2/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118462

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSTRUCTION OF AN OPERATOR ORIGINATED BY THE SCHRODINGER EQUATION HAVING INHOMOGENEOUS BOUNDARY CONDITIONS ON A CERTAIN PORTION OF THE BOUNDARY OF THE ORTHOGONAL SUM OF HILBERT SPACES. SIMPLY CONNECTED BOUNDED AND UNBOUNDED REGIONS ARE DEFINED WITHIN WHICH THIS OPERATOR IS SELF CONJUGATE. SEVERAL THEOREMS AND LEMMAS ARE FORMULATED AND PROVED IN THE PROCESS. FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, INSTITUT MATEMATIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC: 517.947.35

BARKOVSKIY, V. V.

"Influence Which the Boundary Conditions and Deformation of a Region Have on the Spectrum of Operators Generated by Boundary Value Problems With Spectral Parameter in the Boundary Conditions on Part of the Boundary"

Kiev, Ukrainskiy Matematicheskiy Zhurnal, Vol 25, No 2, 1973, pp 147-157

Abstract: The author investigates the Green's functions and spectrum of the self-adjoint, pseudodifferential operators generated by Laplace's equation, homogeneous boundary conditions on part of the boundary, and non-homogeneous boundary conditions on the remaining part of the boundary of an infinite strip in three-space.

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AR0044252

BARLAMOV, M.L. UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

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241142 PNEUMATIC DIAPHRAGM FOR SOUND GENERATOR, for use in processes in gas media. Existing diaphragm-nozzle devices possess little radiating power. The proposal largely eliminates the short coming by using a pre -stressed diaphragm pressed against a nozzle having an end portion of diameter d equal to half the diaphragm diameter D (see diagram). The diaphragm is stretched and clamped round the periphery. Extra tension can be provided by advancing the nozzle position. On admission of compressed gas to the nozzle, the part of the diaphragm covering the nozzle end rises in a spherical bulge until the compressed gas bubble causes lifting of the diaphragm round the edge of the nozzle end, when the gas escapes to atmosphere through the annular gap. Partial collapse of the diaphragm then occurs, due to the pressure drop and an oscillation of the process arises, resulting in acoustic excitation of the diaphragm membrane to a virtually harmonic law. Auto-oscillation can be

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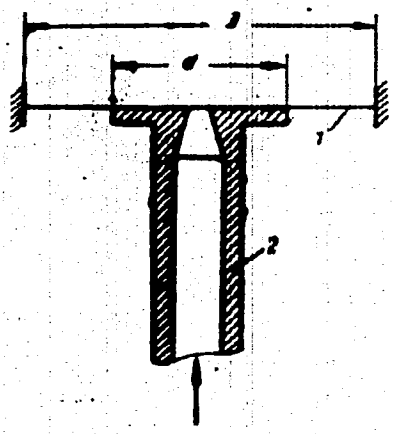
AA0044292

procured by suitable adjustment in phase of the opposing forces. Frequency depends on the natural frequency of the diaphragm; intensity on the gas and diaphragm parameters.

25.7.67 as 1176831/18-10.M.L.BARLAMOV et alia.
ODESSA POLYTECHNIC INST. (26.8.69) Bul 13/1.4.69.
Class 42s. Int.Cl.B 06b.



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19770841

AA0044292

AUTHOR: Varlamov, M. L.; Tonkonogii, Sh. B.; Ennan, A. A.; Kustovskiy, V. D.

Odesskiy Politekhnicheskiy Institut

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USSR

UDC 536.46:533.6

BARLAS, R. A.

"On the Combustion of Suspensions Under Small Concentrations of the Solid Phase"

V sb. Goreniye i vzryv (Combustion and Explosion -- Collection of Works), Moscow, "Nauka", 1972, pp 171-174 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B965)

Translation: The steady-state combustion of a suspension is considered in the one-dimensional case. A method for calculating the rate of the flame front and of the temperature field produced in the combustion is proposed as a result of a study of the mechanism of flame propagation. A method is proposed for determining the concentration boundary for flame propagation as the minimum concentration at which the width of the reaction zone is not less than the average distance between the suspended particles. Author's abstract.

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USSR

UDC 536.46:533.6

BARLAS, R. A.

"On the Rate of Flame Propagation in a Dust Dispersing Medium"

V sb. Tekhnol. poluch. novykh materialov (Technology for Producing New Materials -- Collection of Works), Kiev, 1972, pp 243-247 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B972)

Translation: Expressions are given for the rate of flame propagation from plane, cylindrical and spherical incindiary sources on the basis of a radiation mechanism for heat transfer from particle to particle and the notion of ignition temperature (upon the achievement of which the particle instantaneously burns). R. I. Nigmatulin.

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USSR UDC: 621.372.852.3(088.8)

BARLASOV, R. L., DOROGUSHKIN, L. V., KARPUSHIN, P. N., KUNAVIN, V. V., MYASNIKOV, N. I., YAKUNIN, V. A.

"An Automatic Polarization Attenuator"

USSR Author's Certificate No 259198, filed 4 Dec 68, published 28 Apr 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B174 P)

Translation: The proposed attenuator consists of two fixed waveguide adapters, a movable section with an absorbing plate, a readout instrument, a rod linkage and a step-by-step drive motor. The rod linkage is made up of three levers mounted on a common frame. The drive lever is rigidly fixed to the axis of the drive motor, and the driven lever is secured to the axis of the movable section. These levers are hinged together through the third lever. The length of the levers is selected in such a way that the linkage has a transfer ratio determined from calculating the permissible value of signal attenuation per step of the drive motor for the entire range of rotation of the movable section. The attenuator provides a linear change in attenuation. Two illustrations. A. K.

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1/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THE EFFECT OF BACTERIAL SENSITIZATION ON THE INTENSITY OF ALLERGY ORIGINATING FROM EXPOSURE TO THE EFFECT OF DINITROCHLORBENZENE -U-

AUTHOR--BARLOGOVA, S.G.

B

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA, 1970, NR 5, PP 23-25

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ORGANIC NITROGEN COMPOUND, CHLORINATED ORGANIC COMPOUND, BENZENE DERIVATIVE, ALLERGIC DISEASE, STAPHYLOCOCCUS, ANTIGEN ANTIBODY REACTION, ERYTHROCYTE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0693 STEP NO--UR/0391/70/000/005/0023/0025

CIRC ACCESSION NO--AP0117918

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117918

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN GUINEA PIGS WITH ALLERGY STEMMING FROM EXPOSURE TO THE EFFECT OF DINITROCHLORBENZENE AND WITH HYPERSENSITIVITY TO STAPHYLOCOCCAL ANTIGENS SKIN SENSITIVITY WAS STUDIED BY SETTING UP EPI AND INTRACUTANEOUS TESTS WITH CORRESPONDING ANTIGENS AND FORMATION OF HUMORAL ANTIBODIES WAS INVESTIGATED WITH THE AID OF HUMORAL ANTIBODIES PRECIPITATION REACTION WITH TANNIN TREATED ERYTHROCYTES. THE SYNERGIC ACTION OF DINITROCHLORBENZENE AND STAPHYLOCOCCAL ANTIGENS WHICH FINDS ITS EXPRESSION IN A SIGNIFICANT ACTIVATION OF BOTH THE CUTANEOUS SENSITIVITY AND ANTIBODY FORMATION TO BOTH ANTIGENS, IS INDEPENDENT FROM THE SEQUENCE WITH WHICH SENSITIZATION PROCEDURES ARE EFFECTED. FACILITY: INSTITUT GIGIYENY TRUDA I PROFZABOLEVANYY AMN SSSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--EXPERIMENTAL STUDY OF THE INFLUENCE EXERTED BY THE DOSAGE OF A CHEMICAL ON THE INCIDENCE AND INTENSITY OF EXTRINSIC ALLERGY -U-
AUTHOR-(05)-ALEKSEYEVA, O.G., BARLOGOVA, S.G., DUYEVA, L.A., ZAGIDULIN, SH.Z., RABEN, A.S.
COUNTRY OF INFO--USSR

SOURCE--GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA, 1970, NR 6, PP 19-23
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ALLERGIC DISEASE, SELECTIVE DRUG EFFECT, POISON EFFECT, MEDICAL EXPERIMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0675 STEP NO--UR/0391/70/000/006/0019/0023

CIRC ACCESSION NO--AP0131280
UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131280

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DIRECT RELATION BETWEEN A SENSITIZING DOSAGE AND ALLERGIC EFFECT WAS BROUGHT INTO EVIDENCE FOLLOWING A STUDY OF EXTRINSIC ALLERGY TO 10 OCCUPATIONAL CHEMICAL ALLERGENS IN GUINEA PIGS. AS REGARDS THE MAJORITY OF ASSAY ALLERGENS THIS RELATIONSHIP DID NOT CONCERN THE AREA OF TOXIC DOSES, SINCE POISONING IMPEDES THE DEVELOPMENT OF EXTRINSIC ALLERGY. SOME WEAK ALLERGENS, HOWEVER, CAN PRODUCE AN INTENSIVE SENSITIZATION ALSO WHEN SUPERIMPOSED ON POISONING. A QUESTION IS RAISED AS TO THE PRACTICABILITY OF SETTING UP MAXIMUM PERMISSIBLE STANDARDS FOR CHEMICAL ALLERGENS BY REFERRING TO THEIR SPECIFIC EFFECT. FACILITY: INSTITUT GIGIYENY TRUDA I PROFZABOLEVANNIY AMN SSSR.

UNCLASSIFIED

1/3 033 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--SCIENTIFIC ORGANIZATION OF LABOR IN AN INSTITUTE -U-

AUTHOR--BARMASH, S.

COUNTRY OF INFO--USSR

SOURCE--MINSK, SOVETSKAYA BELORUSSIYA, 11 DEC 69, P 2

DATE PUBLISHED--11DEC69

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--RAILWAY ENGINEERING, SCIENTIFIC RESEARCH INSTITUTE, R AND D MANPOWER UTILIZATION, LABOR ORGANIZATION, TIME MEASUREMENT TIME OPTIMAL CONTROL, SCIENTIFIC RESEARCH, R AND D FACILITY TOTAL STAFF SIZE, SUPERVISORY CONTROL, R AND D FACILITY MANAGEMENT, ACADEMIC INSTITUTION ADMINISTRATION, ACADEMIC PERSONNEL, PERSONNEL MANAGEMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0498 STEP NO--UR/9016/69/000/000/0002/0002

CIRC ACCESSION NO--AN0124206

UNCLASSIFIED

2/3 033 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AN0124206

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EVERYONE KNOWS, OF COURSE, THAT STUDENTS OFTEN DO NOT HAVE ENOUGH TIME. IT IS NOT EASY TO ANSWER IMMEDIATELY THE QUESTIONS OF WEHRE THEY SPEND IT UNPRODUCTIVELY, WHOSE FAULT IT IS, AND WHAT SPECIFICALLY SHOULD BE DONE TO USE IT MORE EFFICIENTLY. DETAILED STUDIES AND ANALYSES OF THE BUDGET OF STUDENTS' TIME HAVE TO BE MADE FOR EACH INSTITUTE AND SOMETIMES FOR EACH DEPARTMENT AND GROUP. THE OBJECTIVE OF MAKING A PAINSTAKING STUDY OF THE REASONS FOR THE WASTING OF TIME, FORMULATING AND IMPLEMENTING APPROPRIATE RECOMMENDATIONS, WAS SET BY THE CREATIVE LABORATORY FOR THE SCIENTIFIC ORGANIZATION OF STUDENTS' INDEPENDENT WORK AND REST OF HTE SCIENTIFIC ORGANIZATION OF LABOR (SOL) COUNCIL, BELORUSSIAN INSTITUTE OF RAILROAD ENGINEERS. THIS PUBLIC SERVICE LABORATORY, WHICH HAS BEEN FUNCTIONING FOR MORE THAN TWO YEARS, CONSISTS OF MEMBERS FROM DIFFERENT DEPARTMENTS, STRONG PROPONENTS FO SOL. WHEN ESTABLISHED, THE LABORATORY HAD SIX PERSONS ON ITS STAFF, NOW IT HAS 15. ITS WORK, ACCORDING TO ASSISTANT PROFESSOR R. TARTAKOVSKIY, CANDIDATE OF TECHNICAL SCIENCES, IS UNDER THE DIRECTION OF THE PARTY COMMITTEE AND RECTORATE OF THE INSTITUTE. IN ITS MEETINGS THE GROUP OUTLINES GOALS AND WAYS OF REACHING THEM AND MAKES RECOMMENDATIONS BASED ON RESEARCH AND COLLECTIVE WORK. SOL IS A VERY BROAD AND MULTIFACETED CONCEPT AND ITS PUSSIBILITIES ARE VIRTUALLY UNLIMITED. WHEREVER HUMAN BEINGS WORK THERE IS ROOM FOR SOL. IT IS BECOMING ESPECIALLY IMPORTANT IN THE INSTITUTE.

