, PP 72-74  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--SKIN DISEASE, DRUG EFFECT, SMALLPOX, VACCINATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1985/1494 STEP NO--UR/0206/70/000/003/0072/0074  
CIRC ACCESSION NO--AP0101578  
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0101578

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW NATIONAL DRUG, METISAZON, WAS USED IN 15 PATIENTS WITH DERMATIC COMPLICATIONS AFTER SMALLPOX VACCINATION. TEN PATIENTS SHOWED IMPROVEMENT IN 2 DAYS, 4 IN 3 AND ONE IN 5 DAYS. METISAZON STOPPED THE SPREAD OF THE PROCESS AND WAS CONDUCIVE TO DRYING OF EFFLORESCENCES WITHIN SHORTER TIME.

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129041

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STEEL SHAFTS 5-50 MM IN DIA. WITH PRESS FITTED PARTS ATTACHED TO THEM WERE SUBJECTED TO CORROSION FATIGUE TESTS IN A 3PERCENT NACL SOLUTION (SIMULATED SEA WATER). THE CORROSION FATIGUE RESISTANCE OF THE SHAFTS WAS APPRECIABLY REDUCED BY THE PRESENCE OF THE PRESS FITTED PARTS (BUSHINGS). HOWEVER, THE SCALE FACTOR (THE EFFECT OF SHAFT DIA. ON CORROSION FATIGUE RESISTANCE) WAS QUALITATIVELY THE SAME; INCREASING THE DIA. ALSO INCREASED THE FATIGUE LIFE.

UNCLASSIFIED

USSR

UDC: 534-8

ARVIN, G., PRIALGAUSKAS, I., and RIBIKAUSKAS, S.

"Use of Acoustical Methods for Bacterial Preparations"

Nauch. tr. vyssh. ucheb. zavedeniy LitSSR. Ul'trazvuk (Scientific Works of the Lithuanian VUZ; Ultrasonics) No 4, 1972, pp 85-91 (from RZh--Fizika, No 4, 1973, Abstract No 4Zh594)

Translation: A pulse device with a chamber of small volume for measuring ultrasonic absorption in biological materials is described. Results are given of measurements of the velocity and absorption of sound in salmonella vaccine, salmonella diagnostica, and in dry horse serum, cultured in a physiological solution dependent on the concentration of microorganisms and the total quantity of albumen. The velocity was measured by a small-dimensioned ultrasonic interferometer at a frequency of 3 MHz, and the absorption was measured by a pulse device at frequencies of 15 and 45 MHz and at temperatures of 18.5 and 37°C. It was established that with the use of the velocity and absorption measurements, it is possible to determine the concentration of microbes in medical vaccines and diagnostica as well as the total amount of albumen in serum solutions. Bibliography of eight. Authors' abstract

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USSR

UDC: 534.86

PRIALGAUSEKAS, S., KALIS, R.-I., and DOMARKAS, V.

"Electrical Modeling of Ultrasonic Piezo-Converters in the Form of Plates"

Nauch. tr. vyssh. ucheb. zavedeniy LitSSR. Ul'trazvuk (Scientific Works of the Lithuanian VUZ; Ultrasonics) No 4, 1972, pp 47-54 (from RZh--Fizika, No 4, 1973, Abstract No 4Zh671)

Translation: A method is described for modeling the frequency and pulse characteristics of a piezo-converter in the form of plates, using an equivalent circuit without feedback capacitance. It is shown that modeling a piezo-converter with a high electromechanical coupling coefficient in such a simplified system requires adjustment of the delay time of the electrical delay lines used in the model. The circuit of the model is given, along with formulas for computing the elements of the system. The theoretical conclusions are illustrated by experimental data. Authors' abstract

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USSR

PRIBAVKINA, N. L.

"Second Order Spline Interpretation of Functions of One Variable"

Programmy optimiz. Priblizheniye funktsiy. Vyp. 3 [Optimization Programs. Approximation of Functions. No 3 -- Collection of Works], Sverdlovsk, 1972, pp 3-10 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V653)

Translation: Over the sector  $[0, a]$ , we are given the nodes  $x_0=0, x_1, \dots, x_n=a$  and the values of functions at these nodes  $f_0, f_1, \dots, f_n$ . The program constructs a second order spline interpolating the values of  $\{f_i\}$  at nodes  $\{x_i\}$  ( $i=0, \dots, n$ ) and values of the spline are calculated at arbitrary points  $\{z_j=1, \dots, m\}$ .

