

USSR

PAVLOV, I. M., Tsvetnyye Metally, No 3, Mar 70, pp 50-52

rolling the billets were annealed at 1200°C. For 11.6-and 12-mm pipes the total deformation was 40 to 60%; for 20 mm pipes -- 33%. The pipes passed flattening tests to the point of wall contiguity. The new technology of the process makes it possible to reduce by 2 to 2.5 times the cost of the finished product, with the physicomechanical properties remaining the same.

2/2

- 100 -

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CONTINUOUS DISCHARGE OF SLAG FROM A LEAD FURNACE AT THE
ELEKTROTSINK PLANT -U-
AUTHOR-(03)-SAUTIYEV, T.D., ALIKOV, A.B., BINDER, S.I.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(4), 42-4

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LEAD ORE, METALLURGIC PLANT, EXTRACTIVE METALLURGY,
METALLURGIC SLAG, METALLURGIC FURNACE, SMELTING FURNACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3095/0116

STEP NO--UR/0136/70/043/004/0042/0044

CIRC ACCESSION NO--AP0132409

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0132409
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONTINUOUS DISCHARGE OF A SLAG OF
COMP. FE0 28.5-36.3, CAO 11.87-17.9, AND SID SUB2 20.6-22.1PERCENT
LEADS TO SMOOTHER OPERATION OF THE SHAFT FURNACE, IMPROVES THE
FUNCTIONING OF THE TUYERES OPPOSITE THE SLAG TAPPING HOLE, SO THAT THE
FURNACE BEINGS TO OPERATE ACTIVELY OVER THE WHOLE SECTION, AND
CONSIDERABLY IMPROVES THE WORKING CONDITIONS. WITH LIME SLAG,
CONTINUOUS OPERATION INCREASES THE RATE OF SMELTING BY 7 TON-M
PRIME2-DAY, REDUCES THE AMT. OF DUST, AND REDUCES FUEL CONSUMPTION.

UNCLASSIFIED

USSR

UDC: 51:155.01.57:681.3.06

GLADUV, V. P., MAZAYEVA, S. P., SAVA, I. G.

"Experiments on Pattern Recognition Using Growing Networks"

Probl. bioniki. Resp. mezhved. temat. nauch.-tekhn. sb. (Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection), 1971, vyp. 6, pp 63-69 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V1001)

Translation: An algorithm for teaching growing networks to recognize patterns is described. A method of realizing this algorithm in the form of a computer program is considered together with digital computer experiments which illustrate operation of the algorithm. Authors' abstract.

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USSR

UDC 669.295.05.054

GALITSKIY, N. V., SAVADOVSKAYA, V. N., and DROZHNEV, V. I.

"On the Solubility of Pentachloride of Molybdenum in Titanium Tetrachloride"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 34-36

Translation: The solubility of MoCl_5 in TiCl_4 at temperatures of 4, 25, 65 and 100°C is determined by the saturation method. In this temperature interval, it changes from 0.002 to 0.034 of a molecular particle. The heat of solution of MoCl_5 in TiCl_4 is $\Delta H^\circ_{\text{solu}} = 6.82 - 0.2$ gigacalories per mole. Four illustrations, one table, and six bibliographic entries.

1/1

USSR

UDC 547.26'118 + 547.245

SAVAL'YEVA, N. I., KOSTYUK, A. S., BAUKOV, Yu. I., and LUTSENKO, I. F., Moscow State University imeni M. V. Lomonosov

"Reaction of Trialkylsilylketenes With Dialkyl Phosphites and Dialkyl thiophosphates"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 2, Feb 71, pp 485-486

Abstract: Dimethyl esters of α -trimethylsiloxyvinylphosphonic acid, b.p. $79^{\circ}/2\text{mm}$, n_D^{20} 1.4378, d_4^{20} 1.0556 and λ -trimethylsiloxyvinylthiophosphonic acid b.p. $83^{\circ}/2\text{mm}$, n_D^{20} 1.4740, d_4^{20} 1.1214 were synthesized by the reaction of trialkylsilylketenes with dialkyl phosphites and dialkyl thiophosphites in presence of catalytic amounts of triethylamine. It is proposed that formation of the esters $\text{CH}_2=\text{C}(\text{OSiR}_3)\text{P}(\text{X})(\text{OR})_2$ is a secondary process going through the formation of $[\text{R}_3\text{SiCH}_2(\text{CO})\text{P}(\text{X})(\text{OR})_2]$ analogously to the reaction of dialkyl phosphites and thiophosphites with ketenes.

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USSR

UDC 678.06:678.742.2

SAVARENSKIY, V. V.

"Use of Polyethylene in Bone Prosthesis"

Moscow, *Plasticheskiye Massy*, No 2, Feb 72, p 68

Abstract: Polymers now used as prosthetic materials during surgery, such as the copolymers of styrene and methyl metacrylate, are not satisfactory on account of their rigidity and brittleness.

The author reports on high-density polyethylene, which is relatively free from those defects. Granulated polyethylene is sterilized in boiling water for 1 hour, following which it is pressed into plastic sheets at 150°C and 300-400 kg/cm² pressure; it is then imposed on a plaster cast of the damaged bone area. Minor adjustments in profile can be made after submerging the polyethylene for about 10 minutes in boiling water.

This material is quite strong at 20-30°C, and very elastic at 100-120°C, and hence adaptable to shaping; it can be cut with scissors. In addition, it is free from any poisonous or irritant materials. Some 100 operations have already been successfully performed with its use.

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69

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USSR

UDC: 669.15:621.785

BERNSHTEYN, M. L., BRUN, L. YA., ZAYDOVSKIY, V. A., SAVARI, P. and
SAMEDOV, O. V., Moscow Institute of Steel and Alloys

"Inheriting the Thermomechanical Strengthening of 30Kh2GMT Steel"

Sverdlovsk, Fizika metallov i metallovedeniye, Vol 32, No 4, Oct 71,
pp 813-818

Abstract: Described is a study of the mechanical properties of 30Kh2GMT steel quenched and tempered following preliminary high-temperature strain hardening with heating the deformed austenite as supercooled. It is shown that repeated quenching following high-temperature mechanical treatment facilitates the inheritance of high mechanical properties. The restoration of the higher properties is the more complete the longer the heating duration of the hot-deformed austenite in the bainite region. The maximum effect is observed when the high-temperature thermomechanical treatment is followed by isothermal decay. The effect of "inheritance" is also observed during repeated quenching following low-temperature thermomechanical treatment with isothermal decay of austenite. The nature of this phenomenon is discussed with regard to the metallographic analysis of the initial austenite grain

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USSR

BERSHTEYN, M. L., et al, Fizika metallov i metallovedeniye, Vol 32, No 4,
Oct 71, pp 813-818

in which picric acid has failed to produce an unambiguous etching pattern
and has most likely revealed, in addition to large-angle grain boundaries,
the boundaries of a substructure. (6 illustrations, 5 bibliographic references)

2/2

USSR

UDC 615.285.7.039.036.11.085.835.3

SAVATAYEV, N. V., BRESTKINA, L. M., TONKOPIY, V. D., POZHARISSKAYA, T. D., and FROLOV, S. F.