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3/3 033 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AN0124206

ABSTRACT/EXTRACT--HERE IN INTRODUCING SOL WE ARE THINKING NOT ONLY ABOUT SOLVING THE IMMEDIATE PROBLEM OF GIVING HELP TO STUDENTS, BUT OF WHAT THE GRADUATES WHO ARE FAMILIAR WITH THE PRINCIPLES OF THE SCIENTIFIC ORGANIZATION OF LABOR WILL DO TO PRESS FOR THEIR INTRODUCTION INTO INDUSTRY. THE PROPONENTS OF SOL IN THE BELORUSSIAN INSTITUTE OF RAILROAD ENGINEERS HAVE STARTED SOMETHING WORTHWHILE. THEIR INITIAL SUCCESSES ARE DUE TO THE EXTENSIVE PRACTICAL HELP GIVEN THEM BY THE PARTY COMMITTEE AND RECTORATE OF THE INSTITUTE, ESPECIALLY THE PROREC TOR FOR INSTRUCTION ACTIVITIES, V. GUTKOVSKIY. NATURALLY, EVERYTHING HASN'T GONE SMOOTHLY FOR THE LABORATORY, NOR IS EVERYTHING TO ITS LIKING. MORE STUDENTS AND TEACHERS SHOULD HAVE BECOME INVOLVED AND THE RECOMMENDATIONS IMPLEMENTED MORE QUICKLY. BUT THE MAIN THING IS THAT THE LABORATORY IS WORKING VERY EFFECTIVELY. THEREFORE, ITS EXPERIENCE SHOULD BE CAREFULLY STUDIED AND APPLIED IN OTHER SCHOOLS OF THE REPUBLIC.

UNCLASSIFIED

USSR

UDC 539.621

KOSTETSKIY, B. I., BARMASHENKO, A. I., and SLAVINSKAYA, L. V., Ukrainian Academy of Agricultural Sciences

"The Role of Crystal Structure and Orientation of Single Crystals in the Formation of the External Friction Process"

Kiev, Metallofizika, No 40, 1972, pp 24-27

Abstract: The principles of formation of the deformation constituent of an external friction force were investigated for four crystal structures (copper (f.c.c.), silicon (f.c.c.), zinc (HCP), and niobium (b.c.c.) in connection with crystallographic orientation. The relationship of friction parameters and plastic deformation process to crystallographic orientation was shown. The change in dislocation structure in the friction contact zone with the change of friction conditions was investigated. The diffraction pattern of layer deformation at the surface and subsurface zone of friction contact was shown. 12 figures, 1 table, 18 bibliographic references.

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1/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--ELECTROCHEMICAL REGENERATION OF ION EXCHANGE COLUMNS DURING TRANSVERSE CIRCULATION OF AN EQUILIBRIUM SOLUTION -U-
AUTHOR--GREBENYUK, V.D., GNUSIN, N.P., BARMASHENKO, I.B., MAZANKO, A.F.

COUNTRY OF INFO--USSR

B

SOURCE--ELEKTROKHIMIYA 1970, 6(1) 139-42

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ION EXCHANGE RESIN, ELECTROCHEMISTRY, ION, CHEMICAL EQUILIBRIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0319 STEP NO--UR/0364/70/006/001/0139/0142

CIRC ACCESSION NO--AP0103974
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103974

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REGENERATION OF ION EXCHANGERS IS EXPRESSED BY AN EQUATION THAT RELATES THE AMT. OF IONS REPLACED WITHIN A CERTAIN TIME TO THE MOBILITY OF THE ION, THE ION CONTENT IN THE ION EXCHANGER, AND THE CURRENT. THE EXPTL. RESULTS AGREE WELL WITH THE EQUATION.

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temperature hydrodynamic approximation, taking into account the energy exchange between electrons and ions; electron thermal conductivity; and ion drag. The self-similar solution has the form of a temperature wave propagating through a given "noise" level at a finite velocity. Between the temperature wave front and the vacuum-target interface a shock wave occurs, at whose front the electron temperature is continuous while the hydrodynamic parameters and ion temperature undergo discontinuities. At the target face the ion component of temperature goes to zero, while the electron component has a non-zero value. Calculations show that there are two distinct modes of heat propagation, namely subsonic and supersonic.

Barmin, A. A., and A. G. Kulikovskiy. Boundary conditions at the surface of a discontinuity, occurring from the interaction of powerful radiation with metal. IN: Sbornik. Nauch. konf. In-t mekh. Mosk. universiteta, Moskva, May 22-24, 1972. Abstracts of papers. Moskva, 1972, 7. (RZhMekh, 9/72, no. 9B920) (Translation).

The structure is studied of the narrow transition zone which appears upon the interaction of powerful beamed radiation with metal, for the case in which the incident radiation is entirely absorbed. A complete system of boundary conditions is obtained for the surface discontinuity which is used to model the transition zone.

BARMIN, A.A.

USSR UDC: 538.4

BARMIN, A. A. and LEVIN, V. A.

"Asymptotic Behavior of a Plane Magnetohydrodynamic Detonation Wave"

Nauchn. tr. In-t mekh. Mosk un-ta (Scientific Transactions of the Moscow University Institute of Mechanics) 1970, No. 1, pp 83-87 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2B11)

Translation: The asymptotic behavior of a plane magnetohydrodynamic detonation wave is considered in a medium with infinite electrical conductivity, in an external magnetic field of arbitrary direction. Equations are presented which describe the motion of an ideal, infinitely conducting gas with plane waves and characterizing the transition through a magnetohydrodynamic detonation wave with the heat emission per unit mass of the gas taken into account. To estimate the deviation of the detonation wave intensity from the intensity of the Chapman-Jougue wave, a small parameter ε is introduced, which is expanded into equations characterizing

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BARMIN, A.A., et al, Nauchn. tr. In-t mekh. Mosk un-ta, 1970, No 1, pp 83-87 (from RZh-Mekhanika, No 2, Feb 71, Abstract No 2B11)

the transition through the magnetohydrodynamic detonation wave. Then, by using the concept that the flow behind the detonation wave close to the Chapman-Jougue wave is a traveling Riemann wave, the authors obtain an equation for ε. The integration of this equation gives the asymptotic law for the behavior of the detonation wave and the asymptotic expressions for the parameters of the gas behind the wave. It is found that the asymptotic behavior of the magnetohydrodynamic detonation coincides with the asymptotic behavior of the plane supercompressed detonation wave in ordinary gas dynamics. Bibliography of 15. Yu. N. Denisov

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USSR

UDC 629.7.064

BARMIN, I. V., KATORGIN, B. I., SOLONIN, V. I.

"Concentration Field of Mixed Gases in a Vortex Chamber"

Tr. Mosk. vyssh. tekhn. uch-shcha im. N. E. Baumana (Works of Moscow Higher Technical School imeni N. E. Bauman), 1971, No. 144, pp 77-80 (from RZh-Aviatsionnyye i raketnyye dvigateli, No 4, Apr 72, Abstract No 4.34.182)

Translation: An experimental study of concentration fields of mixed gases in a vortex chamber is described. Most of the experiments were conducted using helium and air as working bodies differing in density by a factor of ~7. The results of studies of the concentration fields for different flow regimes, different shapes of the output channels, and different ratios of the gas flows are given. The studies can be applied in solving such problems as stabilization of an electric arc in plasmatrons and plasma stabilization in a high-frequency discharge. 5 ill., 2 ref.

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USSR UDC 669.14.046.094.52

NIKITIN, Yu. P., PRIVALOVA, T. P., BARMIN, L. N., Ural Polytechnic Institute

"Desulfurization of Drops of Iron and Steel in Molten Slag Under the Effect of an Electric Current"

Moscow, IVUZ. Chernaya Metallurgiya, No 4, 1972, pp 15-17

Abstract: A study was made of desulfurization of drops of iron (3% carbon) and steel (1.2% carbon) in synthetic slag during passage of an electric current. Increasing the electric field strength and raising the concentration of sulfur in the metal accelerates the desulfurization process. Desulfurization is also accelerated by increasing the basicity of the slag and its ferrous oxide content. An electric current can also accelerate the transfer of sulfur from slag to metal.

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USSR

UDC: 669.15-198-154:541.13

FUGMAN, G. I., SOTNIKOV, A. I., YESIN, O. A., and BARMIN, L. N., Ural Polytechnic Institute

"Rate of Ion Exchange Between Liquid Ferrotitanium and an Oxide Melt"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 4, 1973, pp 9-12

Abstract: The authors study the use of the Faraday impedance method for finding the kinetic parameters of the oxidation-reduction processes taking place between metal and slag under retarded relaxation conditions of a double electric layer. It is shown that the use of standard methods for processing experimental data can result in significant error. Methodology is proposed for determining the exchange current (i_o) by analyzing the active component of the electrode impedance. The methodology is used in analyzing the results of the measurements in the ferrotitanium-slag system. The concentration relationship i_o of titanium is studied for the 1450-1550°C interval at 3-16 percent titanium in the metal and 0.5-5.0 percent TiO_2 in the slag. A kinetics equation is proposed for calculating i_o.

1/2 027 UNCLASSIFIED PROCESSING DATE--090CT70

TITLE--DRIP INFUSION CHOLEGRAPHY -U-

AUTHOR-(03)-RABKIN, I.KH., BARMIN, V.S., SUKHOMLINA, R.A.

B

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 2, PP 54-60

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER FUNCTION, RADIOLOGY, IMAGE CONTRAST, INSULIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1731 STEP NO--UR/0531/70/000/002/0054/0060

CIRC ACCESSION NO--AP0103495

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200310011-1"

2/2 027 UNCLASSIFIED PROCESSING DATE--090CT70

CIRC ACCESSION NO--AP0103495

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS SET FOR THE RESULTS AND DISCUSS THE SHORTCOMINGS OF ROUTINE METHODS OF PERORAL CHOLECYSTOGRAPHY WITH BILITRAST AND INTRAVENOUS CHOLEGRAPHY WITH BILIGNOST IN 418 PATIENTS. AN ANALYSIS IS GIVEN OF THE TECHNIQUE OF DRIP INFUSION CHOLEGRAPHY CARRIED OUT IN 86 PATIENTS, WHICH INVOLVES A MORE SPARING PRINCIPLE AND IS BASED ON GREATER SATURATION OF THE HEPATIC PARENCHYMA AND BETTER CONTRASTING OF THE BILE DUCTS. THERE WERE NOTED A DECREASED NUMBER OF NEGATIVE RESULTS OF THE INVESTIGATION AND A REDUCED INCIDENCE OF ALLERGIC REACTIONS, THIS ENABLING TO EMPLOY THIS TECHNIQUE WITHOUT COMPLICATIONS EVEN IN PATIENTS WITH A WEAK POSITIVE REACTION TO IODINE. MENTION IS MADE OF THE POSSIBILITY OF COMBINING THIS TECHNIQUE WITH PERORAL CHOLECYSTOGRAPHY, ADMINISTRATION OF INSULIN, THUS EFFECTING BETTER CONTRASTING OF THE BILE DUCTS.

