

2/2 022

UNCLASSIFIED

PROCESSING DATE--300CT70

CIRC ACCESSION NO--AP0126564

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS INVESTIGATED THE EFFECTIVENESS OF HEALTH RESORT TREATMENT IN 64 PATIENTS SUFFERING FROM TOXIC CHEMICAL AFFECTION OF THE LIVER CAUSED BY ORGANIC COMPOUNDS. UNDER THE INFLUENCE OF A COMPLEX HEALTH RESORT TREATMENT THE PATIENTS SHOWED A FAVORABLE DYNAMICS OF SUBJECTIVE AND OBJECTIVE INDICES; SPECIAL MENTION SHOULD BE MADE OF THE FAVORABLE EFFECT OF A COMPLEX OF CARBONATE SULFUR BATHS AND FANGOTHERAPY ON THE PROTEIN FORMING, PIGMENTARY, ENZYMATIC AND FATTY LIPID FUNCTION OF THE LIVER. FACILITY: PYATIROSKOGG NAUCHNO-ISSLED. INSTITUTA KURORTOLOGII I FIZIOTERAPII, INSTITUTA GIGIYENY TRUDA I PROFZABOLEVANIY AMN SSSR, MOSKVA.

UNCLASSIFIED

USSR

UIC 539.163

DZHELEPOV, B. S., POPOVA, T. I., PRIKHODTSEVA, V. P., and TSARITSYNA, L. G.
- γ -Radiation of ^{65}Ga "

Moscow, Izvestiya Akademii Nauk SSSR -- Seriya Fizicheskaya, Vol XXXV, No 8,
1971, pp 1575-1581

Abstract: Using a Ge(Li)-detector with a sensitive capacity of ~ 33 cubic centimeters, the authors studied the gamma-ray spectrum of ^{65}Ga ($T_{1/2} = 15.2$ minutes). They used the accelerator at the Laboratory of Nuclear Reactions, Joint Institute for Nuclear Research, with boron ions having an energy of 40 million electron volts. Although the authors selected the reaction $^{56}\text{Fe}(^{11}\text{B}, 2n)^{65}\text{Ga}$ as their source of ^{65}Ga because it does not produce very large admixtures of the undesirable ^{66}Ga , they did not succeed in eliminating ^{66}Ga completely. In a number of cases this made it more difficult to identify weak lines in the region above 800 kilo electron volts. The authors succeeded in determining the energies and intensities of 24 γ -lines; 21 of these lines were associated with the disintegration of ^{65}Ga . They also computed the intensities of the gamma rays in percents of disintegrations. Finally, they compared their results with those cited in several other articles on the same topic, discussing the similarities and differences in some detail.

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USSR

UDC 621.165.018.001.5

ANDRYUSHCHENKO, A. I., PONYATOV, V. A., POPOVA, T. I.

"Optimal Finite Parameters of Turbine Power Plants with Step Steam Condensation"

Nauchn. soobshch. Saratov. politekhn. in-t (Scientific Reports of Saratov Polytechnical Institute), 1970, vyp. 3, 104 pp (from RZh-Turbostroyeniye, No 1, Jan 71, Abstract No 1.49.25)

Translation: Results are presented in this article from scientific research work of the Problem Scientific Research Laboratory of Thermal Power Engineering Plants of Electric Power Plants of the Department of Thermal Power Engineering of Saratov Polytechnical Institute for optimization of the final parameters of high-power units with step steam condensation. The practical recommendations obtained permit us to make economically well-founded decisions with respect to selecting the final steam pressure in the condensor stages and the multiplicity of cooling the 500-1,600 megawatt turbine power plants with supercritical initial parameters. The results of the study can be used when planning and designing the low pressure section and the condensation unit of high-power steam turbines. There are 7 illustrations, 39 tables and a 21-entry bibliography.

1/1

- 72 -

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--DECAY OF GERMANIUM 66 -U-
AUTHOR--(04)-DZHELEPOV, B.S., MOZZHUKHIN, A.V., POPOVA, T.I., PRIKHODTSEVA,
V.P.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 29-41
DATE PUBLISHED-----70
SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--RADIOACTIVE DECAY SCHEME, GERMANIUM ISOTOPE, GAMMA SPECTRUM,
GAMMA SPECTROMETER, FORBIDDEN TRANSITION, BETA RADIATION, IRON ISOTOPE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/0229 STEP NO--UR/0048/70/034/001/0029/0041
CIRC ACCESSION NO--AP0105305

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105305

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GAMMA SPECTRUM OF GE IRRADIATED BY P AND PURIFIED BY THE DISTN. OF GECL SUB4 WAS MEASURED BY GE(LI) DETECTORS AND A 4096 CHANNEL ANALYZER. SINCE INTENSE GAMMA RAYS FROM PRIME69 GA, PRIME75 GA, AND PRIME67 GA, AND HIGH COMPTON BACKGROUND INTERFERED WITH IDENTIFICATION OF WEAK GAMMA LINES OF PRIME66 GA, THE PRIME56 FE (PRIME12 C, 2N) PRIME66 GE REACTION WAS ALSO USED. IN TOTAL, 44 GAMMA LINES WERE OBSERVED OVER THE 40-2000 KEV RANGE. THE PRIME66 GE DECAY SCHEME IS PRESENTED. QUANTUM CHARACTERISTICS OF THE PRIME66 GA LEVELS ARE DISCUSSED AS WELL AS THE PRIME66 GE(0 PLUS) YIELDS PRIME66 GA(0 PLUS) BETA TRANSITION. ALTHOUGH THE LATTER IS FORBIDDEN ACCORDING TO ISOBARIC SPIN, A RELATIVELY LOW LOG FT (5.7) WAS FOUND.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--POTENTIOSTATIC PASSIVATION AND GALVANOSTATIC ACTIVATION OF ZINC IN
SUPERSATURATED ZINCATE SOLUTIONS OF POTASSIUM HYDROXIDE -U-
AUTHOR-(03)-IVANOV, E.A., POPOVA, T.I., KABANOV, B.N. P
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKIMIYA 1970, 6(1) 100-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--POTASSIUM HYDROXIDE, METAL PASSIVATION, OXIDE FILM, ZINC
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0694 STEP NO--UR/0364/70/006/001/0100/0103
CIRC ACCESSION NO--AP0105670
UNCLASSIFIED

272 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105670

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PASSIVATION OF ZN ELECTRODES OCCURS AT A POTENTIAL OF APPROX. 0.3 V MORE POS. THAN THE POTENTIAL AT WHICH ZNO FORMS. IN SUPERSATD. KOH SOLN. PASSIVATION OF ZN IS NOT CAUSED BY THE FORMATION OF ZNO LAYER BUT RATHER BY THE ADSORPTION OF O IN EXCESS OF STOICHIOMETRIC QUANTITY ON THE SURFACE ZNO LAYER FORMING A FILM OF ZNO SUB1 PLUS M, WHERE M IS LESS THAN 1. THE PEROXIDE TYPE FILM IS FORMED BY THE ELECTRODE DISCHARGE OF OH PRIMENEGATIVE. THE NECESSARY CHARGE FOR A ZN ELECTRODE TO BE PASSIVATED NEAR THE TRANSITION POTENTIAL, NEGATIVE 1.0 TO NEGATIVE 0.9 V., TO BE ACTIVATED IS 0.7-0.9 MILLICOULOMB-CM PRIME2. AS THE POTENTIAL OF THE PRECEDING PASSIVATION INCREASES, THE QUANTITY OF ELECTRICITY REQUIRED TO REDUCE THE EXCESS O IN THE OXIDE FILM INCREASES LINEARLY. WHEN THE PASSIVATION TOOK PLACE AT 1.1 V, THE AMT. OF ELECTRICITY REQUIRED ROSE TO 130-180 MILLICOULOMBS-CM PRIME2. WHEN PASSIVATION OCCURRED AT 1.4 V THE ELECTRICITY REQUIRED TO ACTIVATE THE ELECTRODE DROPPED SHARPLY, WHICH IS ATTRIBUTED TO THE EVOLUTION OF O ON THE ELECTRODE.

UNCLASSIFIED

1/2 023

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--PASSIVATION LAYERS FORMED ON ZINC DURING ANODIC POLARIZATION IN
STRONG ALKALINE ZINCATE ELECTROLYTES -U-

AUTHOR--(04)-POPOVA, T.I., SIMONOVA, N.A., KULYAVIK, V.YA., KABANOV, B.N.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIHIYA 1970, 6(1), 104-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ELECTROLYTE, ANODE POLARIZATION, METAL PASSIVATION, ZINC,
METAL ELECTRODE, OXIDE FILM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0695

STEP NO--UR/0364/70/006/001/0104/0108

CIRC ACCESSION NO--AP0105671

UNCLASSIFIED

USSR

DZHELEPOV, B. S., MOZZHUKHIN, A. V., POPOVA, T. I., and PRIKHODTSEVA, V. P.
"Ge⁶⁶ Decay"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 34, No. 1, Jan 70, pp 29-41

Abstract: The γ -spectrum of Ge⁶⁶ was measured with a Ge(Li) detector with sensing volumes of 5 and 9 cm³ and a 4096-channel analyzer. All lines observed by Ricci, et al were observed except the γ -line 405 kev. In all, 44 lines were observed, of which 26 were definitely established as belonging to Ge⁶⁶. The intensities of Ge⁶⁶ γ -rays were determined on the basis of the ratio of the intensities of γ 381 (Ge⁶⁶)/ γ 1039 (Ge⁶⁶) as measured in given time intervals and the known intensity of γ 1039 in % decays. A level diagram was constructed for Ga⁶⁶. The quantum characteristics of Ga⁶⁶ levels are discussed.

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2/2 023

CIRC ACCESSION NO--APO105671

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS STUDIED OF THE PASSIVATION POTENTIAL OF A ZN ELECTRODE, THE COMPN. OF THE ELECTROLYTE, AND CONDITIONS OF DIFFUSION ON THE THICKNESS AND COMPN. OF THE OXIDE FILMS DEPOSITED ON THE ELECTRODE. THE ACTIVATION OF THE OXIDE FILMS PASSED AT 0.0 V BEGAN AT MINUS 0.3 AND COMPLETE AT MINUS 1.3 V. ALL THE REDN. POTENTIAL WAS IN THE CATHODIC C.D. SHIFTED THE REDN. IN THE EXCESS O TOWARD THE NEG. SIDE. UP TO MINUS 1.3 V. ALL POTENTIAL OF THE EXCESS O IN THE PASSIVATION FILM IS REDUCED ACCORDING TO: (1-M) ZNO SUB1 PLUS M PLUS H SUB2 O PLUS 2E PRIMENEGATIVE YIELDS (1-M) ZNO PLUS 2OH PRIMENEGATIVE, WHERE 1 IS LARGER THAN M IS LARGER THAN 0. WHEN THE PASSIVATION IN SOLNS. CONTG. NO ZINCATE WAS SLIGHT THE EXCESS OVER STOICHIOMETRIC O IN THE FILM WAS 5-7, AND WHEN THE PASSIVATION WAS HEAVY, IT ROSE TO 10 AT. PERCENT. IN THE CASE OF PASSIVATION IN ALK. SOLNS. SUPERSATD. WITH ZINCATE, THE VALUES WERE 1-2 AND 3 AT. PERCENT, RESP. EXPTS. WITH AGITATING THE SOLN. SHOWED THAT THE QUANTITY OF ELECTRICITY REQUIRED TO DISSOLVE THE PASSVATING FILM AND ACTIVATE THE ELECTRODE DEPENDS ON THE RATE AT WHICH HO SUB2 PRIMENEGATIVE IS REMOVED FROM THE ELECTRODE.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--PREPARATION OF VINYL CHLORIDE BY THE DIRECT CHLORINATION OF
ETHYLENE IN A FLUIDIZED CONTACT BED ON A PILOT PLANT APPARATUS -U-
AUTHOR--(05)-ALIYEV, V.S., NAMEDOV, M.A., GUSEYNOV, M.M., POPOVA, T.P.,
AGAYEV, M.T. ~~SECRET~~
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3) 616-20
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--VINYL CHLORIDE, ETHYLENE, FLUIDIZED BED, CHEMICAL PRODUCT
PRODUCTION, CHLORINATED ORGANIC COMPOUND, CHLORINATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY RECL/FRAME--1992/0339 STEP NO--UR/0080/70/043/003/0616/0620
CIAC ACCESSION NO--AP0111533
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111533

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

ABSTRACT. CH SUB2:CHCL WAS PREPD. IN MAX. 85.5PERCENT YIELD BASED ON C SUB2 H SUB4 (80.6PERCENT ON CL) WHEN CHLORINATION OF C SUB2 H SUB4 WAS CARRIED OUT AT 450DEGREES WITH A 4:1 C SUB2 H SUB4-CL RATIO IN A JACKETED 146-6 MM STAINLESS STEEL TUBE CONTG. A FLUIDIZED BED OF 0.14-0.30 MM QUARTZ SAND INTO WHICH CL WAS INTRODUCED AT A HEIGHT OF 250 MM ABOVE THE C SUB2 H SUB2 INPUT. THE CONDENSATE CONTAINED, BESIDES 78.03PERCENT CH SUB2: CHCL, 0.98PERCENT ETCL, 0.75PERCENT CH SUB2:CCL SUB2, 1.88PERCENT CIS AND 0.94PERCENT TRANS-CLCL:CHCL, 0.16PERCENT MECHCL SUB2, 13.35PERCENT CICH SUB2 CH SUB2 CL, 0.38PERCENT MECCL SUB3, 0.45PERCENT CL SUB2 CHCH SUB2 CL, 1.70PERCENT CL SUB2 C:CHCL, 1.36PERCENT C SUB2 CL SUB4, 0.01PERCENT C SUB2 H SUB2, AND 0.01PERCENT CH SUB2:CHCH:CH SUB2.