"Compressed Oxygen in the Treatment of Acute Chlorophos Poisoning"

Moscow, Farmakologiya i Toksikologiya, No 6, 1972, pp 738-741

Abstract: Injection of rats with the pesticide chlorophos (1000 mg/kg) produced the characteristic symptoms of organophosphorus poisoning in 10 minutes. Administration of oxygen under normal barometric pressure at this time had no effect on the symptoms, but it slightly increased the animals' survival time. On the other hand, oxygen under a pressure of 3 atm not only mitigated the course of the intoxication, but increased the survival time substantially. Atropine alone or administered in combination with oxygen 10 min after injection of chlorophos had no effect on the outcome of the poisoning, although it greatly relieved the symptoms. Compressed oxygen and atropine used separately 60 min after poisoning had no effect on the course or outcome, but when the two were used at the same time, they produced a marked therapeutic effect and a higher survival rate. Treatment of the animals with atropine and TMB-4 resulted in a 90 to 100% survival rate. And when the two agents were combined with oxygen, the animals were outwardly indistinguishable from controls after only 1 hour in the pressure chamber.

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USSR

UDC 577.150.8:577.153.4:615.785.4

TONKOPIY, V. D., SAVATEYEV, N. V., BRESTKIN, A. P., and PANOV, A. N.,
Military Medical Academy Imeni S. M. Kirov, Institute of Evolutional
Physiology and Biochemistry Imeni I. M. Sechenov, Academy of Sciences
USSR, Leningrad

"Determination of Cholinesterase Activity in Tissues of Animals After the
Action of Reversible Inhibitors"

Moscow, Doklady Akademii Nauk SSSR, Vol 207, No 3, Nov 72, pp 736-738

Abstract: A new method was developed for the determination of cholinesterase activity after introduction of reversible inhibitors, based on their ability to retard cholinesterase activity with irreversible organophosphorus inhibitors [POI]. The inhibition of the enzyme -- j -- can be determined by the rate of cholinesterase hydrolysis of acetylcholine after addition of POI to the investigated tissue in absence of and after addition of the reversible inhibitor. The formula for the cholinesterase inhibition is:

$$j, \% = 100 - \frac{\lg v_1/v_{t,i} \cdot 100}{\lg v_0/v_t}$$

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TONKOPIY, V. D., et al., Doklady Akademii Nauk SSSR, Vol 207, No 3, Nov 72, pp 736-738

where v_1 represents respective rates of enzyme hydrolysis; v_0 -- in absence of inhibitors, v_t -- after incubation with POI, $v_{t,1}$ -- in presence of reversible inhibitor, and $v_{t,1}$ -- in presence of reversible inhibitor followed by incubation with POI. Animal experiments were carried out on the inhibition of cholinesterase in blood and brain. Considerable depression of cholinesterase activity was noted with armine as the irreversible inhibitor and galantamine as the reversible one, corresponding to clinical symptoms. The Hestrin and potentiometric titration methods showed no depression of enzyme activity.

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SAVATEYEV, N.V.

1983 58045
23 Jan 78

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where [I] is the inhibitor concentration in the tissue studied, and K_1 is the inhibitor constant.

$$I = \frac{[E]I}{K_1 + [I]} \quad (1)$$

Some reversible cholinesterase (ChE) inhibitors, including galantamine, tacrine, and others, are found in wide use in symptomatology and experimental studies. When studying the relationship between the anti-cholinesterase activity of reversible inhibitors (I) and their biological effect, it is extremely important to know the degree of enzyme inhibition (j) in various organs and tissues of the organism following injection of these inhibitors. The magnitude of j represents the relation of ChE concentration combined in the enzyme-inhibitor complex [EI] to the total enzyme concentration [E]₀ and in the case of a competitive type of inhibitor, is expressed in the formula:

Article by N. D. TOKHAYEV, N. V. SAVATEYEV, A. P. BREGUBIN, and A. N. FETISOV, Academy of Military Medicine, Genri S. M. Kirov, Institute of Evolutionary Physiology and Biochemistry, Genri I. M. Sechenov, Academy of Sciences USSR, Leningrad (presented by Academician Ye. M. Kreps, 27 February 1972); Moscow, Doklady Akademii Nauk SSSR, Russian, Vol 207, No 3, 1972, pp 736-738

UDC 577.150.8:577.153.4:615.785.4
DETERMINING CHOLINESTERASE ACTIVITY IN ANIMALS' TISSUES
FOLLOWING THE ACTION OF REVERSIBLE INHIBITORS

JPRS 58045
23 January 1973

USSR

S UDC: 612.014.464-08:616-099

SAVATEYEV, N.V., Professor, Col Med Serv, TONKOPIY, V.D., Candidate of Medical Sciences, Capt Med Serv, and FROLOV, S.F.

"Oxybarotherapy of Some Acute Poisonings"

Moscow, Voenno-Meditsinskiy Zhurnal, No 2, 1970, pp 23-28

Abstract: This review of the Soviet and foreign literature shows that oxybarotherapy (hyperbaric oxygenation) is an effective method of treating acute carbon monoxide poisoning. Animal experiments indicate that it may also be effective in treating poisoning by methemoglobiniformers, cyanides, and barbiturates. Some of the hazards connected with the use of oxygen under pressure are pointed out. Further research is needed to determine optimum regimes and indications for use in different kinds of poisonings.

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USSR

UDC 621.396.6-181.5

KLIMENKO, A. S., SAVAT'YEV, V. A.

"Calculating the Diffusion of Moisture Through a Monolithic Single-Layer Plastic Integrated Circuit Housing"

Elektron. tekhnika. Nauchn-tekhn. sb. Mikroelektronika ((Electronic Technology. Scientific and Technical Collection. Microelectronics), 1971, vyp. 1(27), pp 70-73 (from RZh-Radiotekhnika, No 8, Aug 71, Abstract No 8V233)

Translation: The author considers a physical model of a single-layer polymer integrated microcircuit housing and its mathematical analog. Using the overall level of diffusion, a solution is found which defines the diffusion of moisture vapor into the housing. A generalized graph is given for the moisture protecting characteristic of a single-layer polymer housing, and an example of calculating its wall thickness is presented. Resumé.

1/1

USSR

UDC 539.4

MURKIN, V. S., and SAVATEYEV, V. G., Ufa Aviation Institute imeni Sergo Ordzhonikidze

"Relaxation Stability of Residual Stresses in 13Kh12NVMFA Steel"

Kiev, Problemy Prochnosti, No 5, May 73, pp 88-91

Abstract: On the basis of experimental investigation and statistical processing of data, a mathematical model of the relaxation process of residual stresses was derived which takes into account the magnitude of initial technological stresses and exploitation conditions (time, temperature, static working stresses). The derived rules make it possible to evaluate the required magnitude of primary technological stresses or, by known initial technological stresses, to determine the actual value of residual stresses of the part in operation. The residual stresses in parts of 13Kh12NVMFA steel retain sufficient stability up to 250-300°C. Below these temperatures, an effective rise of strength characteristics of parts is possible at the expense of application of favorable compressing residual stresses. One figure, two tables, five bibliographic references.

1/1

USSR

KLIMENKO, V. P., SAVCHAK, O. N.

"Realization of the Dialogue Mode in the Mir-2 Computer"

Konstruirovaniye i vnedreniye novykh sredstv vychisl. tekhn. T. 1
[Design and Introduction of New Computer Equipment. Volume 1 -- Collec-
tion of Works], Kiev, 1971, pp 61-64 (Translated from Referativnyy Zhurnal
- Kibernetika, No 8, 1973, Abstract No 8 V638 by V. Ostrovskiy)

Translation: A brief description is presented of a language designed to support dialogue between the user the Mir-2 computer, allowing operational interference in the process of problem solving in order to introduce changes to initial data or to the program. The computer and user exchange portions of information in sequence. User messages are in the form of statements, which the computer may answer by all available information output devices. Two types of statements are allowed: informative (declarative statement) and directive (imperative statement). The machine records the information produced and formulates a description of the objects or operators of the input language. Directives can be used to indicate the sequence of operators to be performed (stored in advance or contained in the directives). In contrast to informatives, all information relating to a certain directive

1/2

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USSR

KLIMENKO, V. P., SAVCHAK, O. N., Konstruirovaniye i vnedreniye novykh sredstv vychisl. tekhn. T. 1, Kiev, 1971, pp 61-64

is eliminated after the directive is performed. The language suggested contains informatives of three types and seven varieties of directives.