1/1

USSR

BEKHTEREVA, N. P., Director, Institute of Experimental Medicine, Corresponding Member, Academy of Sciences, USSR, PRIBRAM, K., Stanford University, WALTER, G., Burden Neurological Institute, Bristol, and MANUCHAROVA, Ye.

"On the Eve of Discovery"

Moscow, Nedelya, No 29, 17-23 Jul 72, p 8

Abstract: The human brain is a product of its environment. It is preeminently social. The frontal lobes of the brain, where planning and decision-making functions are performed, are well-developed in humans, but poorly developed in animals. Experiments on animals' higher mental activities and on herd animals may be more analogous to human brain functions. Two questions are presented: How has the complexity of the human brain, largely unexercised, been maintained for centuries? Will the brain continue to be able to cope with the increasing loads required of it? That the brain exercises many unneeded systems when it confronts the unknown is one hypothesis for the preservation of its complexity.

The brain has many codes, comparable to the various IBM machine languages. These codes may be different for each individual. Sensory perceptions and motor functions may operate on the principle of a hologram. An electrical signal, generated by input such as an overheard word, sets up a biochemical

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USSR

BEKHTEREVA, N. P., et al., Nedelya, No 29, 17-23 Jul 72, p 8

reaction in the brain. This signal is specific for each word. A signal can be transmitted to the brain which generates a specific mental image. This signal will be the brain's code for the word described by the generated mental image.

2/2

USSR

UDC 539.16:628,315

DOLIN, P. I., Doctor of Chemical Sciences; SHUBIN, V. I., and BRUSENTSEVA, S. A., Candidate of Chemical Sciences; and PRIBUSH, A. G., Institute of Electrochemistry AN SSSR (Academy of Sciences, USSR)

"Radiation Purification of Polluted Water From Organic Contaminants"

Moscow, Vodostabzheniye i Sanitarnaya Tekhnika, 8, 1973, pp 10-14

Abstract: A number of factors must be considered during an evaluation of the radiation process for water purification: the concentration and nature of the contaminants, the desired resultant purity, the nature and concentration of the products of radiation-induced oxidation, and the volume of water to be purified. The effects of dosages and temperatures, various pathways, and possible reactive species such as OH, H,  $H_2O^+$ , and  $HO_2$  are considered. Yields are given for various products under varying conditions. Radiation purification may be an economic way to purify dilute (less than  $10^{-3}$  M) solutions of highly toxic compounds. The optimum conditions for the removal of organic material from aqueous solutions by the chain mechanism were determined. Recommendations were made for future studies such as the relationship of oxidation to polymerization and polycondensation; radiation treatment followed by biological purification and others.

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1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--RADIOLYSIS OF AQUEOUS SOLUTIONS OF SOME ORGANIC SUBSTANCES -U-  
AUTHOR--(04)-BRUSENTSEVA, S.A., DOLIN, P.I., SHUBIN, V.N., PRIBUSH, A.G.  
COUNTRY OF INFO--USSR  
SOURCE--VYS. ENER. 1970, 4(1), 88-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY  
TOPIC TAGS--RADIOLYSIS, AQUEOUS SOLUTION, PHENOL, PICRIC ACID, SULFONE,  
GAMMA RADIATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1987/1114 STEP NO--UR/0456/70/004/001/0088/0089  
CIRC ACCESSION NO--AP0104512  
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PROCESSING DATE--18SEP70

2/2 016

CIRC ACCESSION NO--AP0104512

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHENOL (I), PICRIC ACID (II),  
DECANESULFONATE (III), AND P-O SUB2 NC SUB6 H SUB4 OP(S)(DET)SUB2 (IV)  
IN AQ. SOLNS. SATD. WITH AIR WERE IRRADIATED BY PRIME60 CO (3 TIMES 10  
PRIME15 EV CM PRIME NEGATIVE3 SEC PRIME NEGATIVE1) AT ROOM TEMP. AND THE  
DECOMP. YIELDS WERE MEASURED (COMPO., ITS CONC. TIMES 10 PRIME5 M, AND  
MINUS G VALUES, GIVEN): I, 16, 3.5 PLUS OR MINUS 0.3; II, 4.3, 0.65 PLUS  
OR MINUS 0.1; III, 40, 2.3 PLUS OR MINUS 0.3; IV, 20, 1.0 PLUS OR MINUS  
0.1. RADIOLYSES OF AQ. 4 TIMES 10 PRIME NEGATIVE4 M III IN THE PRESENCE  
OF AIR, N SUB2, N SUB2 O, OR H SUB2 O SUB2 WERE ALSO STUDIED AND PLOTS  
OF YIELD VS. DOSE ARE PRESENTED.