UNCLASSIFIED

Acc. Nr: AP0043757

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Ref. Code: UR 0050

PRIMARY SOURCE: Meteorologiya i Gidrologiya, 1970, Nr 3,
pp 65-71

STRUCTURE OF CLOUDS AT THE CENTRE OF THE CYCLONE
FROM PHOTOGRAPHS MADE FROM THE SPACECRAFT «SOYUZ-4»

Bugayev, V. A.; Popova, T. P.; Shatalov, V. A.

Photographs of cloud cover obtained from the spacecraft «Soyuz-4» on January 15, 1969 are analysed. It is shown that in a deep occluded cyclone the cloudiness does not fill up the whole space. The so-called «curved edge of the occlusion» consists of separate cloud spirals terminating in independent mesovortices.

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REEL/FRAME
19770163

Ysh

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1/2 C10 UNCLASSIFIED PROCESSING DATE--20NGV7C
TITLE--SYNTHESIS OF OXOVINYL MERCURY DERIVATIVES -U-
AUTHOR--(03)-NESMEYANOV, A.N., RYBINSKAYA, M.I., POPOVA, T.V.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 946-8.
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL SYNTHESIS, ORGANOMERCURY COMPOUND, ISOMERIZATION,
IODINATED ORGANIC COMPOUND, CHLORINATED ORGANIC COMPOUND, BENZENE
DERIVATIVE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1314 STEP NO--UR/0062/70/000/004/0946/0948
CIRC ACCESSION NO--AP0134968
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134988

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING ARCOCH:CHCL WITH 3 MOLES
 NAL IN ME SUB2 CO 3-5 HR GAVE ARCOCH:CHI; AR IS :PH; M. 37-80DEGREES;
 P,MEC SUB6H SUB4, M. 70DEGREES; P,CLC SUB6 H SUB4, M. 84-50DEGREES; AND
 P,BRC SUB6 H SUB4, M. 96-70DEGREES. THESE ILLUMINATED WITH UV LIGHT IN C
 SUB6 H SUB6NEGATIVE HG SUSPENSION 3-4 HR GAVE ARCOCH:CHNGI; AR EQUALS
 PH, M. 110DEGREES; P,MEC SUB6 H SUB4 M. 107-80DEGREES; AND P,CLC SUB6 H
 SUB4, M. 117-18DEGREES, IN 78-90PERCENT YIELDS. SIMILARLY WAS PREPD.
 ACCH:CHFGI, M.83-35DEGREES. THE PRODUCTS WERE PURIFIED BEST ON AL SUB2
 O SUB3, AT TIMES SHOWING THE 2 GEOMETRIC ISOMETRIC FORMS, OF WHICH ONE
 WAS GENERALLY GREATLY PREDOMINANT. FACILITY: INST. ELEMENTORG.
 SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 615.37.033

GIGAURI, V. S., VINNITSKIY, L. I., and POPOVA, Ye. B., Scientific Research
Institute of Clinical and Experimental Surgery, and First Moscow Medical
Institute imeni I. M. Sechenov

"Agent Resorption Rate in Tissues After Needleless Injection"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973,
pp 93-95

Abstract: The resorption rates of physiological solution labeled with Xe^{133} injected subcutaneously, intradermally, and intramuscularly with a BI-1 needleless injector and a conventional needle were compared. Resorption rates were about equal for both methods with intradermal injection, and the rates for the needleless injector were 1.7 times higher with subcutaneous injection and 3.6 times higher with intramuscular injection. X-ray studies revealed that the surface area of agent in contact with tissues is greater when administered with the needleless injector than with the conventional needle. It is suggested that this greater agent-tissue contact causes the faster resorption rate.

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USSR

UDC 612.821.6

POPOVA, Ye. L., Laboratory of Conditioned Reflexes, Institute of Higher Nervous Activity and Neurophysiology, Academy of Sciences USSR, Moscow

"Transfer of Habit in Instrumental Reaction Systems With Uni- and Heteromodal Reinforcement"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, No 2, Mar/Apr 73, pp 338-348

Abstract: A conditioned reflex was elaborated in dogs by positioning them on a table with an opening, tying the right front paw to a lever, and placing a dish with food on a conveyor belt within visible distance. By shifting the lever in one and the other direction, the dog could move the dish to right underneath the opening and keep it there until it consumed the meal. Transfer of manipulation and association was investigated by tying the left front paw to the lever and by presenting water instead of food. Transfer of the motor activity to the untrained effector took place readily though not at once. The initial training with the right paw took 2 and more weeks, and the dogs displayed a passive or reluctant attitude. The same instrumental operation was mastered with the left paw within one day, with the dogs displaying interest in the activity and a trend to generalize previous experience. However, the

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POPOVA, Ye. I., Zhurnal Vysshey Nervnoy Dayatel'nosti imeni I. P. Pavlov,
Vol 23, No 2, Mar/Apr 73, pp 338-348

transfer was effected only by a stimulus of the same modality (food) in combination with the same motivation (hunger). On the other hand, not a single dog was able to associate the well-mastered motor activity with the possibility of acquiring water by the same mechanism, even though motivation (thirst) was very strong (deprivation of water for up to 2 days). The phenomenon of transfer may be regarded as a state of "having learned to learn" which, according to some investigators, represents the third level of learning on which the central nervous system abstracts the general from the particular and formulates universal decisions. The failure to associate a different stimulus and motivation with an established motor activity indicates that an effector is controlled by independent "commands" and that the central organization of the pattern of each movement is highly autonomous.

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USSR

UDC 535.36:621.375.826

POPOVICHEV, V.I., RAGUL'SKIY, V.V., FAYZULLOV, F.S.

"On A Q Switching Technic Using Stimulated Mandelstam--Brillouin Scattering"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), pp 126-129

Abstract: A previous work of which Ragul'skiy and Fayzullov were coauthors (Pis'ma v ZhETF, 1969, Vol 9, p 11) discussed generation of light pulses with a power of ~ 100 Mw by means of Q switching caused by stimulated Mandelstam--Brillouin scattering in a laser resonator. The present paper is devoted to a theoretical and experimental clarification of the conditions necessary for realization of such a generation regime. It is shown that the radiation intensity of free generation and its energy density must exceed specific threshold values. The frequency shift of the generated radiation relative to the amplification line center was measured. The authors thank Ye. A. Yukov for helpful discussions. 3 fig. 8 ref. Received by editors, 22 May 1972.

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USSR

UDC: None

KOKIN, A. A. and POPOVKIN, I. V.

"Dynamic Orientation of the Electrons in a Semiconductor in a Strong Electromagnetic Wave Field"

Leningrad, Fizika Tverdogo Tela, No 7, 1973, pp 1969-1974

Abstract: It is known that, at high pumping intensities of a semiconductor in a strong electromagnetic field, an unbalanced system of the semiconductor transforms to a qualitatively new steady state, a state of saturation for which the theory of perturbations is not valid. The function of this paper is to examine theoretically the electron spin polarization in this case. It is assumed that the frequency of the electromagnetic wave is slightly larger than the width of the semiconductor forbidden zone. Expressions are obtained for the spin polarization which are valid for all electrons thrown into the conductivity zone that satisfy the condition that their spin relaxation time greatly exceed the recombination time -- i.e., that the electrons maintain their spin orientation for their lifetime in the zone.

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USSR

UDC: 621.396.677.001.5

POPOVKIN, V. I., SEDEL'NIKOV, Yu. Ye.

"On the Theory of Synthesis of Discrete Antennas for the Case of Uniform Approximation to a Given Polar Diagram"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1945-1947

Abstract: A method is proposed for solving a number of problems in synthesis of discrete antennas for the case of uniform approach to a preassigned radiation pattern with regard to limitations imposed on the unknown currents. The computational apparatus of linear programming serves as the basis for the proposed technique. The essential features of the procedure are illustrated by a one-dimensional scalar problem. A numerical example is given. The authors thank S. I. Zukhovitskiy for constructive criticism.

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USSR

UDC 621.396.677.71

POPOVKIN, V. I., MATORIN, A. V.

"Synthesis of an Antenna Array of Slot Radiators With Passive Elements"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 7, Jul 71, pp 1133-1143

Abstract: A solution is found for the problem of synthesizing an antenna array of slot radiators which contains passive elements. It is assumed that the radiation pattern and geometry of the radiating system are given. Interaction of the radiators due to the external electromagnetic field is taken into consideration. The method of solution can be used to find the minimum number of active radiators in the system. An antenna system made up of N narrow slots cut in a closed ideally conducting surface S is considered. Some of the slots may be passive re-radiators. The active elements of the array are excited by independent sources. Their amplitude-phase distribution is calculated from the condition of the best approximation on the average to the given radiation pattern. Radiators are found from among those given which would make effective passive elements of the array, as well as the pure susceptance of the cavities of these radiators.

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Polymers and Polymerization

USSR

UDC 541(64+15):654

MAKHLIS, F. A., GUBANOVA, G. G., and POPOVA, V. M., Scientific Research Institute of the Rubber Industry

"Changes in the Structure of Butadiene-Nitrile and Fluororubbers Upon Gamma-Irradiation"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 15, (A), No 9, Sep 73, pp 1995-2002

Abstract: The effects were studied of the temperature of irradiation with gamma-rays from ^{60}Co and of the absorbed radiation dose on the structurization and destruction of butadiene-acrylonitrile rubbers (BNK) with an acrylonitrile content ranging from up to 20 to up to 50% (SKN 18, 26, 40, and 50) and also of fluororubber SKF-26 (a copolymer of vinylidene fluoride with hexafluoropropylene). The rubber samples were irradiated in the vulcanized and unvulcanized and strained and relaxed states. Irradiation of BNK and their vulcanizates with low doses resulted in scission of the nodes of the network and also of the principal polymer chains, while irradiation with higher doses resulted principally in destruction of the nodes of the network. Irradiation of SKF-26 resulted in scission of the principal chains, which was accompanied by structurization consisting mainly of the formation

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USSR

MAKHLIS, F. A., et al., Vysokomolekulyarnyye Soyedineniya, Vol 15, No 9,
Sep 73, pp 1995-2002

of trifunctional nodes. The rate of destruction of stressed and vulcanized
samples was higher than that of samples in a relaxed state.

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USSR

UDC 669.295'71.669.046.42.001

IGNATOV, D. V., KORNILOVA, Z. I., LAZAREV, E. M., and POPOVA, V. M.

"Oxidizability of Ti-Al Alloys"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 2, Mar-Apr 72, pp 204-209

Abstract: Ti-Al alloys containing 6.8, 10, and 14% Al (by weight) were made in order to study the oxidation kinetics and determine phase composition of the scale formed. Oxidation kinetics was determined according to increase in sample mass after heating in air in muffle furnaces at 800 and 1000°C. Phase composition was determined by electronographic and x-ray methods. Distribution of titanium and aluminum in the scale and alloy was studied by x-ray spectral analysis.

The mechanism of the effect of aluminum on decreasing the oxidation rate of titanium at 800 and 1000°C (at 10-14% Al) resulted in the following: a) an increase in the forces of interatomic reaction (especially when the Ti₃Al phase is formed) significantly reduces the solubility of oxygen in the alloys; and b) the formation of an oxide (γ -Al₂O₃) in an intermediate layer through which the oxygen diffusion rate to the metal-scale interface is decreased.