UNCLASSIFIED

USSR UDC 532.58

BARMINA, L. A., Moscow

"The Force Acting on a Deformable Contour Moving in an Arbitrary Fluid Flow"

Moscow, Izvestiya Akademii Nauk USSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 73, pp 4-8

Abstract: The complex potential $W(z, t)=\varphi(z, t) + i\psi(z, t)$ of the disturbed fluid flow resulting from a moving arbitrary deformable contour in a potential flow of an ideal non-compressible fluid is analyzed and the hydrodynamic forces acting on the contour are determined. Representing $W(z, t)$ in the form of a sum of three complex functions $W_i(z, t)$ $(i=1, 2, 3)$, the solution of the problem is reduced to the determination of three complex potentials: $W_1(z, t)$, corresponding to the motion of the solid contour in a rest-fluid at infinity; $W_2(z, t)$, corresponding to streamlining by a given flow of a stationary solid contour; and $W_3(z, t)$, corresponding to the flow close to the deformable contour, introduced into a resting fluid. The problem is solved by

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BARMINA, L. A., Izvestiya Akademii Nauk USSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 73, pp 4-8

the method of conformal mapping and a simple formula is derived for the force acting on a contour of small size. Previously found expressions for forces acting on small-size cylinder and sphere can be reduced to this simplified formula at zero circulation. Twenty four formulas, three bibliographic references.

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1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--EFFECTIVENESS OF THE USE OF SOME COMPOUNDS AS ACARICIDES IN FOCI OF TICK BORNE ENCEPHALITIS. COMMUNICATION II -U-
AUTHOR-(02)-USPENSKIY, I.V., BARMINA, L.N.

COUNTRY OF INFO--USSR

B

SOURCE--MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI, 1970, VOL 39, NR 1, PP 66-72
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ENCEPHALITIS, TICK, ORGANIC PHOSPHORUS INSECTICIDE, DDT INSECTICIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0084 STEP NO--UR/0358/70/039/001/0066/0072

CIRC ACCESSION NO--AP0103764
UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103764

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF THE RESULTS OF THE FIRST YEAR OF STUDIES (USPENSKY, BARMINA, 1968) THE AUTHORS CONTINUED INVESTIGATIONS AIMED AT ESTABLISHING SUITABILITY OF ORGANOPHOSPHORUS COMPOUNDS OPC) FOR CONTROL OF THE VECTOR OF TICK BORNE ENCEPHALITIS. IT WAS FOUND THAT THE ACARICIDES UNDER TESTS (CARBOPHOS, METHYLNITROPHOS, METATIONE, FENTHIONE) IN DOSAGES OF 0.125 0.5KG HECTAR SHOWED HIGH EFFECTIVENESS IN THE SEASON OF TREATMENT. THESE AMOUNTS IN GENERAL CORRESPOND TO THE EFFECTIVE DOSAGES OF DDT ESTABLISHED BY THE AUTHORS. IN THE SECOND SEASON AFTER A SINGLE TREATMENT WITH OPC COMPLETE RESTORATION OF THE ABUNDANCE OF ACTIVE ADULT TICKS WAS OBSERVED REGARDLESS OF THE SIZE OF A DOSAGES ONE YEAR AFTER TREATMENT WITH DDT A SIGNIFICANT EFFECT OF ERADICATION OF THE VECTOR PERSISTED. THE PAPER DISCUSSES THE CAUSES OF RESTORATION OF THE ABUNDANCE OF TICKS AFTER TREATMENT, THE PATTERNS OF THE RESIDUAL EFFECT OF ACARICIDES, THE METHODICAL ASPECTS OF THE TRIALS. THE MAIN CONCLUSION IS THAT OPC MAY BE USED ONLY WHEN ONE SEASON ERADICATION OF TICKS IN TAIGA FOCI OF TICK BORNE ENCEPHALITIS IS NECESSARY BECAUSE THEY ARE NO GOOD FOR LONG TERM SANITATION OF THE TERRITORY. RECOMMENDATIONS FOR THE USE OF NEW ACARICIDES GIVEN ON THE BASIS OF ONLY ONE YEAR TRIALS SHOULD BE CONSIDERED MORE CAREFULLY.

UNCLASSIFIED

USSR UDC: 8.74

BARMINSKIY, K. O., GUBIN, A. I., and DUSHKIN, B. M.

"Operations on Arrays and Their Programmed Realization"

Tr. NII upravl. mashin i sistem (Transactions of the Scientific Research Institute of Machine and System Control) No 6, 1972, pp 211-217 (from RZh--Matematika, No 7, 1972, Abstract No 7V603)

Translation: One possible approach to the construction of standard programs for processing large **array** of documents preserved on magnetic tape is considered. It should be noted that, in addition to preparing and correcting the **array** as well as transmitting the information **for printout,** the stage of internal processing of the **array** is typical of many problems solved in automatic control systems, particularly of computing-planning problems.

1/1

USSR

UDC 8.74

BARMINSKIY, K. O., GUBIN, A. I., DUSHKIN, B. M.

"Operation on Arrays and Their Program Execution"

Tr. NII upravl. mashin i sistem (Works of the Scientific Research Institute of Control Machines and Systems), 1972, vyp. 6, pp 211-217 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V603)

Translation: A study was made of one of the possible approaches to the construction of standard programs for processing large files of documents stored on magnetic tape. It must be noted that along with the preparation and correction of the files and also printing the data out, the step of internal processing of the files is standard for many problems solved in automatic control systems, in particular, for accounting and planning problems.

1/1

4

USSR

UDC 669.046.5

ROGULEV, B. A., SHMATKO, G. A., PRONICHKIN, A. A., GOLIKOV, Ye. S., NOVOZHILOV, N. G., BARMOTIN, I. P., SMIRNOV, YYu. D., and CHERNOV, G. A.

"Electrical Steel Degassing by Argon Blowing in 100-ton Ladles"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 264-265

Translation of Abstract: Data are presented on the use of porous refractory inserts for argon blowing in 100-ton ladles. The results of an investigation on degassing of ShKh15 steel produced with refining by liquid synthetic slag are presented (hydrogen content at blowing decreases by 23% and that of oxygen by 55-65%). Attention is paid to increasing the refining effect of synthetic slag at argon blowing, resulting in a higher (up to 95%) degree of desulfurization; in a rise of metal-slag distribution coefficient (up to 164) with a reduction in slag consumption and production cost; and lowering of steel contamination. Plastic properties of the degassed metal are significantly higher than those of the nondegassed metal. 1 figure, 2 tables.

1/1

USSR

UDC 669'.18.046.554

SIDOROV, N. V., GERASIMOV, Yu. V., KHAYRUTDINOV, R. M., ELLATOV, S. K., KHASIN, G. A., BARMOTIN, I. P., KAS'YANOV, A. G., CHEREMNYKH, B. A., and ISHMURZIN, M. G., Zlatoust Metallurgical Plant, Scientific Research Metallurgical Institute, Chelyabinsk

"Out-of-Furnace REfining of Low-Carbon Corrosion-Resistant Steels"

Moscow, Metallurg, No 12, Dec 70, pp 22-23

Abstract: The smelting technology of low-carbon corrosion-resistant steels in electric arc furnaces with argon scavenging in the foundry ladle has been developed and introduced into production at the Zlatoust Metallurgical Plant. The main principles of the out-of-furnace degassing effectiveness depends on the chemical composition of the steel, the slag, and the scavenging parameters were investigated.

1/1

BARMOTIN I.P.

Acc. Nr.: AN0104123 Ref. Code: UR9003

TITLE-- ANNOUNCEMENT OF THE COMMITTEE ON LENIN AND STATE PRIZES, U.S.S.R.

4-9

NEWSPAPER-- IZVESTIYA, MAY 28, 1970, P 4, COLS 1-5

ABSTRACT-- NINETY ONE BASIC AND APPLIED RESEARCH WORKS HAVE BEEN NOMINATED FOR THE STATE PRIZES. TWO OF THESE, "THE MULTI-PURPOSE INDUSTRIAL HELICOPTER KA-26", BY N. I. KAMOV, V. B. AL,PEROVICH, V. B. BARSHEVSKIY, A. A. DMITRIYEV, G. I. IOFFE, M. A. KUPFER, L. A. POTASHNIK, N. N. PRIOROV, A. G. SATAROV, I. M. VEDENEYEV, S. B. BREN, AND V. A. NAZAROV, AND "THE DEVELOPMENT OF TURBOFAN JET ENGINES NK-8 AND NK-8-4, AND THE DEVELOPMENT AND REDUCTION TO SERIAL PRODUCTION A SYSTEM OF TECHNOLOGICAL PROCESSES WHICH ASSURED WIDE USES FOR TITANIUM ALLOYS", BY N. D. KUZNETSOV, M. T. VASILISHIN, V. A. KURGANOV, P. M. MARKIN, V. D. RADCHENKO, P. A. SUKHOV, A. A. MUKHIN, V. G. SHITOV, G. I. MUSHENKO, L. A. SHKODO, AND G. P. DOLGOLENKO, HAVE BEEN SUBMITTED BY THE MINISTRY OF THE AVIATION INDUSTRY.

1/2

Reel/Frame
19870555

Acc. Nr.: AN0104123

"A SERIES OF INVESTIGATIONS INTO THE DYNAMICS OF A BODY WITH FLUID-FILLED CAVITIES", /65-68/, BY N. N. MOISEYEV, A. A. PETROV, V. V. RUMYANTSEV AND F. L. CHERNOUS,KO AND "ULTRA HIGH PRECISION JIG BORING MILLS WITH 1,000 X 1,600 AND 1,400 X 2,240 MM PLATENS", BY A. I. KIR,YANOV, V. G. ABRAMOVICH, I. V. GUTKIN, A. S. ALIMPIYEV, G. B. PAUKOV, AND A. S. YEGUDKIN, HAVE BEEN SUBMITTED BY THE COMPUTATION CENTER OF THE ACADEMY OF SCIENCES AND THE MINISTRY OF THE MACHINE TOOL CONSTRUCTION AND TOOL INDUSTRY, RESPECTIVELY.

"THE RADICALLY IMPROVED MELTING TECHNOLOGY OF CRITICAL-PURPOSE HIGH-ALLOY STEELS AND ALLOYS OF IMPROVED QUALITY ACHIEVED BY THE INERT GAS TREATMENT OUTSIDE THE FURNACE", BY YU. V. GERASIMOV, O. M. CHEKHOMOV, N. V. SIDOROV, S. K. FILATOV, B. A. CHEREMNYKH, R. M. KHAYRUTDINOV, I. P. BARMOTIN, L. K. KOSYREV, K. P. BAKANOV, N. N. VLASOV, P. I. MELIKHOV, AND N. A. TULIN, HAS BEEN SUBMITTED BY THE ZLATOUST METALLURGICAL PLANT.

2/2

KZ

Reel/Frame

19870556

USSR UDC 621.357.7:678.029.665

BARNAFEL'DI, YANOSHE

"Theoretical and Practical Results of Applying Galvanic Coatings to Plastics"

V sb. Nauch.-tekhn. konf. po probl. Razrab. mer zashchity met. ot korrozi, 1971, Tezisy dokl. vyp. 2, Sekts. 4-5 (Scientific and Technical Conference on the Problems of Developing Measures for Protection of Metals from Corrosion, 1971. Topics of Reports, vyp. 2, Sections 4-5 -- collection of works), Moscow, 1971, pp 155-160 (from RZh-Khimiya, No 6 (II), Jun 72, Abstract No 6L323)

Translation: The latest achievements of the Hungarian People's Republic in the field of applying galvanic coatings to ABC-plastic are described. A brief study was made of the technological operations of manufacturing plastic parts under pressure or by extrusion, degreasing, pickling, sensitizing, activating and obtaining the chemical and galvanic coatings. The opinion is stated that the bond strength arises not from the chemical bond but only the mechanical binding between the coating and the substrate of pickled plastic.

1/1

1/2 015 UNCLASSIFIED PROCESSING DATE--020CT70

TITLE--THE EFFECT OF THE CENTRAL M,CHOLINOLYTICS ON THE NEGATIVE ASPECTS OF SOUNDING -U-

AUTHOR--BARNAULOV, O.D.