2/2

1/2 030 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--ON THE ROLE OF COPPER AND VITAMIN C METABOLISM DISORDERS IN THE
PATHOGENESIS OF CHRONIC ECZEMA -U-
AUTHOR--SAVCHAK, V.I. S
COUNTRY OF INFO--USSR
SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 3, PP 28-32
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--COPPER, VITAMIN METABOLISM, BLOOD PLASMA, URINE, DERMATITIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0698 STEP NO--UR/0206/70/000/003/0028/0032
CIRC ACCESSION NO--AP0102672
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--02JCT70

2/2 030

CIRC ACCESSION NO--AP0102672

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

ABSTRACT. THE CONTENT OF COPPER IN THE BLOOD PLASMA AND BLOOD CELLS, AND THE LEVEL OF VITAMIN C IN THE BLOOD PLASMA AND IN DIURNAL SAMPLE OF THE URINE WERE DETERMINED IN 86 PATIENTS WITH CHRONIC ECZEMA. IN THE MAJORITY OF THE PATIENTS (82.6PERCENT) INCREASED CONTENT OF COPPER AND REDUCED LEVEL OF VITAMIN C, AS WELL AS REDUCTION IN ITS EXCRETION IN THE URINE WERE FOUND. COPPER METABOLISM AND VITAMIN C METABOLISM IN PATIENTS WITH ECZEMA WERE INVERSELY RELATED. THE DETECTED CHANGES IN COPPER AND VITAMIN C METABOLISM IN SUCH PATIENTS SEEM TO PLAY A ROLE IN PATHOGENETIC MECHANISMS OF DEVELOPMENT OF ECZEMA.

UNCLASSIFIED

USSR

UDC 535.373.3

BELIKOVA, T. P., ~~SAVCHENKO, A. N.~~ SVIRIDENKOV, E. A.

"Luminescence Kinetics of ZnS-Cu during a Pulse of Two-Photon Excitation"

Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya (News of the Academy of Sciences USSR, Physics Series), Vol 35, No 7, 1971 pp 1454-1457

Abstract: A ruby laser is used to excite ZnS-Cu crystals. Two-photon absorption ionizes the copper centers. Electrons are promoted from these centers into the conduction zone. Free electrons in the conduction zone are captured by traps, are liberated by heat, and radiate light when they recombine with ionized centers. The luminescence intensity, which should be related as the fourth power to the excitation intensity in terms of a bimolecular model, is found experimentally to be more complex. It is suggested that one-photon absorption of red light should be taken into account because 1) this type of absorption can neutralize the copper centers with electrons from the valence zone, and 2) one-photon

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USSR

BELIKOVA, T. P. et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 7, 1971, pp 1454-1457

release of electrons from traps near the bottom of the conduction zone can result in luminescence.

One-photon processes were observed during two-photon excitation. Calculations of kinetic equations, taking these processes into account, agree well with experiment. Analysis of the one-photon processes made it possible to estimate the cross section of one-photon transitions of electrons from the valence zone to the ionized copper centers ($1.6 \times 10^{-17} \text{cm}^2$). Theoretical and calculated curves for the intensity of luminescence as a function of the intensity of excitation are in good agreement.

The authors thank M. D. Galanin for encouragement and L. A. Pakhomycheva for assistance in the work. Orig. art. has 4 figs. and 3 refs.

2/2

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1/2 053 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--LIGHT ABSORPTION BY RUBY IN THE PRE BREAKDOWN STATE -U-
AUTHOR--(03)-BELIKOVA, T.P., SAVCHENKO, A.N., SVIRIDENKOV, E.A.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 6, PP 1899-1903
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--LIGHT ABSORPTION, RUBY LASER, RUBY, SHOCK WAVE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1719 STEP NO--UR/0056/70/058/006/1899/1903
CIRC ACCESSION NO--AP0120431
UNCLASSIFIED

2/2 053

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120431

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTENSE LIGHT FROM A POWERFUL RUBY LASER IN FOUND TO INDUCE IN THE RUBY AN ABSORPTION INCREASE, PRECEDING DESTRUCTION. THE KINETICS OF THIS INCREASE UNDER THE ACTION OF THE PULSE IS INVESTIGATED. ESTIMATES ARE MADE OF THE DEPENDENCE OF THE SHOCK WAVE PRESSURE ON THE ABSORPTION AND INTENSITY OF THE INCIDENT LIGHT. FACILITY: FIZICHESKIY INSTITUT IM. P.N. LEBEDEVA AN SSSR.

UNCLASSIFIED

USSR

UDC 612.744+612.825.4

3

BERDINA, N. A., KOLENKO, O. L., KOTS, YA. M., KUZNETSOV, S. P., RADIONOV, I. M., SAVCHENKO, A. P., and TKHOREVSKIY, V. I., Department of Human and Animal Physiology, Biology-Soil Faculty, Moscow State University; Physiology Department of Roentgenology and Radiology, First Moscow Medical Institute; Physiology of Work Section, Institute of Industrial Hygiene and Occupational Diseases, Academy of Medical Sciences USSR, Moscow

"Efficiency and Blood Supply of Skeletal Muscles During Emotional Stress Induced by Mental Arithmetic"

Leningrad, Fiziologicheskiy Zhurnal SSR imeni I. M. Sechenova, No 4, 1971, pp 546-555

Abstract: Emotional stress arising from mental addition and subtraction produced in most human subjects an increase in the volumetric blood flow rats (by 85% on the average) in resting muscles of the forearm. When mental arithmetic was combined with voluntary muscular exertion (on a squeeze dynamometer) or isometric contraction of the antebrachial muscles elicited by electric stimulation of the nerve, muscular performance increased by 46 and 155%, respectively. This happened in only those subjects in whom mental
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USSR

BERDINA, N. A., et al., Fiziologicheskii Zhurnal SSR imeni I. M. Sechenova,
No 4, 1971, pp 546-555

arithmetic intensified the blood flow in resting muscles. Intraarterial injection of atropine markedly slowed the increase in rate of blood flow in resting muscles due to mental arithmetic. It also reduced the length of time exertion on the squeeze dynamometer could be sustained. Stress-induced muscular efficiency is ascribed to increased blood flow not in the working muscles but in the resting muscles as a result of change in muscle metabolism brought about by the sympathetic nervous system.

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110040687

Savchenko, A.P.

UR 0482

1-70

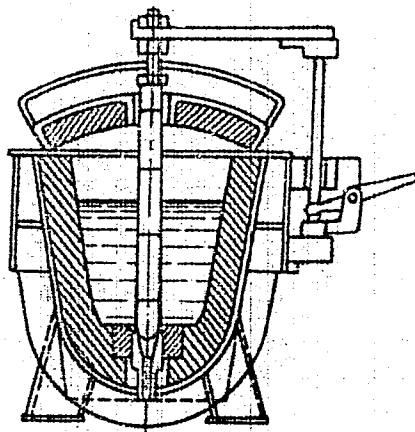
Soviet Inventions Illustrated, Section I Chemical, Derwent,

240212 TUNDISH FOR CONTINUOUS CASTING has a dished or rounded bottom and is lined to a given radius. The rigidity of the welded tundish casing is improved in this way, an important factor in that the tundish is the most failure-prone unit comprising the continuous casting system.