The alloy containing 14% Al is oxidized approximately 10 times faster at 1000°C in comparison with the oxidation rate of nickel- and chromium-base

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USSR

IGNATOV, D. V., et al., Izvestiya Akademii Nauk SSSR, Metallurgy, No 2, Mar-Apr 72, pp 204-209

alloys. This difference in oxidizability of the indicated alloys with aluminum can be explained as follows: a) addition of 6-8% Al may not suppress the allotropic transformation from alpha- to beta-titanium which is the main cause of reduced heat resistance in alpha-titanium alloys; b) for an aluminum content above 10% a multiphase scale is formed consisting of titanium oxides (mainly TiO_2) and the aluminum oxide γ - Al_2O_3 , whereupon these oxides do not form a stable chemical compound between themselves.

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I/2 017 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--EFFECT OF ANNEALING TEMPERATURE ON THE MAGNETIC PROPERTIES OF STEEL
E44 IN A DYNAMIC MAGNETIZATION SYSTEM -U-
AUTHOR--(03)-MIRONOV, L.V., POPOVA, V.P., CHERENKOV, V.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 33b-8
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--MAGNETIC PROPERTY, TRANSFORMER STEEL, SILICON STEEL, ANNEALING
TEMPERATURE, GRAIN SIZE, ALLOY DESIGNATION/(U)E44 SILICON STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/0179 STEP NO--UK/0048/70/034/002/0336/0338
CIRC ACCESSION NO--AP0115883
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--09DCT70

CIRC ACCESSION NO--AP0115883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STUDY WAS CARRIED OUT ON THE DYNAMIC AND STATIC MAGNETIC CHARACTERISTICS OF STEEL GRADE E44 (0.2 MM THICK) WITH VARIOUS GRAIN SIZE. SPECIMENS OF 50 MM OUTSIDE DIAM. WERE ANNEALED IN A VACUUM FURNACE FOR 1, 2, AND 4 HR AT 850DEGREES AND 1 AND 2 HR AT 1250DEGREES. FOLLOWING THE DETN. OF STATIC AND DYNAMIC MAGNETIC CHARACTERISTICS, POLISHED SECTIONS WERE INSPECTED UNDER A MICROSCOPE. SPECIMENS ANNEALED AT 1250DEGREES HAD GRAIN SIZES 1.0-1.5 MM PRIME2 WHILE THOSE ANNEALED AT 850DEGREES HAD A GRAIN SIZE OF 0.03 MM PRIME2. WITH INCREASING FREQUENCY OF MAGNETIZING CURRENT THE DIFFERENCE IN SP. CORE LOSSES BETWEEN SPECIMENS WITH LARGE AND FINE GRAINS INCREASED: E.G. AT 1000 HZ FINE GRAINED STEELS HAD LOSSES 5-8PERCENT LESS THAN THOSE OF COARSE GRAINED STEELS, WHILE AT 9000 HZ THIS DIFFERENCE INCREASED TO 25PERCENT. THUS, STEEL INTENDED FOR USE AT 1000 HZ SHOULD BE SUBJECTED TO HIGH TEMP. ANNEALING TO INCREASE THE SIZE OF GRAINS. FOR EACH RANGE OF FREQUENCIES AN OPTIMUM STRUCTURE OF THE STEEL SHOULD BE SELECTED. FACILITY: TSNIICM IM. BARDINA, MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--PHYSICAL PRINCIPLES OF THE DEVELOPMENT OF TRANSFORMER STEELS FOR
HIGH FREQUENCY MACHINES -U-
AUTHOR--(03)-MIRONOV, L.V., POPOVA, V.P., CHERENKOV, V.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 351-5
DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR, PHYSICS
TOPIC TAGS--TRANSFORMER STEEL, HIGH FREQUENCY, MAGNETIC PROPERTY, MAGNETIC
HYSTERESIS, QUALITY CONTRL, PHYSICAL PROPERTY, STEEL TECHNOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0181

STEP NO--UR/0048/70/034/002/0351/0355

CIRC ACCESSION NO--AP0115885

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--09DCT70

CIRC ACCESSION NO--AP0115885

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ENERGY LOSSES IN THE MAGNETIC CORES OF HIGH FREQUENCY MACHINES ARE DETD. MOSTLY BY LOSSES OWING TO EDDY CURRENTS AND NOT TO MAGNETIC HYSTERESIS. THE CURRENT PROCEDURES OF QUALITY CONTROL INVOLVING TESTING THE PROPERTIES OF STEELS AT 400 HZ ARE UNSATISFACTORY. THERE IS A LACK OF DATA WITH RESPECT TO MAGNETIC PROPERTIES AT HIGH FREQUENCIES, THEIR RELATION TO COMPN., STRUCTURE, AND TECHNOL. FACTORS OF THE MATERIAL. ACTIONS THAT SHOULD BE TAKEN ARE CONSIDERED, ESP. IN MODERNIZING THE STEEL PRODUCING TECHNOL., WIDENING THE RANGE OF AVAILABLE STEEL GRADES AND SECTIONS, AND INTRODUCING NEW GRADES STRICTLY FOR HIGH FREQUENCY APPLICATIONS. FACILITY: TSNIICHM IM. BARDINA, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr.:

AP0042373Ref. Code: UR 0454

JPRS 50162

Study of Orbits of Small Meteor Bodies by Oblique Scattering Method

(Abstract: "Study of the Orbits of Small Meteor Bodies by the Oblique Scattering Method," by N. S. Andrianov, V. P. Popyova and V. V. Sidorov, Kazakh State University; Moscow, Astronomicheskii Vestnik, Vol IV, No 1, 1970, pp 43-48)

The authors proposed the oblique scattering method for studying the orbits of small meteor bodies at the IAU Symposium No 33 in 1967; this paper now describes practical investigations of the method. Since 1965 the method has been used in measuring 3,200 radiants and the velocities of individual sporadic meteors brighter than approximately $+8^m_r$. The mean square errors for measuring radiant coordinates are $2^\circ.5$ and for velocity 1.5 km/sec. These estimates were confirmed on the basis of observations of the Geminids stream. The radio magnitude of a meteor was estimated using the formula $m_r = 40 - 2.5 \log \rho_m$, where ρ_m is the electron density at the point of maximum ionization. Using the measured radiants and velocities, an electronic computer was used in calculating the orbits for 1,090 meteors brighter than approximately $+6^m_r$ and for 500 meteors brighter than approximately $+8^m_r$. In contrast to the radar method, the new radio method makes it possible to observe faint meteors having great velocities and

Reel/Frame
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evaluation of observational selection is more precise. The determined distributions of orbital elements for the most part coincide with the distributions obtained by the radar method. There are differences in details, attributable to different selection conditions and a difference in the sensitivity of the apparatus used. For example, the i and e distributions in these observations are considerably closer to photographic data than to radar data. The percentage of short-period orbits (with a $\angle 1$) was even greater than in radar observations.

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1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--UROCHOLECYSTOQUININE AND ACID FORMATION FUNCTION -U-
AUTHOR-(02)-POPOVA, YE.A., GOLTYAKOVA, T.V.
COUNTRY OF INFO--USSR
SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 34-36
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--STOMACH, GALLBLADDER, GUINEA PIG, DUODENUM, QUININE,
HYDROCHLORIC ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/1826 STEP NO--UR/0504/70/042/005/0034/0036
CIRC ACCESSION NO--AP0123615
UNCLASSIFIED

2/2 013

CIRC ACCESSION NO--AP0123615
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. THE AUTHOR INVESTIGATED THE ACTIVITY OF UROCHOLECYSTOQUININE IN PERSONS WITH NORMAL INCREASED AND LOWERED ACID FORMATION FUNCTION OF THE STOMACH (USING BIOLOGICAL TITRATION ON THE GALL BLADDER OF A GUINEA PIG ACCORDING TO A. SVATOSH). WITH A LOWERED ACID FORMATION FUNCTION ON FASTING STOMACH THE LEVEL OF UROCHOLECYSTOQUININE PROVED TO BE LOW IN A NUMBER OF CASES BUT FOLLOWING DUODENAL TUBAGE USING SUNFLOWER OIL REACHED THE NORMAL VALUE. THE CONTENT OF UROCHOLECYSTOQUININE BOTH ON A FASTING STOMACH AND AFTER DUODENAL TUBAGE WHICH SUNFLOWER OIL WAS NORMAL (AS IN HEALTHY CONTROL INDIVIDUALS) IN OTHER PATIENTS WAS WELL AS IN THE GROUP WITH AN INCREASED ACID FORMATION FUNCTION OF THE STOMACH. NO EXCITING ACTION OF HYDROCHLORIC ACID ON THE FORMATION OF CHOLECYSTOQUININE WAS FOUND.
FACILITY: GOSPITAL'NAYA TERAPEVTICHESKAYA KLINIKA AND TESENTRAL'NAYA N-I LABORATORIYA I MOSKOVSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR

UDC 615.216.5.076:612.816

GIGAURI, V. S., PADALKO, V. V., MIRONOVA, Z. P., and POPOVA, YE. B., Department of Experimental Surgery, Scientific Research Institute of Clinical and Experimental Surgery, and Chair of Pathological Physiology, First Moscow Medical Institute imeni I. M. Sechenov

"Control of the Degree of Muscle Relaxation"

Moscow, Khirurgiya, Vol 3, Mar 71, pp 101-104

Abstract: Muscle relaxation during surgery is of paramount importance. The amount of muscle relaxants administered should be large enough to prevent re-appearance of muscle tonus and twitches during surgery, but it should not be so large as to complicate postoperative recovery. Since the degree of muscular relaxation is judged by clinical signs, we decided to investigate whether electromyographic records representing transmission across neuromuscular junctions might not be a more objective and precise index of the degree of muscular relaxation. For this purpose, tests were done on laboratory dogs anesthetized with modern anesthetics. Electromyograms were recorded continuously and a record of clinical signs was kept while muscle relaxants (Ditiline and Tubarine) were administered in definite doses at definite time intervals. The results showed no correlation between the clinical signs of muscular

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GIGAURI, V. S., et al., Khirurgiya, Vol 3, Mar 71, pp 101-104

relaxation and the magnitude of the electromyograms which fluctuated at random between 0 and 88%. Evidently, synaptic conductivity in peripheral muscles reflects only the local effect of the relaxants but not the relaxation of the body as a whole. Therefore, the clinical signs of muscular relaxation must still be relied upon, though they may be used in conjunction with other parameters, including electromyograms.

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172 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ELECTRON EFFECTS OF N,ALKYL GROUPS IN 1,CHLOROALKANES STUDIED BY
NUCLEAR QUADRUPOLE RESONANCE, NQR -U-
AUTHOR--(03)-VORONKOV, M.G., FESHIN, V.P., POPOVA, YE.P.
COUNTRY OF INFO--USSR
SOURCE--LAIV. PSR ZINAT. AKAD. VESTIS 1970, (2), 33-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--ALKANE, CHLORINATED ALIPHATIC COMPOUND, ELECTRON DENSITY,
NUCLEAR RESONANCE, ELECTRON DISTRIBUTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0685 STEP NO--UR/0197/70/000/002/0033/0034
CIRC ACCESSION NO--AP0119593
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119593

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRANSFER OF THE ELECTRON EFFECTS ALONG THE SATD. HYDROCARBON CHAIN WAS STUDIED IN A SERIES OF COMPS. ME(CH SUB2) SUBN CL (N EQUALS 0-11) BY PRIME35 CL NZR SPECTRA AT 77DEGREESK. ON PASSING FROM N EQUALS 0 TO N EQUALS 1 THE RESONANCE FREQUENCY, NU, IS HARPLY REDUCED OWING TO A LARGE INDUCTIVE EFFECT OF ET AS COMPARED TO ME GROUP ENHANCED ALSO IN THE FORMER COMPD. BY THE SIGMA,SIGMA CONJUGATION. FOR N EQUALS 2 THE NU VALUE BECOMES LARGER TO OSCILLATE AROUND THE AV. NU VALUE OF 33.0 MHZ WITH INCREASING N. HIGHER NU VALUES FOR EVEN THAN FOR ODD N'S ARE NOTICED. ANOMALOUS BEHAVIOR FOR 1,CHLOROBUTANE WAS OBSD. ALSO HERE (NU 33.255 MHZ). THE VALUE IS CONDITIONED BY THE ELECTRON D. DISTRIBUTION BETWEEN THE CL ATOM AND THE CLOSEST CH SUB2 GROUPS IN THE CHAIN. WHEN THE HYDROCARBON CHAIN BECOMES LONGER (N GREATER THAN 4) THE AV. NU VALUE AROUND WHICH THE OSCILLATIONS OCCUR GRADUALLY INCREASES. FACILITY: INST. ORG. SIN., RIGA, USSR.