B

COUNTRY OF INFO--USSR

SOURCE--TERAPECTICHESKIY ARKHIV, 1970, VOL 42, NR 3, PP 40-42

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHOLINOLYTIC, DIGESTIVE DISEASE, HUMAN PHYSIOLOGY, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0810 STEP NO--UR/0504/70/042/003/0040/0042

CIRC ACCESSION NO--AP0102772

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0102772

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AMIZYL, METHAMIZYL OR TRIPACIN INJECTED INTRAMUSCULARLY IN A DOSE OF 0.05 MG-KG 20 MIN PRIOR TO SOUNDING THERE SIGNIFICANTLY INCREASED THE ACID FORMATION FUNCTION OF THE GASTRIC MUCOSA IN 33 OUT OF 50 PATIENTS. THIS EFFECT IS EXPLAINED BY THE FACT THAT THE CENTRAL M,CHOLINOLYTICS BLOCK THE CONDUCTION OF INHIBITORY AFFERENT IMPULSATION ALONG THE RISING SYSTEM OF RETICULAR FORMATION AND ELIMINATE THE INHIBITORY ACTION OF SOUNDING ON THE GASTRIC FUNCTION. IN A NUMBER OF CASES THE USE OF A CHOLINOLYTIC MADE IT POSSIBLE TO CHANGE THE INITIAL IDEA ABOUT THE REDUCTION OF THE ACID FORMATION FUNCTION OF THE STOMACH AND CLARIFY THE DIAGNOSIS OF THE DISEASE. IN 6 CASES ANACID CONDITION WAS NOT CONFIRMED. CENTRAL M,CHOLINOLYTICS ARE OFFERED FOR MEDICINAL TREATMENT OF PATIENTS PRIOR TO SOUNDING.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--020CT70
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UNCLASSIFIED

USSR UDC 681.326.35

BARNAULOV, Yu. M.

"A Short-Pulse Shaper"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 8, Mar 71, Author's Certificate No 296260, division H, filed 13 Feb 67, published 12 Feb 71, pp 190-191

Translation: This Author's Certificate introduces a short-pulse shaper with potential connections which contains an OR-NOT cell, a static flip--flop, and an even number of series-connected inverters. As a distinguishing feature of the patent, the rise time of the output pulse is reduced by connecting the output of the OR-NOT cell to one input of the static flip-flop, while the shaper input is connected to the other input of this flip-flop, and the output of the flip-flop is connected through the above-mentioned inverters to the second input of the OR-NOT cell.

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USSR

UDC 621.382.3

BARNEM, R. D., HOLONYAK, N. N., KORB, G. V., MAKSI, G. M., SAYFERS, D. R., WOODHAUSE, D. B., and ALFYYEROV, Zh. I.

"AlGaAsP Solid Solutions and Injection Lasers With Two Heterojunctions On Their Base"

Fizika i tekhnika poluprovodnikov, Vol 6, No 1, January 1972, pp 97-102

Abstract: The solid solutions $Al_yGa_{1-y}As_{1-x}P_x$ ($y = 0.0--0.2$; $x = 0.0--0.2$) are obtained by the fluid epitaxy method. The dependence is considered of the width of the forbidden band of the solid solutions on the compound and the dependence of the concentration of phosphorous in the epitaxial layers of AlGaAsP on the growth temperature is investigated. Injection lasers are obtained with the two heterojunctions $n\text{-}Al_yGa_{1-y}As_{1-x'}P_{x'}\text{--}p\text{-}Al_{y'}Ga_{1-y'}As_{1-x'}P_{x'}\text{--}p^+\text{-}Al_{y''}Ga_{1-y''}As_{1-x'}P_{x'}$ with threshold currents $\simeq 10^4$ a/cm^2 at room temperature. The authors thank D.V.Bird and F.V.Williams (Monsanto, St.Louis) for the substrate and for technical assistance -- K.A. Cool, B.L.Marshall, M. Stone, and Yuri Moroz. University Of Illinois, Urbana, Illinois, USA; Physicotechnical Institute imeni A.F. Ioffe, AS, USSR, Leningrad. Received by editors 28 June 1971. 6 fig. 14 ref.

1/1

BARNOV, V.A.

Gas Chromatography

JPRS 57718
6 Aug. 1972

(15)

USE OF GAS CHROMATOGRAPHY IN PETROCHEMISTRY

(Conference in Moscow)

[Article by Doctor of Chemical Sciences V.V. Berezkin, Moscow, Vestnik Akademii Nauk SSSR, Russian, No 6, June 1973, pp 129-130]

Increase of the effectiveness of scientific investigations and growth of the productivity and rate of chemical processes used in industry are stipulated to a considerable degree by the successful development of new physicochemical methods of conducting scientific experiments and controlling production. One such method is gas chromatography. Many quantitative determinations previously considered practically impossible are performed by means of gas chromatography in the course of minutes, and in some cases even of seconds. The method has high resolution and sensitivity, is readily automated, and makes it possible to effectively control technological processes.

The scientific councils for Petrochemistry and Chromatography, the Institute of Petrochemical Synthesis imeni A. V. Topchiyev of the AS USSR and the Scientific and Technological Council of the Ministry of Petroleum-Refining and Petrochemical Industry USSR conducted on 5-8 February the first All-Union Conference on the Use of Gas Chromatography in Petrochemistry. Participating in it were over 200 persons representing over 90 scientific research organizations, enterprises, special design offices and VUZ. Thirty-four reports were heard.

In his introductory speech the Chairman of the Scientific Council for Chromatography of the AS USSR K. V. Chmutov noted the ever-increasing importance of gas chromatography in the analysis of complex mixtures in petroleum refining and petrochemistry, in studying the thermodynamics of absorption and adsorption and the processes of chemisorption and catalysis, and in determining the diffusive characteristics of gases and liquids and other physicochemical characteristics.

The contemporary state of the production and application of Soviet stationary liquid phases, solid carriers and absorbents for gas chromatography were examined in the reports of K. I. Sakodynskiy, B. G. Distanov et al and N. I. Demant'yeva et al, and the use of computers to process the results of gas-chromatographic investigations -- in the report of V. A. Barnov.

The held conference demonstrated the expansion of the applications of gas chromatography in petrochemistry and designated the paths of the further development of those methods.

USSR

UDC 532.5

BARNYAK, M. YA.

"Finding the Natural Frequencies and Forms of Small Oscillations of an Ideal Liquid in a Vessel Placed in a Weak Gravitational Field"

Mat. fizika. Resp. mezhved. sb. (Mathematical Physics. Republic Interdepartmental Collection), 1971, No. 9, pp 3-10 (from RZh-Mekhanika, No 12, Dec 71, Abstract No 12B710)

Translation: The problem of small oscillations of a liquid in a vessel with the shape of a body of rotation is discussed considering forces of surface tension. The problem describing small motions of the liquid in the cavity is reduced to a variational problem by introducing a sequence of auxiliary boundary value problems on the free surface. The solutions of these boundary value problems are represented in the form of series in terms of degrees of arc, which is possible because the equation of the free surface is represented in such series. The variational problem is solved by the Ritz method. Numerical results are given for cylindrical and conical cavities. Author's abstract.

1/1

USSR

B

UDC 613.644:69

MEN'SHOV, A. A., VINOGRADOV, D. V., and BARON, A. M., Kiev Institute of Industrial Hygiene and Occupational Diseases and Moscow Engineering and Construction Institute

"Hygienic Evaluation of Low-Frequency Vibrations in the Cabins of Crane Turrets"

Moscow, Gigiyena i Sanitariya, No 5, 1970, pp 32-36

Abstract: The nature of the vibrations in the cabins of four different types of building cranes (KB-160.2, KB-100.0, MBTK-80, and BK-180) and the state of several physiological functions in crane operators were studied. Vibrations produced by the different operations (raising and turning the crane arm, simultaneous functioning of all the mechanisms, etc.) were tabulated. All four types of cranes produced low-frequency vibrations, but the intensity varied with the height of the cabin and the specific construction of each crane. Investigation of the vestibular apparatus, visual analysor, and nervous system showed that while handling the cranes, most operators exhibited increased excitability of the vestibular apparatus nystagmus, narrowing of the visual field, and neurologic disturbances (increased fatigue, inhibition, impairment of short-term memory, and decreased attention span. The disturbances were most pronounced in those operating cranes at a height of 40 m.

1/1

CARD

50: JPRS 60598
30 NOVEMBER 73

BARON, D.A.

GUIDE TO BUILDING COMMUNICATION CABLE INSTALLATIONS

[Excerpts from a book by D. A. Baron, B. I. Gershman, A. I. Grodnov, S. I. Mazel', G. Sh. Mizheritskiy, and L. D. Nazimov; Moscow, Sprayochnik stroitel'ya kabel'nykh sooruzheniy svyazi, Russian, Izdatel'stvo Svyaz', 1968, pp. 105-108].

3.4. Main-Line High-Frequency Symmetrical Cables

Types of Cables

For main-line communications, the following types of cables are used: MKS, with cordel-styroflex insulation in a lead casing; MKSA, with cordel-styroflex insulation in an aluminum casing; and MK, with cordel-paper insulation in a lead casing.

These cables are fabricated in a spiral quad, and the diameter of the wires is 1.2 mm, the capacitance 1x4, 4x4 and 7x4.

MKS Cables with Cordel-Styroflex Insulation in a Lead Casing (GOST (All-Union State Standard) 9046-59)

Main-line MKS cables with cordel-styroflex insulation are intended for main cable lines, multiplexed with K-60 high-frequency apparatus in the spectrum of frequencies up to 252 kilohertz with a remote power supply of up to 750 volts direct current and KAR multiplexing, in the spectrum up to 552 kilohertz. The cables are produced with 1.4 or 7 high-frequency quads. Aside from this, 4x4 cables may have five signal wires, and 7x4 cables 6 signal wires. The diameter of the copper current-conducting wires of the high-frequency quads is 1.2 mm, and that of the signal wires 0.9 mm. Depending upon the type of protective covers, the cables are marked as follows: MKSG, in a lead casing, bare; MKSB, armored with steel ribbons; MKSBV, armored with steel ribbons, lead casing protected by a polyvinyl chloride hose or ribbons; MKSK, armored with round wires; MKSKV, armored with round wires, lead casing protected by polyvinyl chloride hose or ribbons;

USSR

UDC 669.292.5.295.018.5.537.312.62

YEFIMOV, Yu. V., BARON, D. V.

"Influence of Niobium on Superconducting Properties of Equiatomic Alloy of Vanadium and Titanium"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 173-177. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I753 by the authors).

Translation: The influence of Nb (up to 10 at.%) on the structure and properties (hardness, strength, ductility, transition temperature to superconducting state T_c, critical current) of the alloy of V with 50 at.% Ti is studied. Trinary alloys are single-phase solid solutions with body-centered cubic lattice. The lattice period varies from 3.183 to 3.116 A with 10 at.% Nb. Alloying with niobium increases the hardness and strength of the binary alloy. The ductility of cold deformed wire remains practically unchanged (δ 2-3%). T_c decreases from 7.8 to 7.1°K. A sharp decrease in the critical current of cold deformed wire is observed with contents of Nb > 0.5 at. %. 3 figs; 1 table; 3 biblio refs.

1/1

Extraction and Refining

USSR UDC 669.713

BARON, L. I., VOBLIKOV, V. S., and KURBATOV, V. M.

"On the Problem of Extracting Metal From Aluminum Slags"

Moscow, Tsvetnyye Metally, No 10, Oct 70, pp 74-75

Abstract: A schematic diagram for the fractionation of aluminum slags, with electromagnetic separation of inclusions after each fractionation step, is presented on the basis of experiments conducted by the authors. Crushers fractionate the initial slag in sizes up to 80-100 mm: the material of the 0-15 mm class is screened and sent for leaching-out. The remaining material is sent to a second fractionation step, and so on. A schematic drawing of the electromagnetic separator is presented, and its operation is described. The method described is said to make it possible to fractionate aluminum slag in sizes which will ensure its easy dissolution in the regeneration of salts, with sufficiently complete extraction of aluminum inclusions.

1/1

Heat, Combustion, Detonation

USSR

UDC 624.152.5:626.8

BARON, V. L., VLAS'YEV, S. YE. and SIDEL'NIKOV, B. K., Union Explosive Industry Board

"A Canal is Constructed by Blasting"

Moscow, Gigrotekhnika i Melioratsiya, No 2, Feb 73, pp 29-31

Abstract: The construction of a 26.5 m portion of the main Pallasov canal using a charged trench explosion is reported. The formula used for calculating the distribution of explosives in the trench is given. Granulite AS-4 and ammonite No 6, ZHV were the explosives used. The depth and width of the canal were within 10% of that desired, and the slant of the walls was also accurate. The advantages of this method were sharply cutting time requirements, lowering expenses, eliminating post-blast work and lowering filtration through the walls and bottom of the canal.