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AA0040687



1.6.63 as 839656/22-2. SAVCHENKO.A.P. & FA~~Y~~NYE/TS, YA.I.
(25.8.69) Bul 12/21.3.69. Class 3lc. Int.Cl.B 22b.

19750301

USSR

SAVCHENKO, B. I., and GUBENKO, T. L., Odessa Institute of Virology and
Epidemiology imeni I. I. Mechnikov

"Immunogenic Activity of Freshly Isolated Hemagglutinating ECHO Viruses"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, p 491

Translation: The immunogenic activity of 18 freshly isolated strains of nine sero types of hemagglutinating viruses of the ECHO group was studied. The tests were performed on white rats. Differences in the formation of anti-hemagglutinating and virus-neutralizing antibodies by the various virus strains belonging to one serotype were observed. Immunization with some strains resulted in the formation of antihemagglutinating antibodies in titers considerably exceeding those of virus-neutralizing antibodies. At the same time, a number of other strains induced the formation of virus-neutralizing antibodies in high titers. The concentration of specific antihemagglutinating antibodies was independent of hemagglutinating titers of the viruses. Virus antigens can accumulate on intertwining chick fibroblast cells, provided the strains are previously adapted and selected according to their infectious activity. Combination during immunization of antigens accumulated on chick

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SAVCHENKO, B. I., et al, Voprosy Virusologii, No 4, Jul/Aug 71, p 491

embryo cells and those accumulated on trypsinized human embryo kidney cells promotes increase of the immunological activity of the antigens. The ability of freshly isolated strains to form antihemagglutinating antibodies in high titers is the most important criterion of selecting them for production of diagnostic sera.

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1/2 034

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--VIBRATIONAL PROPERTIES OF A SYSTEM OF SPHERES MOVING IN A WEAKLY VISCOUS LIQUID -U-

AUTHOR--SAVCHENKO, B.I.

COUNTRY OF INFO--USSR

SOURCE--UKRAINS'KII FIZICHNII ZHURNAL, VOL. 15, MAR., 1970, P. 353-358

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--VIBRATION, INCOMPRESSIBLE FLUID, VIBRATION SPECTRUM, HIGH TEMPERATURE EFFECT, LOW TEMPERATURE EFFECT, PARTICLE COLLISION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0556

STEP NO--UR/0185/70/015/000/0353/0358

CIRC ACCESSION NO--AP0121228

UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0121228

ABSTRACT/EXTRACT--(J) GP-0- ABSTRACT. THEORETICAL INVESTIGATION OF THE VIBRATIONAL PROPERTIES OF A SYSTEM OF SOLID SPHERICAL PARTICLES MOVING IN AN INCOMPRESSIBLE, WEAKLY VISCOUS LIQUID. THE COLLISIONS BETWEEN PARTICLES ARE NOT CONSIDERED, AND A COORDINATE SYSTEM IS USED IN WHICH THE FLUID IS STATIONARY AT INFINITY. THE KINETIC EQUATIONS ARE CONSTRUCTED, AND THE DISPERSION EQUATIONS ARE DERIVED. VIBRATION SPECTRA ARE OBTAINED FOR CASES OF LOW AND HIGH TEMPERATURES. FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, FIZLKO-TEKHNICHNII INSTITUT, KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED



DEPARTMENT OF THE NAVY
NAVAL INTELLIGENCE SUPPORT CENTER
TRANSLATION DIVISION
4301 SULLY ROAD
WASHINGTON, D.C. 20390

CLASSIFICATION:

UNCLASSIFIED

APPROVED FOR PUBLIC RELEASE, DISTRIBUTION UNLIMITED

TITLE:

Effect of Laser Beams on Biological Objects
Vozdeystviye luchej krasnogo generirova (lasera)
na biologicheskie ob'ekty

AUTHOR(S):

Pribygun, L. A.; Demenev, V. P.; Puzanov, L. M.;
Savchenko, G. S.; Rogovin, V. V.; Vertalnik, L. V.;
Komonov, G. V.

PAGES:

20

SOURCE:

Report Delivered at 42nd ANMA, Houston Tex. 1
27 April 1971

ORIGINAL LANGUAGE: Russian

TRANSLATOR:

DMH

MISC TRANSLATION NO. 1167

APPROVED

PLK

DATE 16 November 1972

SAVCHENKO, G. S.

SAVCHENKO, A.S.

Lasers

EFFECT OF LASER BEAMS ON BIOLOGICAL OBJECTS

English translation of the Russian original by V. I. ...
[Author information and publication details]

The present work investigates the effect of focused and unfocused neodymium-glass laser beams operating at 10,600 Å on pigmented and nonpigmented tissue in an attempt to explain the degree of damage to a biological structure as a function of its pigmentation.

Theoretical computations are made of the temperatures reached in tissue at different laser radiation energy levels, making possible a preliminary estimate of the temperature generated in the tissue as a function of the laser irradiation energy. Morphological investigations confirmed the theoretical computations of the temperature coefficients.

Electron microscope investigations have shown that when pigmented tissue is subjected to laser radiation, microorganisms are the most labile cellular structures. Their total or partial destruction is attributed to the thermomechanical effect of the laser beam that leads to great temperature and, subsequently, pressure drops which could be the main cause of the damage to the tissue and microorganisms.

Investigation of the concentration of free radicals in pigmented tissue subjected to an unfocused laser beam has shown that low energy densities do not disturb the physical and chemical properties of the tissue that might impair biological processes.

The results of the investigation described above facilitate a clearer understanding of the problem of the effects of light on the activity and properties of living matter. Since to date there has been no unified picture of such effects on biological objects encompassing the entire frequency spectrum from the far infrared to the ultraviolet. Besides the scientific interest involved in the ultraviolet, the activity of action of a powerful light flux on microorganisms, the investigation has important practical applications in space biology and medicine, especially related to the problem of ensuring astronaut protection against light effects.

The introduction of lasers into the arsenal of scientific laboratories has made it possible to begin investigations dealing with the effect of powerful light fluxes on biological objects. In this matter, the development of specific technical conditions for laser operation

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SAVCHENKO, G. S.

MS 57928
8 Jan 73

FREE RADICALS IN HARDING-PASSY MELANOMA AFTER IRRADIATION BY AN UNFOCUSSED LASER BEAM

UDC: 577.302

(P)

Article by L. A. Pivovary, L. Kh. Puzrovskaya, V. A. Demchenko and G. S. Savchenko, Trudy Akademi Nauk SSSR, Seriya Khimicheskaya, Russian, No 1, 1968, pp 121-123

Lasers are now finding wide application in biology and medicine (Pivovary et al, 1967). The effect of a laser beam on a biological structure leads to temperature drops inside it which can affect physicochemical processes. In addition, when the energy densities are great, large temperature gradients form which can lead to disorder of the biological structure.

In experiments on various types of transplanted tumors it has been shown that at high energies laser radiation has an oncological effect (Ketcham and Minton, 1965; Fine et al, 1963; Minton and Ketcham, 1964).

It is known that physical factors such as gamma-radiation, ultraviolet and x-rays affect the concentration of free radicals in tissues.

Relatively recently Derr et al observed increase of the free-radical concentration in specimens of melanoma after irradiation with a focussed beam of a ruby laser at a dose of 100 J/kg; Derr et al, 1965). Since the precision of determination was 30%, the authors considered those results preliminary. Cases of the application of an unfocussed beam have been described. It was of interest to clarify the effect of an unfocussed laser beam on tumorous tissue irradiated once.