UNCLASSIFIED

USSR

UDC 547.665

GRINENKO, G. S., POPOVA, YE. V., MAKSIMOV, V. I., and ALEKSEYEVA, L. M.
All-Union Chemical-Pharmaceutical Scientific Research Institute

"Reactions of Metal Derivatives of Compounds Possessing a Labile Hydrogen Atom With α -Haloketones. XVIII. Reaction of Halodesoxybenzoines With Na acetoacetates"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 6, No 4, Apr 70,
pp 736-739

Abstract: Reaction of α -chlorodesoxybenzoin and α -bromo-p-methyl-desoxybenzoin with sodium acetoacetate gave corresponding ethyl esters of α -acetyl- β -benzoyl- and α -acetyl- β -toluyhydrocinnamic acid, m.p. 73-75 $^{\circ}$ and 110-111 $^{\circ}$ respectively. Both compounds are almost completely in the ketonic form. Refluxing these esters for 9 hrs with 20% sulfuric acid cyclizes them, yielding 2-methyl-3-carboethoxy-4,5-diphenylfuran, m.p. 67-68 $^{\circ}$ C and 4-phenyl-5-tolylfuran, m.p. 81-83 $^{\circ}$. These compounds could be converted to free acids by alkaline hydrolysis yielding 2-methyl-4,5-diphenyl-3-furanecarboxylic acid,

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GRINENKO, G. S., et al., Zhurnal Organicheskoy Khimii, Vol 6, No 4,
Apr 70, pp 736-739

m.p. 211-213⁰ and 2-methyl-4-phenyl-5-tolyl-3-furanecarboxylic acid,
m.p. 193-195⁰. The structures of all of the above compounds were
supported by IR and PMR spectra. Cyclization occurs very easily;
evidently after the esters are protonated at the carbonyl oxygen
atom, the cyclization occurs analogously to cyanosubstituted compounds.

2/2

- 98 -

1/2 010 UNCLASSIFIED PROCESSING DATE--300170
TITLE--CATALYTIC REDUCTION OF 8,METHYL,5,6,7,8,TETRAHYDRO,
1,5,INDANIDIC,4,YLACETIC ACID AND ITS DERIVATIVES -U-
AUTHOR--(04)-GRINENKO, G.S., POPOVA, YE.V., MAKSIMOV, V.I., ALEKSEYEVA,
L.M. P
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(4), 732-6
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHEMICAL SYNTHESIS, STEROID, ACETIC ACID, CHEMICAL REDUCTION,
AROMATIC KETONE, HYDROGENATION, ISOMER, CATALYST, PALLADIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3002/0459

STEP NO--UR/0366/70/006/004/0732/0736

CIRC ACCESSION NO--AP0128029

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0128029

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REDN. OF 8, METHYL, 5, 6, 7, 8, TETRAHYDRO, 1, 5, INDANDION, 4, YLACETIC ACID (I) IN MEOH OVER PD-CACO SUB3 CATALYST GAVE ISOMERIC MIXTS. CONTG. 1:1 MIST. OF ANTI, CIS, 8, METHYLHEXAHYDRO, 1, 5, INDANDION, 4, YLACETIC ACID (II) AND ITS SYN, CIS, ANALOG (IIA). WHEN THE REDN. WAS CARRIED OUT IN ACOH CONTG. PD, BASO SUB4 BESIDES II AND IIA ALSO ABOUT THE SAME AMT. OF ANTI, TRANS, II ISOMER IIB) WAS FORMED. THE REDN. OF ET I ESTER WITH NABH SUB4 GAVE 1, HYDROXY DERIV. (III) OF I. THE HYDROGENATION OF III IN MEGH CONTG. PD, C CATALYST GAVE 1:1:2.5 MIST. OF 1, HYDROXY ANALOG OF IIB, 1, HYDROXY ANALOG OF II, AND 1, HYDROXY ANALOG OF IIA. THE OXIDN. OF 1, HYDROXY ANALOG OF IIB GAVE IIB. THE SYNTHESIS OF ANTI, TRANS, BICYCLIC SYSTEMS (SUCH AS IIB) IS OF INTEREST IN THE TOTAL SYNTHESIS OF STEROIDS. FACILITY: VSES. NAUCH., ISSLED. KHIM.--FARM INST. IM. ORDZHUNIKIDZE, MOSCOW, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CLASSIFICATION PROBLEMS AND TERMINOLOGY OF SCIENCE AND ENGINEERING
-U-
AUTHOR--POPOVCHERKASOV, I.N. P
COUNTRY OF INFO--UNITED KINGDOM
SOURCE--STANDARTY I KACHESTVO, 1970, NR 5, PP 16-18
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., BEHAVIORAL AND SOCIAL SCIENCES
TOPIC TAGS--COMPUTER TECHNIQUE, COMPUTER INPUT UNIT, DATA PROCESSING SYSTEM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0820 STEP NO--UR/0422/70/000/005/0016/0018
CIRC ACCESSION NO--AP0119724
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119724

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

ABSTRACT. THE ARTICLE IS A TREATMENT OF THE PROBLEMS OF PREPARATION OF ENGINEERING, ECONOMIC, PLANNING AND STOCKING DATA FOR COMPUTER READ IN. THE SOLUTION OF THE PROBLEM DEPENDS ON STANDARDIZATION AND ORDERLY ARRANGEMENT OF THE SCIENTIFIC AND ENGINEERING TERMINOLOGY. A NUMBER OF REQUIREMENTS ARE FORMULATED TO BE MET BY SCIENTIFIC AND ENGINEERING TERMINOLOGY. THESE REQUIREMENTS ARE FORWARDED BY THE DESIGNERS OF SYSTEMS FOR SCIENTIFIC AND ECONOMIC DATA CLASSIFICATION AND CODING. FACILITY: VNIITK.

UNCLASSIFIED

USSR

UDC 539.89

GALKIN, A. A., Academician of the Academy of Sciences of the Ukrainian SSR,
DEGTYAR', YE. P., ZHEVAGO, S. YE., and POPOVICH, A. I., Donetsk Physico-Technical
Institute of the Academy of Sciences of the Ukrainian SSR

"The Fermi Surface of Arsenic under Pressure"

Moscow, Doklady Akademii Nauk SSSR, Fizika, Vol 198, No 3, 1971, pp 563-564

Abstract: The authors study the behavior of the giant quantum oscillations and the ordinary quantum oscillations of ultrasonic wave absorption in arsenic at various pressures. Giant quantum oscillations in arsenic are realized on the fine γ -neck of a hole-type Fermi surface proposed by P. J. Lin and L. M. Falicov. The following are considered: 1) the coefficient of sound absorption α in a magnetic field at 0, 2, 4, and 6 kilobars and 2) dependence of the period of oscillation of the sound absorption coefficient on pressure. The results show that when the spin-orbital disintegration becomes sufficient to satisfy the $\lambda < 2(E_c - E_f)$ condition, where E is the energy of degeneration and E_f is Fermi energy, hole-type γ -necks disappear. This was observed by the authors with respect to the disappearance of giant quantum oscillations above 3 kilobars. Original article: three figures and seven bibliographic entries.

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USSR

PASECHNIK, L. L.; POPOVICH, A. S. (Physics Institute of the Ukrainian Academy of Sciences, Kiev)

"Study of the Effect of the Instability of a Type of Longitudinal Ambipolar Sound on the Time of Motion of Particles of a Plasma across a Magnetic Field"

Leningrad, Zhurnal Tekhnicheskoy Fiziki; July, 1971; pp 1382-5

ABSTRACT: The article describes the first attempt to use a phase method, developed earlier for the study of the motion of ions in a natural gas, for the study of the transfer of charged particles of a plasma across a magnetic field. It is shown that the instability, identified earlier by the authors as a modification of longitudinal ambipolar sound, leads to a substantial decrease in the time of transfer of particles to the wall. At the same time, the "lifetime" of electrons as well as ions appears to be on the order of the period of the oscillations caused by the indicated instability and agree with the theoretical evaluations obtained from dimensional considerations.

1/1 The article includes three figures. There are 10 references.

1/2 037

TITLE--PROPERTIES OF CRYSTALLINE AMMONIUM NITRITE --U- UNCLASSIFIED PROCESSING DATE--23OCT70

AUTHOR--(04)-SHIDLOVSKIY, A.A., ~~POPOVICH, A.S.~~, SHMAGIN, L.F., ROGOZHNIKOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. LENINGRAD 1970, 43(2), 434-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PROPULSION AND FUELS, ORDNANCE

TOPIC TAGS--AMMONIUM NITRITE, COMBUSTION RATE, DETONATION, EXPLOSIVE PROPERTY, THERMAL SHOCK

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1997/0724

CIRC ACCESSION NO--AP0119631

STEP NO--UR/0080/70/043/002/0434/0436

UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--23OCT7C

CIRC ACCESSION NO--AP0119631

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

ABSTRACT. D., LOSS OF WT. ON STORAGE, FLASH POINT, SENSITIVITY TO SHOCK AND FRICTION, RATE AND CRIT. DIAM. OF COMBUSTION AT ATM. PRESSURE, AND EFFECT ON COMBUSTION RATE OF NH SUB4 NO SUB2 AFTER ADDN. OF VARIOUS SUBSTANCES WERE STUDIED ALONG WITH EXPLOSIVE PROPERTIES, SUCH AS THE RATE OF CRIT. DIAM. OF DETONATION. CRYST. NH SUB4 NO SUB2 IS AN EXPLOSIVE SUBSTANCE OF AV. FORCE (ON THE ORDER OF TETRYL), BUT ITS PRACTICAL USE IS HARDLY POSSIBLE DUE TO ITS POOR CHEM. STABILITY AND ITS HIGH SENSITIVITY TO MEHC. AND THERMAL SHOCK. FACILITY: MOSK. INST. KHIM. MASHINOSTR., MOSCOW, USSR.

UNCLASSIFIED

Devices

USSR

UDC 621.52:535.59:621.385.002.72

POPOVICH, B.A.

"Valve"

Elektron. tekhnika. Nauch.-tekhn.sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1971, No 9, pp 101-102 (from RZh:Elektronika i yeye primneniye, No 1, Jan 72, Abstract No 1A64)

Translation: The valve [ventil'--natekatel'] described differs from existing designs in the fact that the needle in it is not a locking element. The valve [ventil'] is locked with the aid of a sealing gasket and the needle is relieved from axial stress by a spring. This special design feature completely excludes the possibility of wedging the needle in the seat [гнездо] and assures long life of the basic elements of the valve (needle and seat) and good reproducibility of low rates of inleakage [natekaniye]. Smooth movement of the needle is produced by a micrometer screw, and hermetic sealing from the environment is accomplished with the aid of a silphon. The valve tolerates heating to a temperature of 200° C. The range of pressure control is 10⁻⁶--5.10⁻² mm of mercury. 2 ref. A.F.

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USSR

UDC: None

CHKALOVA, V. P., RUBIN, A. L., PAKHOMOV, V. G., and POPOVICH, B. D.
"Electromagnetic Phase Method of Controlling the Thickness of
Nonmagnetic Conducting Coatings on a Ferromagnetic Base"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye
znaki, No 12, 1973, p 113, No 371413

Abstract: In this device, eddy currents are excited in the specimen
and the thickness of the latter's coating is obtained from the
phase of the voltage induced. A special choice of the exciting
transmitter's frequency and of the current frequency improves the
accuracy of the device and enables the operator to dispense with
a standard.

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1/3 029

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--KINETICS OF THE LOSS OF SILVER ATOMS ADSORBED ON SILICA GEL -U²

AUTHOR--(C4)-POPOVICH, G.M., LUNINA, YE.V., GOLUBEV, V.B., YEVDOKIMOV, V.B.