1/1

USSR UDC: 537.312.62

SAVITSKIY, Ye. M., BARON, V. V., YEFIMOV, Yu. V., MODEL', M. S.

"Structure and Superconducting Properties of Alloys in the Vanadium-Tantalum System"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 78-86 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D560 [résumé])

Translation: Solid-state transformations are determined and phase diagrams are plotted for alloys of the vanadium-tantalum system on the basis of methods of microscopic, radiographic, x-ray spectral and thermal analyses, as well as by measuring microhardness and the superconductive transition point for alloy phases. The compound TaV_2 with structure of the $MgZn_2$ type is formed at 1420°C and about 33 at.% tantalum. At 1125°C and 29 at.% tantalum this phase decays eutectoidally to a solid solution with bcc lattice and a phase with structure of the $MgCu_2$ type. The latter is also formed by a peritectoidal reaction at 1280°C and 37 at.% tantalum. It is homogeneous at 800°C in the range of 32-39.5 at.% tantalum; the T_c of the high-temperature phase with hexagonal lattice of the $MgZn_2$ type reaches 10 K. Four illustrations, bibliography of nine titles.
1/1

USSR UDC: 537.312.62

SAVITSKIY, Ye. M., BARON, V. V., MIKHAYLOV, B. P.

"Producing and Studying Coatings of Nb_3Sn on Substrates of Different Metals and Alloys"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 55-59 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D550 [résumé])

Translation: A method is developed for producing uniform coatings with the presence of niobium and Nb_3Sn on substrates of different metals and alloys (copper, molybdenum, steel, etc.). The structure and superconductive properties of the coatings are studied. The temperature of transition to the superconductive state is equal to approximately 17.5-17.8 K. Three illustrations, bibliography of eight titles.

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USSR

UDC: 537.312.62

SAVITSKIY, Ye. M., BARON, V. V., GINDINA, S. D.

"Change of the Point of Transition to the Superconducting State in Alloys of Variable Composition Based on the Example of the Niobium-Tantalum System"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 166-170 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D552 [résumé])

Translation: A procedure is developed for measuring the temperature of transition to the superconducting state on alloys of variable composition. The specimen was made by the method of electron-beam zone melting; the composition of the specimen varied from 100% tantalum on one end to 20% on the other end. The transition temperatures of alloys in the niobium--tantalum system were measured on a single specimen of variable composition; the electrical resistances of all alloys in this system at 300 and 77 K were also determined. Two illustrations, bibliography of eight titles.

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USSR

UDC: 537.312.62

SAVITSKIY, Ye. M., BARON, V. V., MYZENKOVA, L. F., MARTYNOVA, L. F.

"A Study of Magnetization of Niobium and Zirconium Single Crystals"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka," 1972, pp 122-125 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D559 [résumé])

Translation: Curves are plotted for the magnetization of single crystal specimens of niobium with 5% zirconium having various crystallographic axial orientations (at 4.2 K). The results show anisotropy of the critical magnetic fields, the residual magnetic moment and the maximum "diamagnetic" moment. Three illustrations, bibliogrpahy of 13 titles.

1/1

USSR UDC: 537.312.62

SAVITSKIY, Ye. M., BARON, V. V., FROLOV, V. A., KOZLOVA, N. D.

"Effect of Aluminum on the Superconducting and Mechanical Properties of Niobium and Titanium Alloys"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 111-115 (from RZh-Radictekhnika, No 12, Dec 72, abstract No 12D553 [résumé])

Translation: An investigation was made of alloys in the niobium-titanium--aluminum system in the β-solid solution region adjacent to the niobium--titanium side with a constant ratio Ti/Nb = 45/55 and aluminum concentration up to 7.2% by weight. The introduction of aluminum reduces the superconductive transition point in the alloys in both the cast and annealed state. The critical current of the alloys is also reduced. The density of the alloys increases with introduction of aluminum, and there is little change in ductility. Three illustrations, one table, bibliography of seven titles.

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USSR

UDC 669.018.52:620.18

SAVITSKIY, Ye. M., BARON, V. V., MYZENKOVA, L. F., Editors

"Superconducting Alloys and Compounds. Works of the Sixth All-Union Conference on the Problem of Superconducting Materials"

Sverkhprovodyashchiye Splavy i Soyedineniya. Trudy VI Vsesoyuznogo Sov. po Probleme Sverkh. Materialov. [English Version Above], Nauka Press, Moscow, 1972.

Translation of Foreword: The articles presented in this collection were read at the VI Annual All-Union Conference on Metal Science, Physical Chemistry and Metal Physics of Superconductors, held in May of 1969 at the Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences, USSR. Fifty-five reports were read at the conference, some of which are published in this collection.

The problem of superconducting materials, their investigation, the development of products made of superconductors, their application continues to attract great attention of researchers and designers working in various areas of new technology. Furthermore, interest in this problem is continually growing, and some of the materials developed are already in use in instruments and devices operating at helium temperatures.

USSR

SAVITSKIY, Ye. M., BARON, V. V., MYZENKOVA, L. F., Sverkhprovodyashchiye Splavy i Soyedineniya. Trudy VI Vsesoyuznogo Sov. po Probleme Sverkh. Materialov, Nauka Press, Moscow, 1972.

Recently, the literature has contained an increasing number of works on the physical and chemical analysis and metal physics of superconductors. Physical-chemical analysis allows the relationship of superconducting properties to chemical composition and structure to be established. The theme of the reports read indicates the increased depth of scientific research work in these areas. In addition to the classical trends -- study of the structure of superconducting binary and more complex state diagrams and their properties -- works have been developed on the use of methods of prediction and calculation of the properties of superconducting alloys and compounds with computers, as well as the study of the heat capacity and heat conductivity of superconducting alloys. Studies of the electronic characteristics of superconducting materials and the study of the influence of high cooling rates and hydrostatic pressure on the parameters of superconductivity are continuing. This book turns its attention to methods of stabilization of superconducting cable, new methodological developments and the design of solenoids.

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USSR

SAVITSKIY, Ye. M., BARON, V. V., MYZENKOVA, L. F., Sverkhprovodyashchiye Splavy i Soyedineniya. Trudy VI Vsesoyuznogo Sov. po Probleme Sverkh. Materialov, Nauka Press, Moscow, 1972.

This book is designed for researchers and practical workers -- metals scientists and metal physicists, plant, institute and design bureau specialists studying, producing and applying superconducting alloys and compounds.

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USSR UDC: 537.312.62

BYCHKOVA, M. I., KOZLOVA, N. D., LYSENKO, Ye. N., BARON, V. V., SAVITSKIY, Ye. M., TUREVSKIY, V. M.

"Shielding Properties of Alloys in the Niobium-Titanium System"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 166-172 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D569)

Translation: The authors study the distribution of the magnetic field in superconducting magnets for quantum paramagnetic amplifiers with the use of shielding plates made from niobium-titanium alloy. It is shown that shields of NT-1 alloy can partially screen the field and appreciably improve field homogeneity. At a magnetic field strength of 4,000 oersteds, a uniformity of 10^{-3} is obtained in a volume of 5 × 8 × 120 mm. Five illustrations, one table, bibliography of thirteen titles. Resumé.

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USSR UDC: 537.312.62

SAVITSKIY, Ye. M., BARON, V. V., MIKHAYLOV, B. P.

"Investigation of the Structure and Superconducting Properties of Cast Alloys of the Niobium-Tin System"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 99-105 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D559)

Translation: An investigation is made of the possibility of making niobium--tin alloy ingots by the method of high-frequency melting in a graphite crucible in an inert atmosphere. A study is made of the structure of the alloys (by the methods of macro and microstructural analysis) and the phase composition of the alloys. Color etching is developed to reveal phases. It is found that niobium-tin alloy ingots of various sizes and geometric shapes can be produced with a tin concentration of up to 50 percent by weight with fairly uniform distribution of the components, and with a temperature of transition to the superconducting state of 17.5-18.0°K. Three illustrations, one table, bibliography of fifteen titles. Resumé.

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USSR

UDC: 537.312.62

SAVITSKIY, Ye. M., BARON, V. V., FROLOV, V. A., STARKOV, V. N., KORCHAGIN, P. A., ARKUSHA, T. I., OSIPOV, V. N., SERDYUKOV, Yu. A.

"Electron-Beam Melting and Deformation of Superconducting Niobium-Zirconium Alloys Under Industrial Conditions"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 187-192 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D554)

Translation: Cycles for smelting ingots 90 mm in diameter weighing up to 45 kg in an electron-beam furnace by the method of double vacuum remelting, and schedules for hot-pressing the ingots into bars 50 mm in diameter and for forging the pressed bars to a diameter of 18-20 mm are worked out under industrial conditions for niobium-zirconium alloys. Wire 0.2 mm in diameter is made from the bars produced by the methods of electron-beam melting, hot-pressing and forging, and the mechanical and superconducting properties of this wire are measured. Two illustrations, bibliography of sixteen titles. Resumé.

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USSR UDC 669.293.5.295.018.58

BYCHKOVA, M. I., KOZLOVA, N. D., LYSENKO, Ye. N., BARON V. V., SAVITSKIY, Ye. M., TUREVSKIY, V. M.

"Screening Properties of Alloys in the Niobium-Titanium System"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 166-172. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I783 by the authors).

Translation: The distribution of the magnetic field in superconducting magnets for quantum paramagnetic amplifiers using screening plates of Nb-Ti alloys is studied. It is demonstrated that screens of NT-1 alloy can partially screen the field and significantly improve its homogeneity. With a magnetic field intensity of 4,000 oe, a homogeneity of 10^{-3} was produced in a volume of 5×8×120 mm. 5 figs; 1 table; 13 biblio refs.

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Coatings

USSR UDC 669.293.018.5.537.312.62

SAVITSKIY, Ye. M., MIKHAYLOV, B. P., BARON, V. V.

"Electrolytic Coating of Complex Shape Parts With Niobium"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 203-208. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I777 by the authors).

Translation: A method is developed for electrolytic deposition of even superconducting Nb coatings on parts of a nonsuperconducting material (Cu, brass, Fe) of various sizes and shapes. The influence of electrolysis modes on the structure, evenness, thickness, purity and superconducting parameters of the Nb coatings is studied. The possibility of electrodeposition of even-thickness superconducting Nb coatings (on parts of various sizes and shapes) with a transition temperature of about 8.9-9.0°K is established. 4 figs; 4 biblio refs.

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USSR UDC: 537.312.62

BARON, V. V., DEMIDENKO, T. F., KLIMOV, S. I., SAVITSKIY, Ye. M., TUREVSKIY, V. M.

"Superconducting Magnets for Quantum Paramagnetic Amplifiers"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 209-215 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D550)

Translation: On the basis of the operating principle and parameters of the paramagnetic crystals of quantum paramagnetic amplifiers, the authors give a basis for the requirements to be satisfied by the characteristics of superconducting magnets and solenoids. The results of development and experimental verification of superconducting magnets and solenoids with winding of copper-plated and insulated grade RNS wire and shields of NT-1 alloy and compound are presented together with their design peculiarities. Types of superconducting magnets and sectionalized solenoids are created in the developmental process. Two illustrations, bibliography of four titles.

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USSR UDC 669.293.5.296.548.55.620.186.537.312.62

SAVITSKIYY, Ye. M., MYZENKOVA, L. F., BARON, V. V., MARTYNOVA, L. F.

"Study of the Structure and Superconducting Properties of Niobium Single Crystals with 5 and 10% Zirconium"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 148-155. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I784 by the authors).

Translation: The structure of single crystals of the alloys of Nb with 5 and 10% Zr produced by the method of cathode-ray zone melting is studied. Data are presented on the distribution of Zr and interstitial impurities through the length of a bar of the single crystal. The transition temperature T_c- is measured. For the alloy Nb-5% Zr, T_c=10°K, for the alloy Nb-10% Zr, 10.5°K. Magnetization curves of specimens with various crystallographic orientation are measured. 5 figs; 1 table, 6 biblio refs.

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USSR UDC 669.293.5.6.620.186.537.312.62

SAVITSKIY, Ye. M., BARON, V. V., MIKHAYLOV, B. P.

"Structure and Superconducting Properties of Nb_3Sn-Based Alloys Produced by Substitution of Phases in the Solid-Liquid State"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 112-119. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I780 by the authors).