USSR

UDC 591.044

PIRUZYAN, L. A., BARSEGYAN, L. Kh., MUKHORTOVA, O. M.,
SAVCHENKO, G. S., and CHIBRIKIN, V. M., Institute of Chemical
Physics, Academy of Sciences USSR

"Effect of a Permanent Magnetic Field on the Concentration of
Free Radicals in Mouse Organs and Tissues"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya,
No 1, 1971, pp 128-132

Abstract: Exposure of mice to a permanent magnetic field (500
oersteds) for 4, 24, and 72 hours resulted in a marked decrease
in the free radical content of the liver, spleen, kidneys, muscles,
heart, and spleen (but not the brain). The low point, reached
2 to 7 days after the action was halted, varied with the organ
and length of exposure, ranging from 28 to 55% of the control
level. The normal concentration of free radicals was restored
during the ensuing days. The maximum decrease in relation to
the length of exposure up to 3 days was directly proportional to
the square root of the exposure time, i.e., the effect of the
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USSR

PIRUZYAN, L. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 1, 1971, pp 128-132

magnetic field was not enhanced by increased exposure of up to 72 hours. Three days' exposure markedly increased the weight of the spleen but not that of the liver or kidneys. (The weight of the spleen remained abnormally high even on day 25, while the content of free radicals in the organ reached the normal level by day 20). Histological examination of the liver and kidneys revealed protein degeneration, impairment of the cytoplasmatic structure, and redistribution of the cytoplasm toward the nuclear and cellular membranes.

2/2

USSR

UDC 575.24:578

PROZOROV, A. A., SAVCHENKO, G. V., NAUMOV, L. S., and LAKOMOVA, N. M., All Union Scientific Research Institute of Genetics and Selection of Industrial Microorganisms, Moscow

"Mutants of Bacillus subtilis with a Modified DNA Donor Capacity in Spontaneous Transformation. I. The Method of Isolation of Mutants."

Moscow, Genetika, Vol 8, No 3, Mar 72, pp 79-86

Abstract: A method was developed for the isolation of Bac. subtilis mutants with a modified capacity of acting as donors of DNA in spontaneous transformation. The donor strain Bac. subtilis thr⁻thy⁻met⁻ was derived from a thy⁻met⁻ strain by treating the latter with diethylsulfate, whereupon 0.1-1% of the cells survived. Subsequent application of thymine starvation and treatment with penicillin killed cells with a normal rate of growth, while cells of ts-mutants with respect to DNA synthesis survived because of their subnormal rate of growth. To isolate mutants with modified donor capacity, mutagenized colonies of the donor strain were imprinted on agar covered with surface colonies of the recipient strain Bac. subtilis 39-22 leu⁻his⁻ind⁻. For the genetic mapping of auxotrophic mutations, strains leu⁻his⁺ind⁻ and leu⁻his⁻ind⁺ were transformed that had been obtained from strain 39-22 by treatment with DNA of the corresponding mutants. The transforming DNA was isolated by a modified Kirby
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USSR

PROZOROV, A. A., et al., Genetika, Vol 8, No 3, Mar 72, pp 79-86

method. To determine the relative distance of mutations from the markers his₂ and ind, the method of difactor crossings was applied. Fourteen mutations of the donor strain with modified donor capacity were isolated. Most mutations showed linkage and the his₂ and ind markers. The method applied makes it possible to isolate other auxotrophic mutations as well with the same marker linkage as that associated with modified donor capacity.

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USSR

NAUMOV, L.S., PROZOROV, A.A., SAVCHENKO, G.V., and VELIKZHANINA, G.A., All Union Scientific Research Institute of Genetics and Selection of Industrial Microorganisms, Moscow

"Comparative Study of Induced Mutagenesis in Rec⁺ and Rec⁻ Strains of Bacillus subtilis"

Moscow, Genetika, Vol 6, No 3, 1970, pp 51-58

Abstract: In previous works, mutants of B. subtilis with disrupted recombination and elevated sensitivity to various mutagens were described. It was observed that mutations were localized in the same part of the chromosome. Experiments on the mutagenic influence of diethylsulfate and embichine 7 on the initial and rec strains are described. The number of auxotrophic mutations in the strain Bacillus subtilis rec 149 was greater than in the initial strain. This may be due to errors in synthesis of reparative DNA in rec-strains.

1/1

USSR

UDC: 621.396.6.002.72(088.8)

SAVCHENKO, I. D., ZOZULYA, V. P., KAS'YANENKO, A. T.

"A Device for Straightening and Shaping the Axial Leads of Radio Elements"

USSR Author's Certificate No 265200, filed 5 Feb 69, published 23 Jun 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V336 P)

Translation: A device is proposed which contains a jig, a locator and a reciprocating slider. As a distinguishing feature of the patent, the slider is equipped with symmetrically located catchers made in the form of crescent-shaped fingers which rest on the lateral surfaces of the jig, and with rollers which have square grooves along the perimeter, and also with a spring-loaded locator which holds the bases of the leads against the bosses of the jig.

1/1

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USSR

UD3 621.382:621.317.799

SAVCHENKO, I.F., KAYGORODOV, YU.YE.

"Device For Measurement Of The Relaxation Time Of Excess Charge Carriers In Semiconductor Diodes"

Elektron.tekhnika. Nauch.-tekhn.sb. Upr.kachestvom i standartiz. (Electronics Technology. Scientific-Technical Collection. Quality Control And Standardization), 1972, Issue 3, pp 95-100 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9B462)

Translation: A device is described for measurement of the relaxation time of excess charge carriers in semiconductor diodes (p-n junctions) by the method of the phase characteristic of the transmission factor of the voltage in a circuit [tsep'] with a p-n junction, proposed and worked out by Academician E.I. Adirovich. The device makes it possible to perform measurements of τ on the order of 10^{-6} -- 10^{-10} sec with a precision not worse than plus or minus 10 percent. Summary.

1/1

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USSR

UDC: None

5

PLAKHOV, A. M., CHERNENKO, O. D., MALKOV, A. I., KOSTYUCHENKO,
V. I., LYSENKO, V. S., SURKOV, N. I., KIRPICHNIKOV, V. A., SMIRNOV,
I. A., and SAVCHENKO, L. I.

"A Device for Ultrasonic Defectoscopy"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obrastysy,
tovarnye znaki, no 4, 1973, p 98, No 365912

Abstract: The distinctive system in this device is one in which the sensor searching for the defects is mounted between rollers fixed to the lower side of the transmitting device, and is thus free to move around the workbench. A diagram of the mechanical arrangement, which improves the productivity of the device and its control, is given.

1/1

USSR

UDC 621.391.2

SAVCHENKO, I. S., KHORUVZHIY, V. A., TSIS'MENETSKIY, V. A., ZVERIV, G. I.

"Single Radio Pulse Frequency Spectral Analyzer"

Moscow, Pribery i Tekhnika Eksperimenta, No 6, 1971, pp 103-105

Abstract: A 48-channel analyzer is described which permits the frequency spectrum of single radio pulses to be obtained. The operating range of the analyzer is 0.5-30 megahertz, its frequency resolution is 40 kilohertz in the two megahertz band, and its time resolution is 48 microseconds.

The schematic diagram, the theoretical basis and operating characteristics of the analyzer are presented.

In the analyzer, from the sinchro pulse received from an experimental device, signals are generated for triple triggering of the drive sweep of the indicator, and a step voltage (3 steps) is shaped to create vertically displaced scans on the display screen. The time intervals between readings can be regulated from 50 microseconds to 2 milliseconds. As a result of triple interrogation of the frequency selection channels during the pulse, it is possible to investigate the dynamics of the process. The cathode ray tube of the memory oscillograph is used to display the results of the analysis. A typical oscillogram is presented. The analyzer can be used to measure the frequency in a single radio pulse, the frequency deviation and its harmonics, the instantaneous frequency spectrum, and several instantaneous spectra during the investigated pulse.