COUNTRY OF INFO--USSR

P

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 517-20

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SILVER NITRATE, SILICA GEL, CHEMICAL KINETICS, EPR SPECTRUM, ADSORPTION, IRRADIATION, ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1237

STEP NO--UR/0076/70/044/002/0517/0520

CIRC ACCESSION NO--AP0123199

UNCLASSIFIED

2/5 029

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123199

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

ABSTRACT. SAMPLES PREPD. BY SHAKING CARRIER WITH AGNO SUB3 SOLN. IN WATER FOR 3 HR, WERE WASHED WITH DISTD. WATER, DRIED AND IRRADIATED BY X OR GAMMA RAYS, AT MINUS 190DEGREES. SYNTHETIC SILICA GEL CORRESPONDING TO A SURFACE OF 660 M PRIME2-G AND ALUMINO SILICATE CNTG. AL SUB2 O SUB3 (12 AND 25PERCENT) CORRESPONDING TO THE SURFACES OF 400 AND 350 M PRIME2-G WERE USED AS CARRIERS. INDUSTRIAL SILICA GEL SAMPLES WERE ALSO USED. THE TEMP. WAS VARIED BY CHANGING THE TEMP. OF N SUB2 FLOWING THROUGH THE RESONATOR. EPR SPECTRA OF STABILIZED AG ATOMS ON THE SURFACE SHOWED 2 DOUBLETS OF ISOTOPES PRIME107 AG AND PRIME109 AG. CONSTS. OF HYPERFINE SPLITTING DECREASED IN THE CASE OF IRRADIATED SPECIMENS FROZEN IN SOLN. DOUBLETS WERE ALSO FOUND DURING IRRADN. OF AGNO SUB3 SOLN. HYPERFINE SPLITTING CONSTS. DEPEND UPON TEMP.; AT MINUS 170DEGREES, THEY DECREASED TO SIMILAR TO 40 GE. SPLITTING CONSTS. OF ATOMS STABILIZED ON THE SURFACE WERE INDEPENDENT OF TEMP. PERCENT RELATIVE CHANGE IN SPLITTING CONSTS. IS EXPRESSED AS $\Delta(\Delta E) - \Delta E_{SUBFREE}$ WHERE $\Delta(\Delta E)$ EQUALS $\Delta E_{MINUS} - \Delta E_{SUBFREE}$. ΔE_{MINUS} AND $\Delta E_{SUBFREE}$ ARE SPLITTING CONSTS. OF STABILIZED AND FREE ATOMS OF THE ISOTOPES BEING STUDIED. CHARACTERISTIC CURVES FOR THE LOSS OF AG ATOMS AT MINUS 140DEGREES ADSORBED ON SILICA GEL AND STABILIZED IN FROZEN SOLN. ARE GIVEN. THE EFFECTS OF TEMP. AND RATE OF MELTING ARE CONSIDERED. IT IS ASSUMED THAT DURING IRRADIATION, ENERGIZED TRAPS ARE FORMED IN THE CARRIER. DURING HEATING OF THE SPECIMEN, SOME OF THE ELECTRONS ARE SET FREE WHICH ARE RESPONSIBLE FOR THE REDN. OF SOME OF THE AG PRIMEPOSITIVE IONS TO AG ATOMS.

UNCLASSIFIED

3/3 029

CIRC ACCESSION NO--A0123199
ABSTRACT/EXTRACT--FACILITY:
USSR.

UNCLASSIFIED

PROCESSING DATE--30OCT70

MOSK. GDS. UNIV. IM. LCMONOSOVA, MOSCOW,

UNCLASSIFIED

Acc. Nr:

AP0048860

Abstracting Service:
GEOPHYSICAL ABST.

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Ref. Code:

UR0459

91934h Infrared spectroscopic studies of the structure of high-molecular-weight succinimides and their initial components. Pliet, T. N.; Glavati, O. L.; Popovich, T. D. (Vses. Nauch.-Issled. Inst. Neftchim. Proml. (USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 31-46 (Russ). The ir spectra of alkenylsuccinimide motor oil detergent additives (I), e.g. OLOA-1200, S-12, S-20, S-23, S-22, S-25, and 45, as well as of their starting materials, viz., polyisobutylene (II) and polypropylene (III), alkenylsuccinic anhydrides (IV), and polyethylenepolyamines were systematically studied. The data obtained afforded a means of exercising control over the production technology and the identification of I. The condensation of II and III with maleic anhydride can be controlled by a band at 1790 cm^{-1} , whereas the degree of amination can be evaluated by bands at 1670 and 1710 cm^{-1} . A correlation between the ir spectra and the structure of I, II, and III indicated a spontaneous conversion of IV into alkenylsuccinic acid (due to hydrolysis). The hydrolysis rate can be studied as a function of polymer structure and other physicochem. factors by a band at 1715 cm^{-1} . CKJR

1/1

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REEL/FRAME
19800627

USSR

UDC 620.172:193.57

POPOVICH, V. V., BICHUYA, A. L., ZAMORA, M. F., MIZETSKIY, V. L., SHIL'NIKOVA, G. K., BEREZHKO, B. I., and CHAYEVSKIY, M. I., Institute of Physico Mechanics, Academy of Sciences, UkrSSR, L'vov; L'vov Polytechnical Institute

"Influence of Smelting Method on the Physical and Mechanical Properties of 15KhS1MFB Steel"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 6, 1970, pp 93-97

Abstract: The corrosion resistance and long-term strength of ordinary and vacuum-smelted 15KhS1MFB steel were studied in a fused lead-bismuth eutectic. The changes in microstructure, microhardness, coercive force, and electrical resistance of specimens tested for corrosion and long-term strength were studied. It is demonstrated that 15KhS1MFB steel, regardless of the method of smelting, is little influenced by the eutectic Pb-Bi alloy at 470-550°C. The vacuum-smelted steel has practically the same long-term strength as the ordinary steel, but somewhat better plasticity.

1/1

1/2 036

UNCLASSIFIED
TITLE--ROLE OF STRESSES IN ACCELERATING THE PENETRATION OF MOLTEN METALS INTO SOLID METALS -U-
PROCESSING DATE--11SEP70

AUTHOR--CHAYEVSKIY, M.I., TOROPOVSKAYA, I.N., POPOVICH, V.V., DATSISHIN, A.M.
COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKH. MATER. 1970, 5(6), 692-698

DATE PUBLISHED-----70

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

TOPIC TAGS--LIQUID METAL, ZINC, COPPER, BISMUTH, LITHIUM, IRON, METAL STRESS, INTERNAL STRESS, METAL SURFACE IMPREANATION, PLASTIC DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0625

STEP NO--UR/0369/70/005/006/0692/0698

CIRC ACCESSION NO--AP0105604

UNCLASSIFIED

2/2 036

CIRC ACCESSION NO--AP0105604

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF APPLIED STRESSES ON THE RATE AT WHICH MOLTEN METAL PENETRATES SOLID METAL DEPENDS ON THE INTERACTION OF THE METALS WHICH IN TURN IS DETD. BY THEIR STRUCTURE. REGULAR DIFFUSION OF MOLTEN INTO SOLID METALS IS LEAST AFFECTED BY STRESSES OF PLASTIC DEFORMATION. IT FOLLOWS THAT ACCELERATION OF DIFFUSION IS LEAST WHEN THE 2 METALS FORM SOLID SOLNS. OR INTERMETALLIC COMPS. WHEN THIS IS NOT THE CASE APPLIED STRESSES WILL ENHANCE DIFFUSION. THESE CONTENTIONS WERE TESTED BY EXPTS. ON THE DIFFUSION OF MOLTEN ZN INTO CU, MOLTEN BI INTO CU, AND MOLTEN LI INTO ARMCO FE.

UNCLASSIFIED

USSR

UDC 621.375.82

POPOVICHEV, V. I., RAGUL'SKIY, V. V., FAYZULLOV, F. S.

"Producing 1-Mw Pulses With Free Generation of a Ruby Laser"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 1, Moscow, 1971, pp 135-136 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D1040)

Translation: Radiation pulses with an energy of 0.3 joule, a length of 0.2-0.8 μ sec, and a spectral width of $1.3 \cdot 10^{-3} \text{ cm}^{-1}$ were obtained through generation in a resonator with weak feedback. Authors abstract.

1/1

USSR

UDC: 621.373:530.145.6

GRAZYUK, A. Z., POPOVICHEV, V. I., RAGUL'SKIY, V. V., FAYZULLOV, F. S.

"Increasing Emission Brightness by Means of a Brillouin Laser"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 70-78 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D184)

Translation: It is shown that pumping intensity, energy density and pulse length must exceed certain threshold values to increase brightness by means of lasers on forced scattering. Two Brillouin lasers are experimentally studied: a carbon disulfide laser with brightness amplification, and an ether laser without brightness amplification. A special ruby laser with parameters which satisfy conditions of brightness amplification was used for pumping the carbon disulfide laser. The following characteristics are obtained for a carbon disulfide Brillouin laser: energy efficiency 2 percent; divergence of converted emission $3 \cdot 10^{-4}$ radian (close to diffraction); brightness amplification by a factor of 9. Efficiency in the Brillouin ether laser is 20 percent. Five illustrations, two tables, bibliography of eighteen titles. Resumé.

1/1

USSR

UDC: 621.373:530.145.6

POPOVICHEV, V. V., FAYZULLOV, F. S.

"Production of Pulses With a Power of 1 MW in the Case of Free Emission From a Ruby Laser"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 135-136 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D210)

Translation: In emission in a cavity with weak feedback, emission pulses are obtained with an energy of 0.3 J, a duration of 0.2-0.8 μ sec, and a spectrum width of $1.3 \cdot 10^{-3} \text{ cm}^{-1}$. Three illustrations, bibliography of four titles. Resumé.

1/1

- 78 -

USSR

UDC 538.574.6

KOPALEYSHVILI, V.P., POPOVIDI, R.S.

"Diffraction At Infinitely Long Bodies"

Radiotekhnika i elektronika, Vol XVII, No 7, July 1972, pp 1374-1381

Abstract: The problem is considered of the diffraction of plane or cylindrical electromagnetic waves at a finite number of infinitely long bodies of arbitrary cross section and location, with the continuous surface replaced by conductors of small radius. A method is proposed by means of which the problem of the diffraction of plane electromagnetic waves at cylinders and strips is solved with the aid of an electronic computer. Currents induced at the surface, diagrams, and neighboring fields are calculated. Some of the results obtained are compared with the results of other authors. It is concluded that the proposed method of solution of the problem by replacement of the conducting surface of the bodies by conductors of small radius is most effective in the case of co-phased excitation by an incident wave of the particles of the body. In all remaining cases good results are obtained with a distance between the conductors of $\lambda/5$. In all cases the radius of the conductors was taken equal to 0.003λ because a further decrease did not change the response. 6 fig. 8 ref. Received by editors, 28 May 1971.

1/1

- 21 -

2/2 024

UNCLASSIFIED

PROCESSING DATE--18SEP70

IRC ACCESSION NO--AP0105544
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING DTA AND X RAY PHASE AND MICROSTRUCTURAL ANAL. METHODS, COMPS. EXHIBITING A CONSIDERABLE HOMOGENEITY REGION WERE OBSD. IN THE PBS MINUS PBBR SUB2 AND PBSE MINUS PBBR SUB 2 SYSTEMS, NAMELY PB SUB7 NEGATIVE X S SUB2 NEGATIVE 2X BR SUB10 POSITIVE 2X (0 SMALLER THAN OR EQUAL TO X SMALLER THAN 0.3) AND PB SUB7 NEGATIVE X SE SUB2 NEGATIVE 2X BR SUB10 POSITIVE 2X (0 SMALLER THAN X SMALLER THAN 0.25). THE COMPS. MELT INCONGRUENTLY: PB SUB7 S SUB2 BR SUB10 M. 394DEGREES AND PB SUB7 SE SUB2 BR SUB10 M. 383DEGREES. THE POSITIONS OF THE EUTECTIC POINTS IN THE SYSTEMS ARE AT 349DEGREES AND 9 MOLE PERCENT PBS, AND AT 353DEGREES AND 6 MOLE PERCENT PBSE. PB SUB7 S SUB2 BR SUB10 IS HEXAGONAL WITH ALPHA 12.28 AND C 4.33 ANGSTROM; ZETA EQUALS 1, AND THE X RAY D. IS 6.79. THE FUSIBILITY DIAGRAM OF THE PBTE MINUS PBBR SUB2 SYSTEM CORRESPONDS TO A SYSTEM WITH A EUTECTIC OF THE DEGENERATE TYPE, AT 368DEGREES.