Translation: Substitution of the low-melting phase in Nb-Sn alloys with other superconducting alloys (Pb, Pb-Sb, Pb-Bi) with transition temperatures of from 7.1 to 8.2°K is performed. The influence of structure on the superconducting properties is demonstrated: alloys are produced having significant ductility and capability for plastic deformation. 5 figs, 1 table; 15 biblio refs.

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USSR UDC 669.292.5.793.669.293.5.793.669.018.5

SAVITSKIY, Ye. M., BARON, V. V., NAUMKIN, O. P., YEFIMOV, Yu. V.

"Vanadium-Scandium and Niobium-Scandium Systems and Their Superconducting Properties"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 178-186. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I752 by the authors).

Translation: Based on their own experiments and the data from the literature, the authors study the regularities of the change of T_c of superconducting alloys in simple eutectic systems of the transition and nontransition metals, as well as in the eutectic sectors of the state diagrams of binary systems with the formation of intermediate compounds. Composition-T_c diagrams of the binary systems of V and Nb with Sc and the state diagrams of these systems are presented. The T_c of the superconducting element is increased or decreased upon dissolution of the second component within the limits of the area of homogeneity of the solid solution. In 2-phase eutectic mixtures, T_c of each of the superconducting phases changes along a near-horizontal straight line when the composition of the alloy is changed. 5 figs; 25 biblio refs.

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USSR UDC 669.293.5.296.537.312.62.539.374

SAVITSKIY, Ye. M., BARON, V. V., FROLOV, V. A., STARKOV, V. N., KORCHAGIN, P. A. ARKUSHA, T. I., OSIPOV, V. N., SERDYUKOV, Yu. A.

"Cathode-Ray Melting and Deformation of Superconducting Niobium-Zirconium Alloys Under Industrial Conditions"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp.187-192. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I785 by the authors).

Translation: Industrial modes of melting ingots 90 mm in diameter and weighing up to 45 kg in a cathode ray furnace by the method of double vacuum remelting, and modes of hot pressing of ingots into bars 50 mm in diameter and forging of pressed bars to 18-22 mm in diameter are developed for alloys of Nb with Zr. Bars produced by cathode ray melting, hot pressing, and forging are used to produce wire 0.2 mm in diameter, the mechanical and superconducting properties of which are measured. 2 figs; 16 biblio refs.

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USSR UDC: 537.312.62

SAVITSKIY, Ye. M., MYZENKOVA, L. F., BARON, V. V., MARTYNOVA, L. F.

"Investigation of the Structure and Superconducting Properties of Single Crystals of Niobium With 5 and 10 Percent Zirconium"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 173-177 (from RZh--Radiotekhnika, No 5, May 71, Abstract No 5D552)

Translation: The authors study the structure of single crystals of alloys of niobium with five and ten percent by weight of zirconium made by the method of electron-beam zone melting. Data are given on the distribution of zirconium and introduced impurities with respect to the length of the single-crystal bar. The temperature of transition to the superconducting state is measured. For a niobium alloy with 5 percent zirconium, the transition temperature is 10°K, while the corresponding temperature is 10.5°K for an alloy of niobium with 10 percent zirconium. Magnetization curves are plotted for specimens with various crystallographic orientations. Five illustrations, one table, bibliography of six titles. Resumé.

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USSR UDC 669.293.56.018.28.620.186.537.312.62

SAVITSKIY, Ye. M., BARON, V. V., MIKHAYLOV, B. P.

"Study of Structure and Superconducting Properties of Cast Alloys in the Niobium-Tin System"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 99-105. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I779 by the authors).

Translation: Ingots of Nb-Sn alloys are studied. The structure is studied (by macro-and microstructural analysis), as well as the phase composition of the alloys. Color etching is used to reveal the phases. The possibility is established of producing ingots of Nb-Sn alloys with various sizes and geometric shapes with contents of Sn up to 50% with even distribution of components having a transition temperature of 17.5-18.0°K. 3 figs; 1 table; 15 biblio refs.

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USSR UDC: 537.312.62

YEFIMOV, Yu. V., BARON, V. V.

"Effect of Niobium on the Superconducting Properties of a Fifty-Fifty (Atomic) Vanadium-Titanium Alloy"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 173-177 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D553)

Translation: The authors investigate the effect of niobium (up to 10 atomic percent) on the structure and properties (hardness, strength, ductility, temperature of transition to the superconducting state, critical current) of an alloy of vanadium with 50 atomic percent titanium. The ternary alloys are single-phase solid solutions with bcc lattices. The period of the lattice varies from 3.138 to 3.116 Å. Doping with niobium increases the hardness and strength of the binary alloy. The ductility of cold-deformed wire is practically constant (δ = 2-3%). T_k decreases from 7.8 to 7.1°K. A sharp reduction in the critical current of the cold-deformed wire is observed as soon as the niobium concentration passes 0.5 atomic percent. With small additions of niobium (less than 0.5 atomic percent), the alloys are distinguished by excellent technological properties with fairly high superconducting characteristics. Three illustrations, one table, bibliography of three titles.

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USSR UDC: 537.312.62

SAVITSKIY, Ye. M., MIKHAYLOV, B. P., BARON, V. V.

"Structure and Superconducting Properties of Alloys Based on the Compound Nb_3Sn Made by the Method of Phase Substitution in the Solid-Liquid State"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 112-119 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D545)

Translation: It is shown that the low-melting phase in Nb-Sn alloys can be replaced by other superconducting alloys (Pb, Pb-Sb, Pb-Bi) which have a temperature of transition to the superconducting state from 7.1 to 8.2°K. It is shown how structure affects superconducting properties; alloys are produced which have appreciable ductility and the capacity for plastic deformation. It is found that the method of substituting the low-melting component can be used for alloys of any systems consisting of high-melting and low-melting phases which have the necessary crystallization temperature interval. Five illustrations, one table, bibliography of fifteen titles. Resumé.

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USSR UDC: 537.312.62

SAVITSKIY, Ye. M., MIKHAYLOV, B. P., BARON, V. V.

"Electrolytic Niobium Plating of Articles With a Complex Shape"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 203-208 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D544)

Translation: A method is developed for electrolytic deposition of superconductive coatings of niobium on articles of nonsuperconducting material (copper, brass, iron) of various sizes and shapes. A study is made of the effect which conditions of electrolysis have on the structure, uniformity, thickness, purity and superconducting parameters of the niobium coating. It is found that uniformly thick niobium superconducting coatings can be electrolytically deposited (on articles of various sizes and configurations) with a temperature of transition to the superconducting state of about 8.9-9.0°K. Four illustrations, bibliography of ten titles.

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USSR UDC: 537.312.62

SAVITSKIY, Ye. M., BARON, V. V., NAUMKIN, O. P., YEFIMOV, Yu. V.

"Vanadium-Scandium and Niobium-Scandium Systems and Their Superconducting Properties"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 178-186 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D546)

Translation: Taking characteristic experimental and literature data as a basis, the authors consider the principles which govern the change in T_k of superconducting alloys in simple eutectic systems of transition and non-transition metals, and also in the eutectic segment of phase diagrams of binary systems with the formation of intermediate compounds. "T_k composition" diagrams are presented for binary systems of vanadium and niobium with scandium, as well as the phase diagrams of these systems. In alloys of superconducting systems of the eutectic type, superconductivity is observed both in the case of alloying of two superconductors and in the case of alloying of a superconductor with a "normal" element. The T_k of the superconducting element goes up or down as the second component is dissolved within the limits of the region of homogeneity of the solid solution. In two-phase eutectic mixtures, the T_k of each of the superconducting phases varies along a nearly horizontal straight line as the composition of the alloys changes. Five illustrations, bibliography of twenty-five titles. Authors' abstract. 1/1

USSR UDC: 537.312.62

BARON, V. V., YEFIMOV, Yu. V.

"Superconducting Vanadium-Titanium Alloys Doped With Hafnium and Rhenium"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 161-165 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D543)

Translation: The authors study the individual effect of hafnium and rhenium (up to 10 atomic percent) on the superconducting and mechanical properties of fifty-fifty (atomic) vanadium-titanium alloy. The dopants are added at the expense of titanium. Doping increases the hardness and strength of the alloys, but reduces superconducting characteristics. However, concentrations of up to 1 atomic percent hafnium or up to 5 atomic percent rhenium improve the technological properties of ternary alloys for cold deformation. These alloys still have fairly high superconducting properties (T_k = 7-8°K, critical current density at 4.2°K and 26,000 oersteds reaches $1.5 \cdot 10^4$ A/cm^2). Three illustrations, bibliography of five titles, two tables.

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UDC 537.312.62:538

USSR

BARON, V. V., DEMIDENKO, T. F., KLIMOV, S. I., SAVITSKIY, Ye. M., and TUREVSKIY, V. M.

"Superconducting Magnets for Quantum Paramagnetic Amplifiers"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 209-215

Translation: Based on the operating principle and parameters of paramagnetic crystals in quantum paramagnetic amplifiers, the requirements placed on characteristics of superconducting magnets and solenoids are explained.

Results are presented from the development and experimental testing of superconducting magnets and solenoids with windings of copper and type RNS insulated wire and shields of NT-1 alloy and compounds, as well as their design features.

Types of superconducting magnets and sectioned solenoids were created in the process of development.

2 figures, 4 biblio. refs.

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USSR

UDC 669.292.5:537.321.62

YEFIMOV, Yu. V., and BARON, V. V.

"Influence of Niobium on Superconducting Properties of an Equiatomic Alloy of Vanadium With Titanium"

Problemy Sverkhprovodyashchikh Materialov [Problem of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 173-177

Translation: The influence of niobium (up to 10 at.%) on the structure and properties (hardness, strength, ductility, transition temperature, critical current) of the alloy of vanadium with 50 at.% Ti was studied. The trinary alloys are single-phase solid solutions with body-centered cubic lattice. The lattice period changes from 3.138 to 3.116 A at 10 at.% Nb. Alloying with niobium increases the hardness and the strength of the binary alloy. The ductility of cold deformed wire remains practically unchanged (δ = 2-3%). T_c is decreased from 7.8 to 7.1°K. A sharp decrease in the critical current of cold deformed wire is observed with niobium contents of over 0.5 at.%. With lower niobium content (up to 0.5 at.%) the alloys have good technological properties and sufficiently high superconducting characteristics.

3 figures; 1 table; 3 biblio. refs.

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USSR UDC 669.292.5:537.312.62

BARON, V. V., and YEFIMOV, Yu. V.

"Superconducting Alloys of Vanadium With Titanium, Alloyed With Hafnium and Rhenium"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 161-165

Translation; The influence of hafnium and rhenium (up to 10 at.%) individually on the superconducting and mechanical properties of the equiatomic alloy of vanadium and titanium is studied. The alloying elements were introduced for titanium. Alloying causes an increase in hardness and strength of the alloys, but the superconducting characteristics are reduced. However, with a content of up to 1 at.% Hf or 5 at.% Re in trinary alloys, high technological properties for cold deformation were established. These alloys still have high superconducting properties (T_c = 7-8°K; critical current density at 4.2°K and 26 koe reaches $1.5 \cdot 10^4$ a/cm^2).

3 figures; 2 tables; 5 biblio. refs.

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USSR UDC 669.018.045+537.312.62

SAVITSKIY, Ye. M., MYZENKOVA, L. F., BARON, V. V., and MARTYNOVA, L. F.

"Study of Structure and Superconducting Properties of Single Crystals of Niobium With 5 and 10% Zirconium"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials--Collection of Works], Moscow, Nauka Press, 1970, pages 148-155

Translation: The structure of single crystals of the alloys of niobium with 5 and 10 wt.% Zr produced by the method of cathode ray zone melting is studied. Data are presented on the distribution of zirconium and interstitial impurities over the length of a monocrystalline bar. The transition temperature is measured. For the alloy niobium-5% Zr, T_c = 10°K; for the alloy niobium-10% Zr, T_c = 10.5°K. Magnetization curves of specimens with various crystallographic orientation are measures.

5 figures; 1 table; 6 biblio. refs.

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Coatings

USSR UDC 543.251+668.293.+537.312.62

SAVITSKIY, Ye. M., MIKHAYLOV, B. P., and BARON, V. V.