1/1

SAVCHENKO, I. S.

JPRS 56371

28 June 1972

MULTITUBE GENERATOR BANK

[Article by G.I. Zverev, V.L. Lyul'ev, V.B. Mayburov, I.S. Savchenko, and I.R. Yampol'skiy; Preprint-5, Russian, 24 November 1970, pp 1-11]

The experimental work in the study of the interaction of high-frequency fields with a plasma have required the creation of exceptionally powerful pulse generator systems in the 1-5 megahertz frequency range. Reference [1] contains a description of a setup and a high frequency 3-phase self-excited oscillator for studying the interaction of a traveling field with a plasma. This setup is characterized by the conditions of a strong connection of the circuit to the plasma. The installed power of the tubes of the self-excited oscillator is 60 megawatts.

In references [2, 3] on experimental studies of dynamic stabilization and confinement of a plasma, high frequency electromagnetic fields of quadrupole configuration rotating around the plasma column are used. The performance of this research required the creation of a generator bank with an installed tube capacity of about 80 megawatts. The primary difficulties in creating generators of this type are connected with the necessity for summing the power of a large number of tubes and insuring phasing such as to obtain rotating electromagnetic fields during operation of the generator on a variable load which depends on the plasma properties and the connection with the plasma.

In contrast to [1], the described generators are characterized by operating conditions determined by the low coupling of the high frequency field to the plasma (the level of the high frequency fields in the plasma region is relatively small). The losses in the plasma, as a rule, do not exceed 10-40 percent of the losses in the circuit. This permitted application of direct connection of the circuit to the tube anodes without any matching devices. In the mode without a plasma, the generator operates in a strongly overloaded mode. Additional loading of the circuit by the plasma does not lead to a significant reduction in voltage on the circuit, and the tube conditions approach critical.

In a number of cases more significant loadings of the circuit by the plasma was observed. In order to eliminate the strong voltage reductions in the circuit, independent excitation was used in these cases.

[I - USSR - L]

USSR

UDC 541.69:661.718.1

MASTRYUKOVA, T. A., SHIPOV, A. E., GORBENKO, E. B., KABACHNIK, M. I., KACAN, YU. S., YERSHOVA, YE. A., SHABANOVA, M. P., and SAVCHENKO, K. N., Institute of Heteroorganic Compounds, Academy of Sciences USSR

"A New Type of Selective Organophosphorus Insecticides and Acaricides. 2. Methylthiophosphonic Acid Derivatives"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 9, Sep 71, pp 2003-2005

Abstract: In an earlier article the authors examined a new type of selective insecticides and acaricides, viz, derivatives of mono- and dithiophosphoric acids containing amino acid residues, their esters and methylamides. The present article deals with an analogous series of methyl dithiophosphonates, obtained by the reaction of the corresponding chloroacetyl derivatives of amino acids or their esters with ammonium O-ethyl methylthiophosphonate. It was found that compounds of this series are more toxic for arthropods and warm-blooded animals than the corresponding dithiophosphates. Substances containing a free carboxyl group are the least toxic. A study of the insecticidal and acaricidal activity of the resultant compounds shows that they are more characterized by acaricidal activity and that they are more

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- 66 -

- USSR

MASTRYUKOVA, T. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya,
No 9, Sep 71, pp 2003-2005

active insecticides and acaricides than the corresponding phosphates, but the selectivity of their effect on arthropods is weaker than in the case of dithiophosphates. A comparison of the effect of these two groups on arthropods and warm-blooded animals shows greater selectivity in the case of methyl dithiophosphonates.

2/2

USSR

LYAPICHEV, I. G., GONCHAREVA, V. V., and SAVCHENKO, L. B., Tomsk Polytechnic Institute

"Effect of Structure on the Engineering Properties of Hard-to-Machine Alloys"

Novokuznetsk, IVUZ-Chernaya Metallurgiya, No 6, 1971, pp 128-131

Abstract: Improvement of engineering properties of steels and alloys alloyed with Ni, Co, Al, and Ti permit the use of more productive cutting modes and, in individual cases, special pressure treatment with a complex stressed state. The alloys investigated were YuNDK24, YuNDK25B, YuNDK30T5, YuNDK35T5, YuNDK40T7, and YuNDK42T8.

X-ray and metallographic analysis was used to check the high-temperature state of Fe-Ni-Al-Co alloys. Lattice constants and intensity (number) of basic phases as well as alloy microhardness of the alloys in the 450-1000°C interval were measured. Upon increasing the temperature of Fe-Ni-Al-Co alloys hardness is lowered, phase periods (lattice constants) are converged, and number of phases increases, which improves homogeneity and the corresponding deformability and machineability of the alloys. A combination of these properties should provide the opportunity of being able to hot-turn the alloys. Three figures, one table, six bibliographic references.

1/1

USSR

UDC 661.718.1+547.38+547.514

ARBUZOV, B. A., Member Academy of Sciences USSR; FUZHENKOVA, A. V., ZIN-KOVSKIY, A. F., and SAVCHENKO, L. Ya., Scientific Research Chemical Institute imeni A. M. Butlerov at Kazan' State University imeni V. I. Ul'yanov-Lenin, Kazan'

"The Interactions of Trimethyl Phosphite and Dimethylphosphorous Acid With Phencyclone"

Moscow, Doklady Akademii Nauk SSSR, Vol 199, No 2, 1971, pp 339-341

Abstract: A thermographic study of the addition of $(MeO)_3P$ to phencyclone showed that this reaction proceeded at a higher temperature (beginning of the exo-effect at 58-62°, maximum at 85-90°) than the addition of $(MeO)_3P$ to tetracyclone. The reaction also took place with an Arbuzov rearrangement, but not by a nucleophilic attack on the oxygen of the C=O group, as in the case of tetracyclone, but by a nucleophilic attack on the carbon atom of C=O with a subsequent rearrangement into a bipolar ion I, which then rearranged into a bipolar ion II with final isomerization into the end-product dimethyl ester of 2-methoxy-1,3-diphenyl-4,5(0,0'-biphenylene)-2,4-cyclopentadienylphosphonic acid (III), or by a direct attack on the 5-C atom adjacent to C=O with the formation of II. A proof of
1/2

USSR

ARBUZOV, B. A., et al., Doklady Akademii Nauk SSSR, Vol 199, No 2, 1971, pp 339-341

the formation of II was the conversion of II into 1,3-diphenyl-4,5-(0,0'-biphenylene)-4-cyclopentenone-phosphonic acid (IV) by the action of proton-donor reagents, i.e., acetic acid and MeOH. IV could also be obtained by the hydrolysis of III with 1:1 HCl. The addition of dimethylphosphorous to phencyclone resulted in the formation of IV.