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--18SEP70

APPROVED FOR RELEASE: 08/09/2001
TITLE--PHYSICAL CHEMISTRY STUDY OF LEAD CHALCOGENIDE AND LEAD BROMIDE SYSTEMS
AUTHOR--NOVOSELOVA, A.V., ODIN, I.N., POPOVKIN, V.P.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2) 257-61
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHYSICAL CHEMISTRY PROPERTY, X RAY ANALYSIS, EUTECTIC MIXTURE, PHASE DIAGRAM, LEAD COMPOUND, BROMIDE, SELENIUM COMPOUND, CRYSTAL STRUCTURE, TELLURIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
FILM REEL/FRA--1988/0559
STEP NO--UR/0363/70/006/002/0257/0261
IRC ACCESSION NO--AP0105544
UNCLASSIFIED

CIA-RDP86-00513R002202520005-3"

172 024 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--PHYSICOCHEMICAL STUDY OF LEAD CHALCOGENIDE AND LEAD BROMIDE SYSTEMS
-U-
AUTHOR--(03)-NOVOSELOVA, A.V., ODIN, I.N., POPOVKIN, B.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER., 1970, 6(2) 257-61
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHYSICAL CHEMISTRY PROPERTY, X RAY ANALYSIS, EUTECTIC MIXTURE,
PHASE DIAGRAM, LEAD COMPOUND, BROMIDE, SELENIUM COMPOUND, CRYSTAL
STRUCTURE, TELLURIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/0559 STEP NO--UR/0363/70/006/002/0257/0261
ARC ACCESSION NO--AP0105544
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--18SEP70

IRC ACCESSION NO--AP0105544

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING DTA AND X RAY PHASE AND MICROSTRUCTURAL ANAL. METHODS, COMPS. EXHIBITING A CONSIDERABLE HOMOGENEITY REGION WERE OBSD. IN THE PBS MINUS PBBR SUB2 AND PBSE MINUS PBBR SUB 2 SYSTEMS, NAMELY PB SUB7 NEGATIVE X S SUB2 NEGATIVE 2X BR SUB10 POSITIVE 2X (O SMALLER THAN OR EQUAL TO X SMALLER THAN 0.3) AND PB SUB7 NEGATIVE X SE SUB2 NEGATIVE 2X BR SUB10 POSITIVE 2X (O SMALLER THAN X SMALLER THAN 0.25). THE COMPS. MELT INCONGRUENTLY: PB SUB7 S SUB2 BR SUB10 M. 394DEGREES AND PB SUB7 SE SUB2 BR SUB10 M. 383DEGREES. THE POSITIONS OF THE EUTECTIC POINTS IN THE SYSTEMS ARE AT 349DEGREES AND 9 MOLE PERCENT PBS, AND AT 353DEGREES AND 6 MOLE PERCENT PBSE. PB SUB7 S SUB2 BR SUB10 IS HEXAGONAL WITH ALPHA 12.28 AND C 4.33 ANGSTROM; ZETA EQUALS 1, AND THE X RAY D. IS 6.79. THE FUSIBILITY DIAGRAM OF THE PBTE MINUS PBBR SUB2 SYSTEM CORRESPONDS TO A SYSTEM WITH A EUTECTIC OF THE DEGENERATE TYPE, AT 368DEGREES.

UNCLASSIFIED

PROCESSING DATE--16OCT70

1/2 009

UNCLASSIFIED

TITLE--LEAD SULFIDE LEAD IODIDE SYSTEM -U-

AUTHOR--(04)-NOVOSELOVA, A.V., ODIN, I.N., FEDOSEYEVA, I.N., ~~POPOVKIN, B.A.~~

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 135-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--LEAD SULFIDE, IODIDE, EUTECTIC, TELLURIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0846

STEP NO--UR/0363/70/006/001/0135/0137

CIRC ACCESSION NO--AP0118022

UNCLASSIFIED

PROCESSING DATE--16OCT70

UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AP0118022

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

ABSTRACT. THE M.P. DIAGRAM OF THE PBS-PBI SUB2 SYSTEM WAS CONSTRUCTED FROM HEATING CURVES FOR ANNEALED SAMPLES. THE TEMPS. OF THE EFFECTS IN THE SYSTEM, AS OBTAINED FROM THE HEATING AND THE COOLING CURVES PRACTICALLY COINCIDE. THE EUTECTIC POINT OCCURS AT 17 MOLE PERCENT PBS. ONLY THE SYSTEM CONTG. 40 MOLE PERCENT PBS IS SINGLE PHASE, THE REMAINING SYSTEMS BEING 2 PHASE. THE COMPD. IN THE SYSTEM, MELTING INCONGRUENTLY AT 415DEGREES, HAS THE FORMULA 2PBS.3PBI SUB2. IN ADDN. TO THE LINES OF THIS COMPD., THE 2H PBI SUB2 LINES WERE ALSO PRESENT ON X RAY DIFFRACTION PATTERNS OF SAMPLES OF COMPNS. OF 5 AND 25 MOLE PRECENT PBS. THE FORMATION OF THE POLYTYPIC FORM 6R PBI SUB2 DURING THE CRYSTN. OF THE EUTECTICS IN THE P3SE-PBI SUB2 AND PBTE-PBI SUB2 SYSTEMS IS PROBABLY ASSOC. WITH THE SIMULTANEOUS CRYSTN. OF PB CHALCOGENIDE, WHICH STABILIZES THIS FORM. IN THE PBS-PBI SUB2 SYSTEM THE EUTECTIC IS FORMED BY LEAD IODIDE AND THE COMPD. 2PBS.3-BI SUB2. THE SOLY. OF PBI SUB2 IN SOLID PBS AT 415DEGREES WAS ALSO DETD. THE SYSTEMS WERE ANNEALED FOR 780 HR. THE SOLY. BOUNDARY, AS DETD. BY THE METHODS USED, CONSTITUTES 0.8 PLUS OR MINUS 0.3 MOLE PERCENT PBI SUB2.

FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA. MOSCOW, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--SECTIONS IN THE LEAD TELLURIUM IODINE TERNARY SYSTEM -U-
AUTHOR-(03)-ODIN, I.N., POPOVKIN, B.A., NOVSELOVA, A.V.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 482-5
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--LEAD COMPOUND, TELLURIUM COMPOUND, IODINE COMPOUND, ELECTRIC
PROPERTY, PHASE DIAGRAM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0836 STEP NO--UR/0363/70/006/003/0482/0485
CIRC ACCESSION NO--AP0118012
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

272 012

CIRC ACCESSION NO--AP0118012

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMAL ANAL. METHOD WAS USED TO STUDY SOME SECTIONS IN THE TERNARY PB-TE-I SYSTEM. THE QUASIBINARY PBI SUB2-TE SECTION WAS STUDIED AND PHASE DIAGRAMS ARE PRESENTED FOR THE PB-PBI SUB2 SYSTEM AND FOR THE POLYTHERMAL PBTE-(PB PLUS PBI SUBW) (1:1) SECTION. BY USING THE MICROSTRUCTURAL ANAL. METHOD AND ON THE BASIS OF MICROHARDNESS, ELEC. RESISTIVITY, AND THERMAL EMF. MEASUREMENTS OF ANNEALED ALLOYS, THE BOUNDARIES OF THE SOLID SOLNS. BASED ON PBTE AT 398DEGREES WERE DETD. UPON ALLOYING OF PBTE WITH THE MIXT. PB PLUS PBI SUB2 IN THE 3 PHASE REGION THE ELEC. PROPERTIES OF THE ALLOYS VARY AS A FUNCTION OF THE COMPN., WHILE IN THE 2 PHASE REGION OF THE PBTE-PBI SUB2 SECTION THEY REMAIN CONST. THIS IS APPARENTLY ASSOCD. WITH THE PRESENCE OF THE METALLIC PB PHASE, WHICH CONTRIBUTES TO THE ELEC. PROPERTIES OF THE ALLOYS.

USSR. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW,

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--2H FORM PBI SUB2 CONVERSION UPON HEATING -U-
AUTHOR-(04)-DDIN, I.N., BALEK, V., POPOVKIN, B.A., NOVOSELOVA, A.V.
COUNTRY OF INFO--USSR
SOURCE--VESTN. MOSK. UNIV., KHIM. 1970, 11(1), 115-17
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, CHEMISTRY
TOPIC TAGS--X RAY DIFFRACTION, LEAD COMPOUND, IODIDE, PHOTOCONDUCTIVITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/1473 STEP NO--UR/0189/70/011/001/0115/0117
CIRC ACCESSION NO--AP0120260
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 018

CIRC ACCESSION NO--AP0120260

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONVERSION OF THE 2H FORM OF PBI
SUB2 INTO A "MIXED" STRUCTURE UPON HEATING IS SHOWN BY THE EMANATION
THERMAL METHOD AND BY X RAY DIFFRACTION. THE CONVERSION TAKES PLACE AT
A HEATING RATE OF 3-5DEGREES PER MIN AT 140-400DEGREES. THIS CONVERSION
IS ONE OF THE REASONS FOR THE INCREASED PHOTOCOND., RESULTING FROM THE
MANY DEFECTS.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70
 TITLE--TEMPERATURE COMPOSITION PHASE DIAGRAM OF A SODIUM TELLURIDE
 TELLURIUM SYSTEM -U-
 AUTHOR--FINOGENOVA, V.K., USKOV, A.A., POPOVKIN, B.A. NOVOSELOVA, A.V.
 COUNTRY OF INFO--USSR
 SOURCE--VESTN. MOSK. UNIV., KHIM, 1970, 11(1), 56-8
 DATE PUBLISHED-----70
 SUBJECT AREAS--MATERIALS
 TOPIC TAGS--THERMAL EFFECT, PHASE DIAGRAM, SODIUM COMPOUND, TELLURIUM, X
 RAY ANALYSIS, EUTECTIC MIXTURE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1989/0613 STEP NO--UR/0189/70/011/001/0056/0058
 CIRC ACCESSION NO--AP0107210
 UNCLASSIFIED

2/2 . 020

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC. ACCESSION NO--AP0107210

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

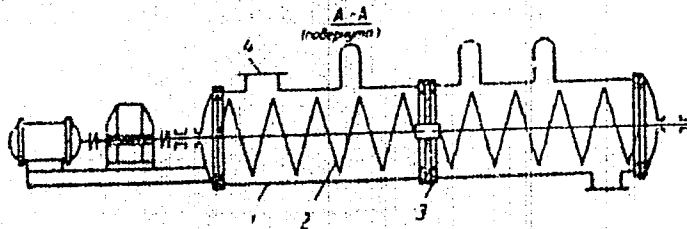
UNCLASSIFIED

AA0053141

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 2170

238521 DRYER for high-humidity fuels using hot heavy oil ("mazut"). The fuel-oil mixture entering the top of the dryer under pressure is transported by a screw conveyor with an intermediate bearing flange. The steam evolved forms a foam with the oil, which is drained off with recovery of the oil. The level in the dryer is controlled by a radioactive level meter.



20.4.61. as 727246/23-4, POPOVSKII, V.M. et al. (16.7.69.) Bul. 10/10.3.69. Class 12a, 10a, Int. Cl. B 01d. C 10b. 1

Als

19830086

AA0053141

AUTHORS: Popovskiy, V. M.; Setsko, V. I.; Yegorov, V. A.; Akulov,
F. F.

2/2

19830087

USSR

GALKIN, M. S., MINAYEV, A. F., POPOVSKIY, V. N.

"Dynamic Aeroelastic Stability of a Flight Vehicle with an Automatic Control System"

4-ya Vses. Konf. po Probl. Ustoychivosti v Stroyit. Mekh., Tezisy Dokl. [Fourth All-Union Conference on Problems of Stability in Structural Mechanics, Theses of Reports -- Collection of Works], Moscow, 1972, pp 151-152; (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 V415, from the Resume).

Translation: An elastic flight vehicle of arbitrary design is studied in a stream of air when the control organs are deflected by an automatic control system in response to signals from sensing elements. Thus, a closed system is produced, the stability of which is determined by the transfer functions of its parts. The oscillations and stability of the system in a stream of air are described by ordinary second order differential equations in generalized coordinates. The coefficients of these equations form matrices of inertia, rigidity of the structure, aerodynamic rigidity and aerodynamic damping. A set of computer programs is developed, allowing the elements of the initial matrices to be defined for an arbitrary shape of the structure with $N = 40$ degrees of freedom. Conversion of the equations of free oscillations can be used to produce transfer functions which relate the displacements at points of attachment of sensing

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USUR

GALKIN, M. S., MINAYEV, A. F., POPOVSKIY, V. N., 4-ya Vses. Konf. po Probl. Ustoychivosti v Stroyit. Mekh., Tezisy Dokl., Moscow, 1972, pp 151-152.

elements to deflections of the control organs. The stability of the system is determined by comparing the frequency characteristics of its parts for various levels of input signal. A specific example of investigation of the stability of an aircraft with a short wing is studied. The influence of various parameters is analyzed.