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USSR

UDC: 621.376.55(088.8)

DMITRIYEV, I. P., PRIBYLOV, B. A.

"A Pulse Modulator"

USSR Author's Certificate No 277837, filed 22 Nov 68, published 3 Nov 70  
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D325 P)

Translation: A pulse modulator is proposed which contains a DC voltage source, a charging element (e. g. a choke), a separation diode, a commutator based on a thyatron, an ignition pulse oscillator, an accumulator in the form of an artificial line, and a load. To ensure pulse-code operating conditions with respect to the pulse length with simultaneous amplitude stabilization, the modulator is equipped with additional semiconductor diodes whose anodes are connected to the common terminal of the charging circuit, while the cathodes of each of the semiconductor diodes are connected to the output of the individual cells which make up the accumulator. V. P.

1/1

1/2 021 UNCLASSIFIED PROCESSING DATE--02 OCT 70  
TITLE--NATURE OF THE THERMAL EFFECTS OF PRODUCTS OF THE REACTION OF  
KAOLINITE WITH SOME BASES -U-  
AUTHOR--(03)-BERG, L.G., REKIZNIKOVA, V.I., PRIBYLOV, K.P.  
COUNTRY OF INFO--USSR  
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SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY  
TOPIC TAGS--KAOLINITE, SODIUM HYDROXIDE, CHEMICAL REACTION, THERMAL  
EFFECT, ALUMINUM OXIDE CERAMIC, DEHYDRATION, BARIUM COMPOUND, PHASE  
COMPOSITION, HEAT OF REACTION, CALCIUM COMPOUND, HYDROXIDE  
CONTROLL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
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CIRC ACCESSION NO--AT0115625  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE REACTION OF KAOLINITE (I) WITH NaOH YIELDS A COMPO. IDENTICAL WITH HYDROSODALITE (II), EXHIBITING ENDOTHERMIC EFFECTS AT 126, 260, AND 575 DEGREES, AND AN EXOTHERMIC EFFECT AT 967 DEGREES (THE LATTER 2 ARE ATTRIBUTED TO I). IF I AND NaOH ARE MIXED IN EQUIMOL. RATIOS, THE I EFFECTS ARE NOT NOTED, AND 1 MOLE OF H SUB 2 O IS LIBERATED, INDICATING THAT THE FORMULA OF II IS Na SUB 2 O TIMES AL SUB 2 O SUB 3 TIMES 2SiO SUB 2 TIMES H SUB 2 O. BY TREATING I WITH KOH, TO FORM A PLASTIC DOUGH, AND FURTHER TREATMENT AT 120-300 DEGREES, IT BECOMES AMORPHOUS AND THEN RECRYSTALLIZES TO FORM KALIOPHILITE (III), WHOSE PRESENCE IS CONFIRMED BY X RAY EXAMN. H SUB 2 O IS LIBERATED AT 115 DEGREES, 172 DEGREES, AND 200 DEGREES IN AN AMT. EQUAL TO 0.7 MOLE-MOLE III. BY MIXING A MOLE OF I WITH 2 MOLES Ba(OH)SUB 2, MOISTENING WITH H SUB 2 O, AND TREATING AT 125-300 DEGREES, A NEW CRYSTN. PHASE IS OBTAINED CORRESPONDING TO BARIUM ALUMINOSILICATE HYDRATE. AN ENDOTHERMIC EFFECT AT 574 DEGREES IS ATTRIBUTED TO DEHYDRATION OF I AND FURTHER ENDOTHERMIC EFFECTS ARE ATTRIBUTED TO THE STEPWISE SEPN. OF H SUB 2 O. THE PRODUCT OF TREATING I WITH Ca(OH)SUB 2 YIELDS ENDOTHERMIC EFFECTS AT 544-60 DEGREES, 582 DEGREES, AND 738 DEGREES, ATTRIBUTED TO DEHYDRATION OF Ca(OH)SUB 2 AND OF I, AND TO HYDRATION OF A QUATERNARY PHASE COMPO.

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