"Electrolytic Niobium Coating of Complex-Shape Parts"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials — Collection of Works], Moscow, Nauka Press, 1970, pages 203-208

Translation: A method is developed for electrolytic deposition of even superconducting niobium coatings on parts of non-superconducting materials (copper, brass, iron) of various shapes and sizes.

The influence of electrolysis modes on the structure, evenness, thickness, purity, and superconducting parameters of the niobium coating is studied.

The possibility is established of electro deposition of even superconducting coatings of niobium (on parts of various shapes and sizes) with a transition temperature of 8.9-9.0°K.

4 figures; 10 biblio. refs.

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USSR UDC 537.312.62:669.293

BYCHKOVA, M. I., KOZLOVA, N. D., LYSENKO, Ye. N., BARON, V. V., SAVITSKIY, Ye, M., and TUREVSKIY, V. M.

"Screening Properties of Alloys in the Niobium-Titanium System"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 166-172

Translation: The distribution of the magnetic field in superconducting magnets was studied for quantum paramagnetic amplifiers using screening plates of niobium-titanium alloy. It was shown that shields of NT-1 alloy can partially screen a field and significantly improve its homogeneity. With a magnetic field intensity of 4,000 oe, a homogeneity of 10^{-3} was produced in a volume of 5 x 8 x 120 mm.

5 figures, 1 table, 13 biblio. refs.

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USSR UDC 669.292.5.293:537.321.62

SAVITSKIY, Ye. M., BARON, V. V., NAUMKIN, O. P., and YEFIMOV, Yu. V.

"The Vanadium-Scandium and Niobium-Scandium Systems and Their Superconducting Properties"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 178-186

Translation: Based on their own experiments and data from the literature, the authors study the regularities of the change of T_c of superconducting alloys in simple eutectic systems of the transition and non-transition metals, as well as in the eutectic portions of the state diagrams of binary alloys forming intermediate compounds. "Composition-T_c" diagrams of the binary systems of yanadium and niobium with scandium and diagrams of the states of these systems are presented. In eutectic type superconducting system alloys, superconductivity is observed both in the case of melting of two superconductors, and in the case of melting of a superconductor with a "normal" element. T_c of the superconducting element increases or decreases when the second component is dissolved within

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USSR

SAVITSKIY, Ye. M., et al., Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials — Collection of Works], Moscow, Nauka Press, 1970, pp 178-186

the area of homogeneity of the solid solution. In two-phased eutectic mixtures, the T_c of each of the superconducting phases changes almost on a horizontal line as the composition of the alloys changes.

5 figures; 25 biblio. refs.

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USSR UDC 621.385.032.21 (088.8)

SAVITSKIY, YE. M., MOROZOV, A. V., IVANOVA, K. N., BELOUSOV, A. I., BARON, V. V., ROZHDESTVENSKIY, V. M., OVCHINNIKOV, M. A.

"Alloy For The Production Of Components Of The Cathode Unit Of Electronic Devices"

USSR Author's Certificate No. 304642, filed 14 August 1969, published 15 September 1971 (from RZh--Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3A49)

Translation: A cathode-heating unit is proposed by which, with the object of increasing the stability, reliability, and longevity of a component, the cathode holder, screens, and pistons are produced from RN-6 or RN-8 alloys based on niobium. The RN-6 alloy contains (percent by weight): tungsten 5-7, molybdenum 4-6, zirconium 2-2.5, remainder niobium. The cost of the proposed alloy is considerably less than the cost of tantalum. The alloys are characterized by highly stable properties and sufficient plasticity, which makes it possible to produce tubes, wire, sheets, and foil 1-0.1 mm thick, from them under industrial conditions by the method of processing various semifinished products by pressure. Use of the electron-beam method of smelting considerably reduces the content of gaseous impurities, and a three-fold remelting is used for a more uniform composition of ingots. Sheets 0.5--0.1 mm thick are obtained by the hot forging method and cold rolling with intermediate recrystallization annealings. 1/1

Materials

USSR

UDC 621.385.032.213.6

SAVITSKIY, YE. M., MOROZOV, A. V., IVANOVA, K. N., BELOUSOV, A. I., BARON, V. V., ROZHDESTVENSKIY, V. M., OVCHINNIKOV, M. A.

"Alloy for Manufacturing the Parts of the Cathode Junction of Electronic Devices"

USSR Author's Certificate No 304642, filed 14 August 1969, published 25 May 1971 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 17, 1971, No H 01j 1/20)

Translation: 1. An alloy for manufacturing the parts of the cathode junction of electronic devices based on niobium is introduced. It is distinguished by the fact that in order to improve strength and stability of shape of the parts, the alloy contains tungsten and zirconium additives.

2. The alloy according to item 1 distinguished by the fact that it contains 7-9% tungsten and 2-2.5% zirconium is introduced.

3. The alloy according to item 1 distinguished by the fact that it contains molybdenum is introduced.

4. The alloy according to item 3 distinguished by the fact that it contains 5-7% tungsten, 1-1.5% zirconium and 4-6% molybdenum is introduced.

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1/2 037 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--SUPERCONDUCTING ALLOYS OF VARIABLE COMPOSITION -U-

AUTHOR-(03)-SAVITSKIY, YE.M., BARON, V.V., GINDINA, S.D.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 338-40

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--NIOBIUM ALLOY, TANTALUM ALLOY, ELECTRON BEAM MELTING, SUPERCONDUCTIVITY, SUPERCONDUCTING ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1115 STEP NO--UR/0020/70/191/002/0338/0340

CIRC ACCESSION NO--AT0116581

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200310011-1"

2/2 037 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0116581

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SUPERCONDUCTING PROPERTIES WERE STUDIED FOR THE NB-TA SYSTEM IN WHICH A CONTINUOUS SERIES OF SOLID SOLNS. IS FORMED AND THE VALUE OF T SUBC WAS DETD. AS A FUNCTION OF THE COMPN. A NEW METHOD IS DESCRIBED FOR PREPG. MASSIVE SAMPLES OF VARIABLE COMPN. USING VACUUM ZONE FUSION BY AN ELECTRON BEAM. THE VALUES OF T SUBC SHOW THAT IN THE 5.1-10.5DEGREESK RANGE PART OF THE SAMPLE OF VARIABLE COMPN. IS IN THE NORMAL STATE AND PART IN THE SUPERCONDUCTING.

FACILITY: INST. MET. IM. BAIKOVA, MOSCOW, USSR.

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0111535

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING 4.8 ML HNO SUB3 (D. 1.4) OVER 70 MIN TO A MIXT. OF 38.5 G PH SUB2, 100 ML HOAC, 31.8 G IODINE, AND 27.5 ML H SUB2 SO SUB4 (D. 1.84) AT 34-6DEGREES GAVE 54PERCENT 4,PHC SUB6 H SUB4 I (I), M. 112DEGREES (ETOH). REACTION OF 70 G I WITH KOPH (FROM 45.5 G PHOH AND 15.4 G KOH) 6 HR IN THE PRESENCE OF 1.5 G POWD. CU AT 270-90DEGREES GAVE 97PERCENT 4,PHOC SUB6 H SUB4 PH (II), B SUB2 160DEGREES, M. 68-9DEGREES. COM. FEASIBLE PREPN. OF II FROM PHBR AND 4,PHC SUB6, H SUB4 OH (III) WAS STUDIED WITH RESPECT TO REACTANT RATIO AND REACTION TIME AND TEMP. II YIELDS WERE MAX. (89.2PERCENT) WHEN 25 G III, 12 G KOH, 0.75 G CU, AND 40 ML PHBR WAS HEATED FIRST AT 180DEGREES UNDER A DEPHLEGMATOR 2.5 HR WITH DISTN. OF H SUB2 O FORMED IN THE REACTION AND THEN 1.5 HR AT 300DEGREES; THE MIXT., COOLED TO 50DEGREES, WAS TREATED WITH 50 ML AQ. 20PERCENT KOH, AND THE FILTERED, WASHED, DRIED PRODUCT WAS VACUUM DISTD. FACILITY: SUKHUM. FIZ.-TEKH. INST., SUKHUMI, USSR.

UNCLASSIFIED

USSR

UDC 632.95

FILATOV, L. N., SHCHERBATYKH, Yu. I. and BARONINA, T. G.

"Kinetics of Crystallization of Some Pesticides Disposed to Supercooling"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 2, Moscow, 1972, pp 98-103 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N511 by V. A. Kozlov)

Translation: Study of the kinetics of crystallization of chlorophos (I), benzophosphate (II), and coditic (III) which can occur in a supercooled metastable state. The linear rate of crystallization was determined by observing the movement of the crystal-melt interface in glass capillaries with an inner diameter of 0.8 to 1.0 mm and about 0.01 mm thick. For I the maximum rate is at 40° and it varies with the purity of the product. For 86-, 91.9-, and 97.4% I, the rate of crystallization is respectively, $1.25 \cdot 10^{-3}$, $2.15 \cdot 10^{-3}$, and $4.8 \cdot 10^{-3}$ mm/sec, for 96% II $0.19 \cdot 10^{-3}$ mm/sec, and for 98% III 1 mm/sec.

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B

USSR UDC: 597.0/5-15

SHENTYAKOVA, L.F., SHENTYAKOV, V.A., STEPANOV, V.S., SMIRNOVA, N.F., KUZMINA, V.V., BARONKIN, O.F., BAYEVA, G.D., ZAYTSEVA, K.N., Institute of Biology of Inland Waters Academy of Sciences, USSR

"The Effect of Alternating Current on Fish and Aquatic Invertebrates"

Moscow, Voprosy Ikhtiologiya (Problems of Ichthyology) Vol 10, No 3, 70, pp 506-518

Abstract: This study on the influence of alternating currents on fish in various stages of life and development, in many different inland waters, covers a period of several years, and includes a great variety of fish. Trawl fishing with alternating current, the effect of current on spawning, embryo, larvae and fry and the subsequent condition of varieties of fish and their reproductive capacity, were studied. Results (summarized in five tables and a graph) show that alternating currect in doses causing electronarcosis does not harm any fish in any phase of life and that from spawn to adult, fish develop normally. The catch of fish by alternating-current trawl is 125-263% above the normal. Studies on zooplankton and benthos showed that some organisms are not affected by low current intensities. Current of higher intensity stirred the little animals to a greater activity, and still higher induced electro-narcosis. Plankton and benthos revive rapidly after withdrawal of current. Only in current doses 15-126 times that necessary to induce narcosis does death occur with about 10% of the plankton and benthos surviving.

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BARONKIN, YU. F.

JPRS 56288

16 June 1972

UDC: 621.18.152

PURIFICATION OF CONDENSATE WITH SEPARATELY FUNCTIONING ION-EXCHANGER FILTERS AT THE VK-50 ATOMIC ELECTRIC POWER PLANT

[Article by Candidates of Technical Sciences A.M. Nudel', P.F. Neshkov,
and Yu. V. Chechetkin, Engineer L.P. Soshina, Candidate of Chemical
Sciences A.I. Zabelin, and engineers Yu. F. Baronkin, L.N. Rozhdestven-
skaya, and L.N. Mesnaya; Moscow, Teploenergetika, Russian, No 3, May
1972, pp 13-15]

Experience in the operation of thermal and atomic electric power plants has shown that purification of the entire stream of condensate of dissolved and mechanical impurities is a necessary condition for reliable functioning of the plant [1,2].

To investigate the functioning of ion-exchange resins in the purification of the condensate of an atomic electric power plant from dissolved and suspended impurities, and also to verify the design of individual elements of an ion-exchanger filter, a semi-works installation with separately functioning ion-exchanger filters (two meters in diameter), with H-cation-exchanger and OH-anion-exchanger resins, connected in series, was installed and tested on the bypass of the condensate loop of the VK-50 Atomic Electric Power Plant.

The filters were identical in their design. The drainage and distribution systems of the filters were of the slit-tube type. The slits on the radii of the system were formed of a coil of circular wire with a diameter of 0.8 mm. The coil was so made that the width of the gap was 0.1 mm on the radii of the lower system and 0.4 mm on those of the upper system.