2/2

Instrumentation and Equipment

USSR

UDC: 621.791:061.43

POPOVSKIY, V. YU. and KUZNETSOV, V. D.

"All-Union Exhibition of Modern Welding Equipment"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 73, pp 76-78

Abstract: The first all-union specialized exhibition of Soviet arc-welding equipment was held from 14 to 16 May, 1973 in Riga under the name "Welding - 73". The exhibition was organized by the following: VMIIESO (All-Union Scientific Research Institute of Electric Welding Equipment), IES imeni Ye. O. Paton (Institute of Arc Welding imeni Ye. O. Paton), Ministry of the Electrotechnical Industry of the USSR, and the State Planning Commission of the Latvian SSR. The exhibition was opened by M. L. Raman, Chairman of the Council of Ministers of the Latvian SSR and Chairman of the State Planning Commission of the Republic, and by V. M. Borushko, chairman of the organizational committee for the exhibition and Deputy Minister of the Electrotechnical Industry of the USSR. The exhibition included the products of more than 30 Soviet plants producing electric welding equipment. The following units were exhibited: the ADS-1000-3, TS-32, and ADF-2001 automata, designated for the direct current hidden-arc welding of butt and angular seams; the PDG-303-1 and PDG-304-1 semi-automata, used for the direct current welding of sheet steel in a gas shield; the A-1197 semi-automaton, used in shielded-arc welding, hidden-arc welding, open-arc welding, or powder rod welding; the UDC-101

USSR

POPOVSKIY, V. YU., et al, Avtomaticheskaya Svarka, No 10, Oct 73, pp 76-78

unit, used for the direct current welding of copper and its alloys with a nonconsumable electrode in argon; the UDG-301 and UDG-501 units for alternating current welding of aluminum and its alloys; the HVT-1601 and MG-602 spot-welding machines; the MR-2507 machine, used for the projection welding of low-carbon grades of steel; the MSh-2001 machine, used for the seam welding of parts made from low-carbon and alloyed grades of steel; the K-555 machine, for the field contact butt welding of rails; the UDK-204 unit, for the contact arc welding of irreversible seams on water and gas pipelines; equipment developed by the Kiev Polytechnic Institute was demonstrated for welding with the electromagnetic mixing of the molten metal pool; the MSKhS-20-3 machine, used for welding copper trolley wire; the MKhSA-50-3, for welding copper contact plates to the leads of aluminum windings; the A-1281U and the MPU-RI-1 units, used for microplasma welding of stainless steel and nonferrous metals; the MPU-RI (A-1390) combination type power source for pulsed microplasma welding; the APR-401 unit, for the air-plasma cutting of low-carbon and stainless grades of steel, nonferrous metals and their alloys up to 100 mm thick; the A-612 and A-820K electro-slag welding units; the MTK-5-3 contact condenser machine, used for hermetizing semiconductor equipment; the MTU-0.4 ultrasonic welding unit; the TD-300 and TD-500 portable arc power source transformers; and other transformers, rectifiers, and defect control equipment.

2/2

USSR

UDC 519.2:621.391

POPOVYAN, D. E.

"Modeling Discrete Channels Containing Random Parameters"

Leningrad, Metody predstavleniya i apparaturn. analiz sluchayn. protsessov i poley. 3-y Vses. simpozium. Sekts. 2 -- Sbornik (Methods of Display and Machine Analysis of Random Processes and Fields, Third All-Union Symposium, Section 2 -- Collection of Works), 1970, pp 80-86 (from Referativnyy Zhurnal -- Matematika, No 6, June 71, Abstract No 6V226, by Ya. Kogan)

Translation: It is noted that existing models of communication channels are suitable for narrow-band signals. Modeling of multiplicative interference in communication channels leads to certain theoretical and practical difficulties. In this work ways of overcoming these difficulties are outlined as applied to communication channels for the transmission of discrete signals. A method of synthesizing the model of a discrete channel containing random parameters is indicated for quite arbitrary correlational functions of signals obtained at the output of actual communication channels.

1/1

USSR

UDC: 533.9...16

ANDRYUKHINA, E. D., IVANOVSKIY, M. A., POPOV, S. N., POPRYADUKHIN, A. P.,
FEDYANIN, O. I., KHOL'NOV, Yu. V.

"Investigation of the Magnetic Field Structure of the Tor-1 and Tor-2
Stellarators"

Tr. Fiz. in-ta AN SSSR (Works of the Physics Institute, Academy of Sciences of
the USSR), 1973, 65, pp 73-81 (from RZh-Fizika, No 6, Jun 73, abstract No
6G358)

Translation: The electron beam method is used to study the structure of
magnetic surfaces in toroidal plasma traps with a double-helix field -- the
Tor-1 and Tor-2 stellarators. Beam monitoring was done by the conventional
probe method and by a high-speed dielectric grid method. It is shown that the
structure of the surfaces is regular up to angles of rotational conversion i
of the order of 5.5π throughout the entire range of variation in i with the
exception of the resonance values $i = \pi, 2\pi, 4\pi$, for which expansion of
the surfaces with the formation of a rosette structure is recorded. The
amplitude of resonance perturbations measured with respect to the width of the
rosettes is of the order of 10^{-4} of the amplitude of the main stellarator field.
Bibl. 11 titles.

1/1

USSR

UDC: 533.9...16

IVANOVSKIY, M. A., POPOV, S. N., POPRIYADUKHIN, A. P.

"The TOR-2 Stellarator"

Tr. Fiz. in-ta AN SSSR (Works of the Physics Institute, Academy of Sciences of the USSR), 1973, 65, pp 65-72 (from RZh-Fizika, No 6, Jun 73, abstract No 6G355)

Translation: The difference between the Tor-2 stellarator and others is that the magnetic field is set up by discrete elliptical coils rather than by helical windings. The paper gives the theoretical assumptions which act as the basis for the design of the installation, and also the results of initial studies. Bibliography of 12 titles.

1/1

USSR

UDC 538.122.001.11

POPRIADUKHIN, A. P.

"Influence of an Electric Field on Particle Motion in a Stellarator"

Moscow, Stellaratory, Vol 65, pp 11-25

Abstract: The motion of particles in a stellarator magnetic field is considered in the drift approximation in the presence of an electric field, for both the case in which the equipotentials and magnetic surfaces coincide and the case in which they are noncoincident. Several simple models are used in the analysis: a system with helical symmetry; a system with axial symmetry; a straight-current cylinder perturbed by a helical harmonic of the magnetic field; a cylinder carrying longitudinal current and perturbed by an arbitrary set of helical harmonics. It is found that the presence of an electric field causes regrouping of the particles in velocity space. If the equipotentials coincide with magnetic surfaces, particle deflections are small. On the other hand, in the noncoincident case particle deflections which considerably exceed the Larmor radius are possible. The resultant increased coefficient of collision diffusion is evaluated.

1/1

USSR

UDC: 533.9...16

POPRYADUKHIN, A. P.

"Effect of an Electric Field on the Motion of Particles in a Stellarator"

Tr. Fiz. in-ta AN SSSR (Works of the Physics Institute, Academy of Sciences of the USSR), 1973, 65, pp 11-25 (from RZh-Fizika, No 6, Jun 73, abstract No 6G357)

Translation: The author considers the motion of particles in a stellarator magnetic field in the drift approximation in the presence of an electrostatic field, both for the case in which the equipotentials and the magnetic surfaces coincide and for the case in which they are noncoincident. It is shown that in both cases the electric field leads to regrouping of particles in velocity space. In the case of nonequipotentiality of the magnetic surfaces large particle deflections are possible, leading to increased collision diffusion. The diffusion coefficient is evaluated.

1/1

ПОРТАПОВ, А. Н.

Space Physiology

ORIGINAL ARTICLES
SPACE BIOLOGY

SQ: JPRS 54396
03 NOV 1971

UDC 612.2-06:612.766.2

EFFECT OF HYPODYNAMIA ON GAS EXCHANGE IN ANIMALS (AN-SPICA PYTAMIB) AC
[Article by Ye. A. Kovalenko, V. L. Ponomov, F. S. Mellyan, Yu. S. Galushko
K. V. Gorbunov, Ye. I. Kondratsky, N. A. Kozlov, N. N. Poterayev, M.
Grinberg and Ye. A. Savchenko. Izvestiya Akademii Nauk SSSR Seriya Biologicheskaya,
Russian, Vol 5, No 4, pp 3-6, 1971, submitted for publication 8 December 1969]

Abstract: This paper reports on investigations of the pathogenesis of prolonged hypokinesia (up to 100 days), including total gas exchange. Gas homeostasis in tissues, rate of *in vivo* oxygen consumption in muscles (polarographic method), tissue respiration and oxidative phosphorylation in the skeletal muscles, myocardium, brain and liver, as well as oxidative processes in liver mitochondria. The weight of the animals and individual skeletal muscles of the limbs was also examined. On the 120th day of hypokinesia functional (static and dynamic) tests were performed to determine work capacity and acute hypoxia tolerance of animals. During an exposure to 40-day hypokinesia the dogs showed a decrease in gas exchange which was most clearly pronounced by the 30th day. By the end of the experiment gas exchange increased and immediately returned to a normal level after the experiment. Rats exposed to a longer hypokinesia exhibited no noticeable changes in total gas exchange at early stages of the experiment and a distinct acceleration of gas exchange and regional oxygen consumption in muscles by the 90th-100th day. Changes in the oxidative processes in tissues were also revealed substantial weight losses due to a decrease

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--BLAST FURNACE GRANULATED SLAGS RAISE THE QUALITY OF SLAG PORTLAND
CEMENT -U-
AUTHOR--(05)-KRYZHANOVSKAYA, I.A., DOROSHENKO, N.M., POPUDRENKO, M.K.,
TOKAR, V.A., SHEVCHENKO, I.I.
COUNTRY OF INFO--USSR
SOURCE--TSEMENT 1970, (3), 20-1
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--BLAST FURNACE SLAG, CEMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
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CIRC ACCESSION NO--APO140817

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140817

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LAB. AND PRODUCTION TESTS SHOW
THAT PORTLAND CEMENT BASED ON SLAGS OF BLAST FURNACE GRANULATION RAISE
CONSIDERABLY THE CEMENT QUALITY AND INCREASE OUTPUT. FACILITY:
KRIVOROZH. TSEM. ZAVOD., KRIVOI ROG, USSR.

UNCLASSIFIED

POPARIY, Ye. P.

Cybernetics

GURIA

SO: JPRS 55939
9 MAR 1972

(M. Chabak)

EXPERIMENTS IN CLASSIFICATION AND FORMATION OF CONCEPTS

Article by V. P. Gladun, Ye. P. Popariy and Z. I. Babingoch; Kiev, *Kibernetika i vychislitel'nyye mashiny*, Russian, No 7, 1970, pp 28-32]

Experiments in the classification and formation of concepts were conducted in connection with the construction of a model of the brain as a learning system. The model is a programmed, growing network of neuron-like elements realizing reception, processing, and recognition of signals arriving from the outside medium, and the control of activity determined in the outside medium. Since reliable information concerning information processing in the human brain is still incomplete, each such model [1] realizes some hypothesis of the structure and particular aspects of the operation of the neuron network. We can obviously consider the capability of the model for solving the problem, so far the exclusive prerogative of the human brain, as the criterion of correctness of the adopted hypothesis. The classification and formation of concepts were chosen, from among a number of similar problems, for clarifying the possibilities of the developed model. Since we shall only discuss those problems in what follows, those characteristics of the model not used in their solution will be omitted from this article.

Description of the Model

The model has receptors capable of grasping signals entering from the outside medium. In problems of the classification and formation of concepts, the objects are represented by a combination of signals, each of which corresponds to one of the characteristics of the object.

The memory elements of the model may be found in one of two states: active or passive, according to which the information is or is not preserved. In the process of perception, a net is formed in the model whose nodes are receptors and active elements. The nodes of this network may have input and output connections. The nodes connected with some node A by its input connections are defined as anterior nodes of node A.

USSR

UDC: 681.3.06:51

GLADUN, V. P., POPURIY, Ye. P.