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USSR

UDC 661.718.1+547.38+547.514

FUZHENKOVA, A. V., ZINKOVSKIY, A. F., SAVCHENKO, L. YA., and ARBUZOV, B. A.,
Chemical Scientific-Research Institute imeni A. M. Butlerov affiliated with the
Kazan State University imeni V. I. Ul'yanov-Lenin

"Reaction of Fencyclone With Trialkyl Phosphite in the Presence of Acetic
Anhydride"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 754-756

Abstract: The title reaction may go via two pathways ($R = CH_3$ and C_2H_5):

USSR

ASKAR'YAN, G. A.; SAVCHENKO, M. M.; STEPANOV, V. K. (Lebedev Physics Institute, USSR Academy of Sciences)

"Diamagnetic Moment of a Strong Shock Wave from a High-Temperature Light Explosion in Gases"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; October, 1970;
pp 1133-45

ABSTRACT: Extensive experimental material is presented pertaining to an investigation of diamagnetic perturbations of a strong shock wave from a light spark in various gases at different pressures. A theoretical description of the phenomenon is given on the basis of the theory of strong shock waves. It is shown that a long life of the diamagnetic moment indicates a high temperature of the process in the light spark. Experiments on reflection and focussing of a shock wave and on its cumulative effect on the fire ball of the light spark are carried out with the aim of repeated use of a dense hot plasma. Some new possible effects of interaction between a strong magnetic field and the shock

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USSR

ASKAR'YAN, G. A., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Oct 70, pp 1133-1145

wave plasma are described. Practical applications of the results obtained are mentioned.

The authors express their gratitude to Professor Yu. P. Rayzer for his discussion of the results and L. A. Lapin, V. P. Logvinenko, and I. N. Arutyunyan for their aid in the work.

The article includes four figures. There are 13 bibliographic references.

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UDC [537.226+537.311.33]:[537+535]

USSR

MUCHICHKA, I. I., SAVCHENKO, N. D., DOVGOSHEY, N. I., TURVANITSA, I. D.,
CHEPUR, D. V., SELVKA, V. YU.

"Effect of Temperature on Certain Electrophysical and Optical Properties of
 $AsS_xSe_{1-x}I$ and $As_xSb_{1-x}SI$ Samples"

V sb. Nekotor. vopr. khimii i fiz. poluprovodnikov slozhn. sostava (Certain Prob-
lems in the Chemistry and Physics of Semiconductors of Complex Compositions --
Collection of Works), Uzhgorod, 1970, pp 228-233 (from RZh Fizika, No 12, Dec 71,
Abstract No 12Yel399)

Translation: Compounds of $AsS_xSe_{1-x}I$ were obtained in the vitreous state by a
direct synthesis method, and single crystals of $As_xSb_{1-x}SI$ were obtained from the
gas phase. The current-voltage characteristics were studied at various tempera-
tures in the range 100-383°K; the photocurrent was determined as a function of
wavelength, illumination, and temperature, and the absorption spectra of the
samples were measured at different temperatures. Conclusions were drawn on the
basis of the data concerning conductivity mechanisms, recombination mechanisms,
defect levels, and the temperature coefficient of the width of the forbidden
zone. A. Ya. O.

1/1

USSR

TSVETKOV, V. P., SAVCHENKO, N. D.

"Emission X-Ray K Spectra of Silicon in Chromium Silicides"

Khim. Svyaz' v Poluprovoden. [The Chemical Bond in Semiconductors -- Collection of Works], Minsk, Nauka i Tekhn. Press, 1969, pp 95-95 (translated from Referativnyy Zhurnal Fizika, No 6, 1970, Abstract No 6D342 by the authors)

Translation: K spectra of silicon are produced in pure silicon, CrSi, and CrSi₂. Comparison of K_{β_x} of pure silicon and chromium silicides indicates that K_{β_x} is identical for the Si in pure silicon, CrSi, and CrSi₂. The semiconductor properties of chromium bisilicide may be a direct result of the presence of a partial covalent bond. Comparison of the structures of CrSi and CrSi₂ shows that the silicon atoms are identical in the first coordination sphere.

1/1

USSR

UDC 591.51

VYSKREBENTSEV, B. V., and SAVCHENKO, N. V., All-Union Scientific Research Institute of Marine Fisheries and Oceanography, Ministry of Fish Economy USSR, Moscow

"The Panic Response and the Rate of Movement of Fishes"

Moscow, Priroda, No 4, 1973, pp 6-8

Abstract: Swimming speed and maneuverability (turning rate) of fishes subjected to seismic perturbations in a shallow tank were recorded on movie film to quantitatively assess the degree to which a panic response augments normal activity. It was found that while fish (*Leucaspius delineatus*, among others) ordinarily have a maximum sprint speed ranging around 10 (rarely 20) body lengths per second (bls), seismic shocks generated speeds up to 35-70 bls over short distances (to 1 meter). *L. delineatus* was able to turn 90° in 0.026 sec (10 rps) in its panic response. Latent response time was 0.01 sec for the first of 7 fish, with all responding within 0.04 sec. It is suggested that panic is a genetically determined individual defense mechanism characteristic of young fishes. As schooling fishes develop and gain experience, they acquire group defense mechanisms. Panic is concluded to be one case of general mobilization responses. Because the panic response can attenuate through

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USSR

VYSKREBNISEV, B. V., and SAVCHENKO, N. V., Priroda, No 4, 1973, pp 6-8

adaptation, caution must be taken in behavioral experiments to ensure that the response observed remains natural.

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USSR

UDC 577.391

SAVGHENKO, N. YA., Institute of Medical and Biological Problems, USSR
Ministry of Health

"Some Indexes of Natural Immunity in Dogs After Irradiation with Uneven
Distribution of Tissue Doses"

Moscow, Izvestiya Akademii Nauk SSSR, No 2, Mar/Apr 71, pp 296-298

Abstract: To study the effects of x-rays on skin microflora, the bacteri-
cidal power of the skin, and the phagocytotic activity of neutrophilic
leukocytes, mongrel dogs were irradiated with 350 rads of hard x-rays and
350, 650, and 2,160 rads of soft x-rays. Appropriate skin and blood tests
were performed prior to irradiation and 1, 3, 5, 7, 10, 14, 20, 30, and 45
days after irradiation. Doses of 350 rads produced no statistically signi-
ficant immunological shifts. Doses of 650 rads produced more pronounced
immunological shifts and mild radiation sickness. After irradiation with
2,160 rads, severe radiation sickness developed, and death of all dogs
followed on the 12th-16th day. The bactericidal activity of the skin steadily
declined, skin microflora continuously increased (from 20 colonies in con-
trols to 190 colonies in the terminal state), and neutrophilic phagocytosis
1/2

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USSR

SAVCHENKO, N. YA., *Izvestiya Akademii Nauk SSSR*, No 2, Mar/Apr 71, pp 296-298

persistently diminished, falling essentially to zero just prior to death. Analysis of the results on the basis of equal air doses, equal average tissue absorption doses, and equal lethal doses showed that the immunological shifts represent a fairly reliable index of the severity of radiation sickness.

2/2

UNCLASSIFIED

PROCESSING DATE--04DEC70

1/2 013

TITLE--REGENERATION OF TREATED ACTIVATED CARBON --U-

AUTHOR--(03)-FERTMAN, G.I., TIKHOMIROV, V.G., SAVCHENKO, N.YA.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,316

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970 47(9)

DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYST REGENERATION, ACTIVATED CARBON, CHEMICAL PATENT, WATER PURIFICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/0830

STEP NO--UR/0482/70/000/000/0000/0000

ACCESSION NO--AA0136264

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 013

CIRC ACCESSION NO--AA0136264
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. TREATED ACTIVATED C, USABLE FOR
PURIFYING H SUB2 O, ALC. MIXTS., WITH NO VOLATILE COMPONENTS AND
INCREASED ADSORPTION ACTIVITY, IS PREPD. BY ALKALIZING IT WITH A SOLN.
OF CAUSTIC SODA TO PH 8.2-8.8, PASSING A SOLN. OF NA CL THROUGH A LAYER
OF IT TO PURIFY IT FROM ABSORBED INDRG. SALTS AND DRG. SUBSTANCES, AND
TREATING IT WITH H SUB2 O VAPOR.