During the time the filters functioned the following thermodynamic indicators were monitored (the flow rate of the condensate, the total resistance of the filters, and the resistance of the drainage systems) and also the physicochemical composition of the condensate (the pH value, electrical conductivity, hardness, the content of elements of corrosion products, and the total beta-activity). The chemical composition of the condensate was stable during the entire course of functioning of the filters, except during the start-up period of the reactor (0.02-0.04 mg/liter of Fe (total),

[I - USSR - K]

1/5 008 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--USSR'S ROLE IN INTERNATIONAL OCEAN RESEARCH. THE WORLD OCEAN AND INTERNATIONAL COOPERATION -U-

AUTHOR--BARONOV, O.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW RED STAR 8 JAN 70 P 3 1

DATE PUBLISHED--08JAN70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--OCEANOGRAPHIC R AND D, AIR SEA INTERFACE, INTERNATIONAL R AND D AGREEMENT, OCEAN CURRENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1852 STEP NO--UR/9008/70/000/000/0003/0003

CIRC ACCESSION NO--AN0104963

UNCLASSIFIED

2/5 008 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AN0104963

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE LAST DECADES MANKIND HAS TAKEN A HUGE STEP IN THE STUDY OF OUR PLANET AND CIRCUMTERRESTRIAL SPACE, WHOSE CONQUEST WAS PIONEERED BY THE SOVIET UNION. YET, AS BEFORE, THE LEAST MASTERED PART OF OUR PLANET REMAINS THE WORLD OCEAN, WHICH COVERS MORE THAN 70 PERCENT OF THE EARTH'S SURFACE. DATA FROM EXPEDITIONARY RESEARCH BEAR WITNESS THAT THE PROPERTIES OF THE OCEAN MEDIUM ARE SUBJECT TO CONSIDERABLE VARIABILITY, SOMETIMES COMMENSURABLE WITH THE ATMOSPHERE'S VARIABILITY. THE CONCLUSIONS DRAWN FROM RESEARCH HAVE SHOWN, IN PARTICULAR, THAT THE CONCEPT OF CONSTANT CURRENTS FREQUENTLY LOSES ITS MEANING. OCEANOGRAPHY HAS BEEN SET THE TASK NOT SIMPLY OF STUDYING AND ESTABLISHING THE IMPORTANCE OF ONE ELEMENT OR ANOTHER BUT OF TRADING THEIR VARIABILITY IN ORDER TO LEARN HOW TO FORECAST THE STATE OF THE OCEAN MEDIUM AND THE PROCESSES TAKING PLACE IN THE ATMOSPHERE, AND TO REVEAL THE LAWS OF INTERACTION BETWEEN THE ATMOSPHERE AND THE OCEAN. THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (IOC), WHICH WAS CREATED WITH THE ACTIVE PARTICIPATION OF USSR OCEANOGRAPHERS AND IS THE MAIN INSTRUMENT FOR ORGANIZING AND IMPLEMENTING INTERNATIONAL OCEANOGRAPHIC COOPERATION, HAS ALREADY BEEN WORKING WITHIN THE FRAMEWORK OF UNESCO FOR 10 YEARS. AT PRESENT 68 OUT OF 112 COASTAL STATES ARE IOC MEMBERS. THE SOVIET UNION ALSO PARTICIPATES ACTIVELY IN THE WORK OF THE UN COMMITTEE ON THE PEACEFUL USE OF THE SEABED.

UNCLASSIFIED

3/5 008 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AN0104963

ABSTRACT/EXTRACT--THE SIXTH IOC SESSION, WHICH TOOK PLACE IN SEPTEMBER 1969 IN PARIS, OUTLINED A LONG TERM AND COMPREHENSIVE PROGRAM FOR STUDYING THE OCEANS AND SEAS, AN IMPORTANT ELEMENT OF WHICH WILL BE DECADE OF INTERNATIONAL STUDY OF THE OCEAN UNDER UN AEGIS. WITH EVERY YEAR THE USSR HYDROGRAPHIC SERVICE INCREASINGLY EXTENDS ITS LINKS WITH ANALOGOUS SERVICES OF OTHER STATES AND WITH INTERNATIONAL ORGANIZATIONS. THE EXCHANGE OF EXPERIENCE FROM WORK DONE AND OF RESEARCH RESULTS INCREASES THE GUARANTEE OF NAVIGATIONAL SAFETY IN THE COOPERATING COUNTRIES AND ASSISTS THEIR ECONOMIC DEVELOPMENT. AS AN EXAMPLE ONE MAY CITE THE HYDROGRAPHIC SERVICE OF THE RED BANNER PACIFIC FLEET WHICH HAS BEEN PARTICIPATING SINCE 1965 IN THE WORK OF THE INTERNATIONAL ORGANIZATION STUDYING THE REGION OF THE KUROSHIO CURRENT. THE UNITED STATES, JAPAN, THE PHILIPPINES, AND OTHER COUNTRIES ARE ALSO MEMBERS OF THIS ORGANIZATION. THE RESEARCH PROGRAM WAS FULFILLED BY THE FLEET'S HYDROGRAPHIC SHIPS NEVELSKOY AND ULYANA GROMOVA AND ALSO BY SHIPS OF THE HYDROMETEOROLOGICAL SERVICE AND THE PACIFIC INSTITUTE OF FISHERY AND OCEANOGRAPHY. THE CHIEF OF THE PACIFIC FLEET'S HYDROGRAPHIC SERVICE, WHO WAS ELECTED DEPUTY NATIONAL COORDINATOR FOR STUDYING THE KUROSHIO CURRENT, PARTICIPATED IN THE INTERNATIONAL CONGRESSES ON THE PROBLEMS OF THE PACIFIC OCEAN WHICH MET IN HONOLULU, MANILA, AND TOKYO. DIVERSE AND VALUABLE MATERIAL WAS GATHERED ON A 9 MONTH VOYAGE ROUND THE WORLD IN 1968-69 BY A SCIENTIFIC EXPEDITION UNDER THE LEADERSHIP OF ADM L. VLADIMIRSKIY ON THE OCEANOGRAPHIC EXPEDITION SHIP POLYUS.

UNCLASSIFIED

4/5 008 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AN0104963

ABSTRACT/EXTRACT--I SHOULD POINT OUT THAT DURING ITS VOYAGE POLYUS PUT INTO PORTS OF MANY COUNTRIES, AND EVERYWHERE THE EXPEDITION MEMBERS ENCOUNTERED HOSPITALITY AND BENEVOLENT ATTITUDE TOWARD THEM. ACCORDING TO THE MATERIAL FROM RESEARCH UNDERTAKEN BY SOVIET EXPEDITIONS, OLD SEA CHARTS ARE CORRECTED AND NEW ONES CREATED, AND MODERN SAILING DIRECTIONS TO REPLACE OUT OF DATE ONES AND SPECIAL MANUALS FOR THE ENTIRE WORLD'S SEAFARERS ARE PUBLISHED. WITH EVERY YEAR THE RELIEF OF THE SEA AND OCEAN BED IS BEING DRAWN IN WITH INCREASING DETAIL, WHICH LESSENS THE LIKELIHOOD OF SHIPWRECKS. INCREASINGLY FEWER WHITE SPACES REMAIN ON THE SEA CHARTS. WITH THIS AIM IN MIND THE RED BANNER PACIFIC FLEET OCEANOGRAPHICAL EXPEDITION WAS SENT TO THE WESTERN PART OF THE PACIFIC OCEAN AND THE SOUTHEASTERN PART OF THE INDIAN OCEAN. IT INCLUDED THE MOTOR VESSEL "URITSKIY," TEMPORARILY CHARTERED WITH A HYDROGRALHIC SERVICE, AND THE HYDROGRAPHIC SUBMARINE VEGA AND THE TANKER DUNAY. THE RESEARCH PROGRAM COVERS METEROLOGICAL AND HYDROLOGICAL OBSERVATIONS, INCLUDING AN ANALYSIS OF TEMPERATURE DISTRIBUTION OF WATER ACCORDING TO DEPTH, THE CHARACTERISTIC FEATURES OF SURFACE WAVES, ATTENUATION OF THE SWELL AS ONE DESCENDS, AND INVESTIGATION OF CURRENTS. THE EXPEDITION HAS PLANS FOR HYDROCHEMICAL AND HYDROOPTICAL CALCULATIONS. BUT THE MAIN TASKS ARE THE STUDY OF THE INTERACTION OF ATMOSPHERE AND OCEAN, AND INVESTIGATE NAVIGATION DANGER.

UNCLASSIFIED

5/5 008 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AN0104963

ABSTRACT/EXTRACT--ORGANIZERS OF THIS EXPEDITION HOPE THAT COASTAL COUNTRIES NEAR WHERE THE SOVIET HYDROGRAPHICAL SHIPS SAIL WOULD UNDERSTAND THE NECESSITY AND IMPORTANCE OF THE RESEARCH, AND THAT THE SCIENTISTS OF THESE COUNTRIES WOULD SHOW INTEREST IN THE WORK OF THEIR COLLEAGUES. IT IS ESPECIALLY STRANGE THAT DURING THE EXPEDITION'S VOYAGE IN THE REGION OF AUSTRALIA THE AUSTRALIAN PRESS MOUNTED AN ANTI SOVIET CAMPAIGN, AGAIN GIVING THEIR READERS THE CAMPHOR STEEPED MYTH OF THE COMMUNIST THREAT.

UNCLASSIFIED

Water and Water Treatment

USSR UDC 543.3:537.533.35+537.533.73

DERYAGIN, B. V., YE:KO, E. I., KISIN, V. I., LUK'YANOVICH, V. M., RABINOVICH, YA. I., CHURAYEV, N. V., and BARONOVA, R. V., Institute of Physical Chemistry, Academy of Sciences USSR; and Institute of Crystallography imeni A. V. Shubnikov, Academy of Science USSR

"Electron Diffraction Study of Modified Water"

Moscow, Doklady Akademii Nauk SSSR, Vol 208, No 3, 1973, pp 603-605

Abstract: Modified water (m.w.) was prepared by three processes on a quartz film in order to study the "anomalous component" (a.c.), e.g. that part of the m.w. which is nonvolatile at room temperature. The bulk of the sample is amorphous. The polytypic character of the different crystalline modifications of the a.c., seen earlier in electron micrographs and ascribed to impurities of Na^+ and K^+, was evident in the electron diffraction patterns; in the latter case, however, it could not be correlated with Na^+ or K^+. It was thus assumed that the crystalline part was composed of different contaminants. The diffraction pattern, autoradiographs of tritiated samples, and electron micrographs are included.

- END -

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USSR

BAROYAN, O., Academician, Academy of Medical Sciences USSR, Director, Institute of Epidemiology and Microbiology imeni Gamaleya

"Scientists' Initiative"

Moscow, Vechernyaya Moskva, 28 Dec 71, p 2

Abstract: Two establishments of the Academy of Medical Sciences USSR, the Institute of Epidemiology and Microbiology imeni Gamaleya, and the Institute of Virology imeni Ivanovskiy, have undertaken socialist competition based on a joint contract. They will conduct research and attempt practical implementation through groups from both institutes, in the general areas of molecular biology and microbiology. Specific attention will be given to mathematical modelling of flu epidemics, the study and production of interferon, comprehensive study of leukemia and tumors. A center of medical microbiology, for conferences, symposiums, and so on, will be established in facilities of the two institutes. A commission has been established to develop criteria and evaluate results of the competition every six months.

USSR

BAROYAN, O. V., Academician of the USSR Academy of Medical Sciences

"Barriers on the Path of Infections"

Moscow, Krasnaya Zvezda, 2 Feb 73, p 4

Translation: There is no epidemic of smallpox, plague, cholera, tularemia, diphtheria or poliomyelitis in the Soviet Union today. However, the success in attacking the infections cannot be absolute. There is no country in the world today which is in a position to guarantee complete safety to its citizens even with regard to such diseases on the path of which people have learned to erect barriers, for black spots which are centers of the infections still remain on the world map. In a matter of hours, for example, onboard an aircraft their causative agents can cross the ocean, be scattered from continent to continent and get around cordons.

This is what happened in 1965 and then in 1970 when cholera invaded the territory of the USSR. This was a serious test for us. How the Soviet health service withstood the battle with the infections was discussed at the European Conference on Cholera by the inspector general of public health of the Ministry of Public Health of France, Doctor P. Favori: "For the first time in the history of cholera pandemics, the Soviet Union became a barrier in the path of the spread of the epidemic from East to West. Not one case of the disease was

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