"An Interpreting System for the IPL-5 Language"

V sb. Kibernet. tekhnika. Vyp. 9 (Cybernetic Technology--collection of works, No 9), Kiev, 1971, pp 74-78 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V731)

Translation: IPL-5 (Information Processing Language) is a language designed for solving complex logic problems having the following singularities: a) the information is presented in the form of symbols having both numerical and non-numerical significance; b) memory distribution cannot be predetermined in the program since during operation old data may disappear and new data may appear whose extent and complexity can scarcely be foreseen; the various data to be processed are interrelated by associative ties which may change during operation of the program -- some relationships showing up, while others disappear. Among such problems are information retrieval, linguistic problems, automation of synthesis, simulation of thought processes, etc. The peculiarities of the

1/2

- 65 -

GLADUN, V. P., POPURIY, Ye. P., Kibernet. tekhnika. Vyp. 9, Kiev, 1971,
pp 74-78

IPL-5 language and the make-up of its interpreter are described. It is noted that IPL-5 is presently one of the most widely used languages for processing of symbolic information presented in the form of lists. V. Mikheyev.

2/2

USSR

POPUSHOY, L. S., and BUKHAR, I. E.

"Limiting Fusariosis Damage in Winter Wheat"

Kishenev, Izvestiya Akademii Nauk Moldavskoy SSR, Seriya Biologicheskikh i Khimicheskikh Nauk, No 3, 1973, pp 63-69

Abstract: Fusariosis is a widespread disease of grain which lessens yield and weight in humid and semihumid regions of the world. Contagion apparently occurs in the reproductive organs during flowering. The effects of predecessors, time of planting and fertilizers on the disease were examined in different types of winter wheat. Experiments were conducted in kolkhozes in the Orgeyevskiy and Teleneshtskiy rayons. Fertilizers sharply decreased susceptibility to fusariosis for Bezostaya I and Avrora types but not Odesskaya 51. Type of predecessor also influenced disease in the following crop. Black fallow was the most favorable predecessor for disease prevention. Some disease occurred with peas as a forerunner; winter crop predecessors allowed a higher rate of disease than peas but considerably less than corn. Fertilizer N90P90K90 increased susceptibility with corn and pea predecessors, 1/2

USSR

POPUSHOY, I. S., and BUKHAR, I. E., Izvestiya Akademii Nauk Moldavskoy SSR, Seriya Biologicheskikh i Khimicheskikh Nauk, No 3, 1973, pp 63-69

although it was favorable to grain in fallow soil. Time of planting also influenced disease. Comparing times of Sep 7, 17, and 30, less fusariosis was observed in the latter two plantings. The data indicate the possibilities of lessening disease by bettering ecological conditions, choice of predecessor, optimal planting time, and application of fertilizers.

2/2

USSR

UDC 539.18

MOROZOV, V. N., POPYALKOVSKAYA, L. K., GRACHEVA, G. P., and KREST'YANINOV, A. G.

"Calculation of Degree of Calcium Atomization in Acetylene-Air and Propane-Butane-Air Flames"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 18, No 1, Jan 73, pp 17-22

Abstract: The article calculates the partial pressures of calcium compounds in an acetylene-air and a propane-butane-air flame under various combustion modes characterized by the air volume-hot gas volume ratio V_{air}/V_{gas} or the quantity C/O in the hot mixture, and on the basis of the results he calculates the degree of atomization. The dependence of the degree of atomization on the composition of the hot mixture, the quantity of water solvent introduced into the flame, and the calcium concentration of the solution is calculated.

1/1

POPYRIN, L. S.

JPRS 56350
26 June 1972

UDC 621.311.2:621.039.001.2.003.1
OPTIMIZATION OF THE SECONDARY SECTIONS OF WATER-COOLED NUCLEAR
POWER PLANTS

[Article by L. S. Popyrin and Yu. V. Kuznetsov, *Energetika i Transport, Russia*, No. 2, 1972, pp.190-199]

Introduction. In the near future, the increases in the power capacity of the electric power systems of most developed countries will be achieved by the construction of nuclear power plants. Water-cooled reactors have taken a leading position in the program of development of nuclear power engineering in the USSR and abroad. The reliability of reactor systems, the traditional nature of the thermomechanical equipment required, the coolant and working fluid have allowed power units to be created of this type, capable of competing with the condensation units of thermal electric power stations burning organic fuel. As the equipment is mastered and operating experience is accumulated, the capabilities for technically and economically well-founded selection of equipment parameters for nuclear power plants increase and the attention given problems of optimization of nuclear power plant parameters with water-cooled reactors increases.

The selection of optimal water-cooled reactor power plant parameters has been the subject of a large number of works. Most of these (for example, [1-4]) study the problems of thermodynamic analysis of the cycles of possible power plant systems with water-cooled reactors, determine the influence of individual parameters on the efficiency of nuclear power plants and determine the optimal (by the criterion of maximum efficiency) values of the primary parameters. The results of these studies are of doubtless interest. However, it is impossible, based on the results of these studies alone, to draw any final conclusions concerning the optimal profile of power plant equipment. Thermodynamic studies must be looked upon as a first step toward more general technical and economic studies. Works dedicated to technical and economic optimization of nuclear power plant parameters are significantly scarcer. As

POPYRIN, L.S.

DISOCIATING GASES AS COOLANTS AND WORKING
SUBSTANCES AT ATOMIC POWER PLANTS

B

JPRS 60560
16 November 1973

(16)

Translation of Russian-language materials presented at the
Third All-Union Conference by A. K. Krasin, et al.,
Dissolitsionnyye Gazy kak Toplonositel' i Rabotchiye Tela
Energeticheskikh Usimov, 1973, Minsk, UDC: 621.311+627.987,
signed to press 17 April 1973

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[1 - USSR - 1]

Power

USSR

UDC[621.362:538.4].001.24

POPYRIN, I. S., PSHENICHNOV, N. N., ROSHCIN, A. M., KHOKHLOV, L. K.,
SHISHKOV, Ye. V.

"Calculated Studies of Open-Cycle Power Magnetohydrodynamic Generators"

V sb. Teplotekhn. probl. pryamogo preobrazov. energii (Heat-Engineering Problems of Direct Energy Conversion--Collection of Works), Issue 2, Kiev, "Nauk. dumka," 1971, pp 3-11 (from RZh--Elektrotehnika i energetika, No 12, Dec 1971, Abstract No 12A173)

Translation: The results are presented of calculations on an electronic computer of the effect of finite (scalar) conductivity on the characteristics of a magnetohydrodynamic (MHD) channel, its length and profile, and also the results of a calculation of the cost of the MHD channel and the SP [?inherent parameters] of the magnetic system as a function of the finite conductivity and the temperature of heating up of the oxidant. The calculations were made with the aid of a mathematical model, worked-out at the Siberian Power Engineering Institute of the Siberian Department of the Academy of Sciences, USSR, for thermodynamic and technical-economic studies of composite power plants with open-cycle MHD. 3 ill. 2 tab. 2 ref.

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USSR

UDC 621.311.25:621.039.003

POPYRIN, L. S., STAROSTENKO, N. N.

"Analysis of the Efficiency of Thermoelectric Plants with a Dissociating Working Medium"

Dissotsiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok -- V sb. (Dissociating Gases as Heat Transfer Agents and the Working Medium of Power Plants -- Collection of Works), Minsk, Nauka i tekhn. Press, 1970, pp 61-68 (from RZh-Elektrotekhnika i Energetika, No 5, May 1971, Abstract No 5U188)

Translation: The principles of constructing a mathematical model and some results of studying the efficiency of the gas-liquid cycle of atomic electric power plants with a dissociating gas as the working medium of the second loop are discussed. The research performed demonstrated high efficiency of utilizing a mathematical model of the atomic electric power plants with a dissociating gas as the working medium and confirmed the necessity for an all-around approach when studying the problems of optimizing the parameters and the profile of modern heat and power plants. There are 5 illustration and a 5-entry bibliography.

1/1

USSR

UDC 533.6.013.42

VOL'MIR, A. S., PONOMAREV, A. T., and POPLYALOV, S. A., Moscow

"The Behavior of a Wing Panel in a Transitional Mode in a Gas Stream"

Moscow, Prikladnaya Matematika i Mekhanika, Vol 37, No 2, Mar - Apr 1973,
pp 247 - 253

Abstract: The subject of study is a rectangular wing moving at a zero angle of attack in an ideally compressible fluid and subject to an instantaneous change in the angle of attack as a result of a vertical gust, causing small, unstable movements of the panel. The procedure applies for air speeds from $M = 0$ to $M = 2$; the example uses $M = \sqrt{2}$. The solution is based on a wave equation of linearized unstable aerodynamics and on geometrically nonlinear equations from the theory of flexible plates. The equations describing the behavior of the elastic system are solved by applying the Bubnov-Galerkin procedure along one coordinate and finite difference methods along the other coordinate and over time. The distribution of aerodynamic pressure on the panel surface is based on the model of a thin bearing surface, using the numerical method of retarded potential from a source, taking the history of the deformation process into account. There are two diagrams and four graphs of numerical results from the example. The method not only permits the determination of the deformation of the median surface and the pressure distributions over time, but makes it possible to find dangerous stresses in the

1/2

USSR

VOL'MIR, A. S., et al., Moscow, Prikladnaya Matematika i Mekhanika, Vol 37, No 2,
Mar - Apr 1973, pp 247 - 253

design in the transition mode and to discover stable oscillations.

2/2

- 6 -

1/2 034 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CALCULATION OF THE ACTION OF A GUST ON A WING WITH SUBSONIC LEADING
AND TRAILING EDGES -U-
AUTHOR--(02)-BELOTSEKOVSKIY, S.M., POPYTALOV, S.A. P
COUNTRY OF INFO--USSR
SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA ZHIDOSTI I GAZA,
MAR.-APR. 1970, P. 92-100
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--AIRCRAFT WING, AERODYNAMIC FORCE, AERODYNAMIC CHARACTERISTIC,
GUST LOAD, NUMERIC SOLUTION, MACH NUMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1390

STEP NO--UR/0421/70/000/000/0092/0100

CIRC ACCESSION NO--AP0125033

UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125038

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF A NUMERICAL METHOD FOR THE SOLUTION (IN LINEAR FORMULATION) OF THE PROBLEMS OF DETERMINING THE DISTRIBUTED AND OVERALL AERODYNAMIC CHARACTERISTICS OF DEFORMABLE AND RIGID WINGS IN THE CASE OF ARBITRARY AND HARMONIC TIME DEPENDENCES OF THE MOTION PARAMETERS AND DEFORMATION PARAMETERS. THE METHOD HOLDS FOR WINGS OF ARBITRARY PLANFORM (INCLUDING VARIABLE GEOMETRY WINGS AND WINGS WITH CURVILINEAR EDGES). IT IS SUITABLE FOR DETERMINING THE UNSTEADY CHARACTERISTICS OF WINGS EVEN OF COMPLEX PLANFORM WITH SUPERSONIC, TRANSONIC, AND SUBSONIC LEADING EDGES. RELATIONS ARE DERIVED, USING WHICH THE TRANSIENT FUNCTIONS OF DISTRIBUTED AND OVERALL CHARACTERISTICS OF WINGS OF ARBITRARY PLANFORM CAN BE DETERMINED AT AN INITIAL MOMENT OF TIME FOR ANY FLIGHT MACH NUMBER.

UNCLASSIFIED

USSR

UDC 669.295.053.2

GASIK, M. I., KLINKOVICH, N. S., PORADA, A. N., LIBERANT, G. I.

"Problem of Solid Solution of Oxygen Compounds of Titanium in Electrocorundum"

Metallurgiya i koksokhimiya. Mezhd. resp. nauchno-tekhn. sb. (Metallurgy and Coal-Tar Chemistry. Interdepartmental Republic Scientific and Technical Collection), 197, vyp. 21, pp 43-46 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G229)

Translation: The temperature dependence of the solubility of Ti_2O_3 (in mole %) in solid electrocorundum $\lg N_{Ti_2O_3} = -4,320/t + 2,56$ is obtained, and it is demonstrated that the limiting possible concentration of Ti_2O_3 in $\alpha-Al_2O_3$ near the melting point of Al_2O_3 is doubly high according to the data of previous experiments. The x-ray method was used to determine the variation of the interplane spacing in the lattice of electrocorundum as a function of the gross content of Ti oxides in it recalculated as TiO_2 . The decomposition of the supersaturated solid solution of Ti_2O_3 in electrocorundum determines the magnitude of anomalous expansion of the normal electrocorundum grain. The article contains 1 illustration, 1 table, and a 9-entry bibliography.

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