UNCLASSIFIED

SAVCHENKO, N. Ye.

min of health

BELOUSSIAN PUBLIC HEALTH ON THE 50TH ANNIVERSARY OF THE USSR

UDC: 616(091)(476)1123-2872

[Article by N. Ye. SAVCHENKO, Academician of the Belorussian Academy of Sciences, Belorussian Minister of Health, Moscow, November 1972. Zbirnyk Khimicheskoye, Russian, No 12, 1972, submitted 19 July 1972, pp 17-21]

Soviet Belorussia is celebrating a glorious anniversary, the 50th anniversary of the USSR, in the constellation of equal states and republics. The history of development of Belorussia is the most vivid example of the triumph of the ideas of our country, the idea of indivisible friendship of the peoples of our country, the idea of conquering force of internationalism. With the fraternal help of the great Russian people and the peoples of other republics, Belorussia was transformed from a region of swamps and forests, from a backward agricultural territory of czarist Russia into a republic of major machine construction and large scale chemical industry. Potassium fertilizers, tractors, and trucks manufactured in Belorussia have gone over the market of many countries of the world. The HIMA-72 is a combine that has gained fame; this also applies to high precision levers, and agricultural production. Enormous potassium salt mines and oil have been discovered in the republic; the latter is now being mined; iron ore has also been discovered. Belorussia is important in the production of some agricultural items. It contributes a particularly large share of flax and potato production.

The economic and social transformations in Belorussia in the years of Soviet power have created beneficial conditions for the successful development of science, culture, education, and have made it possible to solve problems dealing with health protection for the working people. Just how much the Soviet government is concerned with this problem can be seen from the fact that as early as 29 January 1919, on the 20th day of the Republic's existence, the Belorussian People's Commissariat of Health was formed.

Belorussian public health was formed and developed on a progressive basis. Immediately epidemic control and working conditions were created which waged a broad front of battle against infectious diseases.

VPK 58117
31 Jan 73

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--BREAKING IN OIL -U-

AUTHOR--(05)--KOSTETSKIY, B.I., SAVCHENKO, N.Z., KRAVETS, I.A., VOZNYUK,
L.F., NATAHSCN, M.E.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,579
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--03MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL PATENT, LUBRICATING OIL, MINERAL OIL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/0086 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0127713
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0127713

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OIL THAT REDUCES THE TIME REQUIRED FOR BREAKING IN ENGINES AND IMPROVES THE QUALITY OF THE SURFACES OF THE MOVING PARTS IN CONTACT IS BASED ON MINERAL OIL AND CONTAINS 0.5-1.5 WT. PERCENT O HYDROXYQUINOLINE AND 0.2 WT PERCENT OLEIC ACID.

FACILITY: UKRAINSKAYA ORDENA TRUDOVOGO KRASNOGO ZNAMENI
SEL'SKOKHOZYAYSTVENNAYA AKADEMIYA.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EFFECT OF HIGH DOSES OF PROGESTERONE ON URINARY EXCRETION OF
GONADOTROPIN AND SEX HORMONES IN PATIENTS OF REPRODUCTIVE AGE WITH
AUTHOR--(03)-SAVCHENKO, O.N., SOKOLOV, YE.G., KHRUSTALEVA, G.F.
COUNTRY OF INFO--USSR S
SOURCE--PROBL. ENDOKRINOL. 1970, 16(2), 49-52
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--GYNECOLOGY, HEMORRHAGE, PROGESTERONE, URINE, GONADOTROPIN,
EXCRETION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/0257 STEP NO--UR/0502/70/016/002/0049/0052
CIRC ACCESSION NO--AP0117509
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117509

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROGESTERONE ADMINISTERED I.M. AT 25 MG DAILY FOR 3 DAYS TO REPRODUCTIVE AGE PATIENTS WITH DYSFUNCTIONAL UTERINE HEMORRHAGE SHARPLY DECREASED SECRETION OF ESTROGENS. LH EXCRETION DECREASED ONLY IN THOSE WITH HIGH INITIAL LEVELS. FSH SECRETION INSIGNIFICANTLY INCREASED, AND THE RATIO OF FSH TO LH INCREASED IN PROGESTERONE TREATED PATIENTS. FACILITY: LAB. VOZRAST. FIZIOL. PATOL. ENDOKRIN, SISTEMY CHELOVEKA, INST. FIZIOL. IM. PAVLOVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC[539.125/.128.004+577.391](023) ①

GOL'DIN, L.I., DZHELEPOV, V.P., LOMANOV, M.F., SAVCHENKO, O.V., and KHOROSHKOV, V.S.

"The Use of High-Energy, Heavy Charged Particles in Medicine"

Moscow, Uspekhi Fizicheskikh Nauk, Vol 110, No 1, May 73, pp 77 - 99

Abstract: Present methods of radiation treatment involve primarily the use of X-rays, gamma radiation, and light particles such as electrons. These techniques are severely limited by the necessity of restricting radiation damage to non-cancerous tissues and the difficulty of controlling the depth of penetration of such radiation. The development of more powerful accelerators makes possible the use of heavy charged particles at high energies. The penetration of these particles through various materials can be much more closely controlled, making it possible to confine the damaging effects to the malignant tissues with much greater accuracy. This effect is further strengthened by the relatively low scattering of heavier particles. For all radiation therapy except intracranial surgery and a few other special cases, a beam of Pi-mesons appears to offer the best characteristics.

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USSR

(1)

GOL'DIN, L. L., et al., Uspekhi Fizicheskikh Nauk, Vol 110, No 1, May 73, pp 77-99

The article discusses the uses of radiation therapy, both alone and in combination with surgery, describes the effects of various types of radiation on the human body, and discusses possible future developments. Several radiation therapy installations are described, and there is a survey of experiments in various countries. The authors believe that large-scale centers for high energy and heavy-particle radiation therapy should be established now and that the development of suitable Pi-meson radiation apparatus should be carried out. Four tables, 15 illustrations, 48 bibliographic citations (mostly from western sources).

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1/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--PREPARATION OF AN ION FLUX BY IONIZATION OF A FLUX OF NEUTRAL
PARTICLES ON A GASEOUS HELIUM TARGET -U-
AUTHOR--SAVCHENKO, O.YA. S
COUNTRY OF INFO--USSR
SOURCE--ZH. TEKH. FIZ. 1970, 40(2), 305-9
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--IONIZATION, HELIUM, PLASMA GENERATOR, PROTON
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1982/1544 STEP NO--UR/0057/70/040/002/0305/0309
CIPC ACCESSION NO--AP0052748

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0052748

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSTRUCTION AND PERFORMANCE CHARACTERISTICS ARE GIVEN OF A NEW ION FLUX GENERATOR BASED ON THE IONIZATION OF A FLUX OF FAST NEUTRAL PARTICLES ON A GASEOUS HE TARGET. THE NEW ION FLUX GENERATOR UTILIZES THE EARLIER DESCRIBED AND LATER IMPROVED PULSED ARC PROTON SOURCE (G. I. DIMOV, YU. G. KONONENKO, O. YA. SAVCHENKO, AND V. G. SHAMOVSKII, 1968, D. AND S., 1968). IN ADDN. TO THE PROTON SOURCE, THE GENERATOR INCLUDES 2 SCREENS FOR THE FORMATION OF PROTON FLUX FROM THE ARC PLASMA AND 2 RECHARGING TUBES. THE NEUTRALIZATION OF THE IONS TAKES PLACE IN THE 1ST TUBE AND THE IONIZATION OF THE NEUTRAL PARTICLES IN THE 2ND TUBE ON THE GASEOUS HE TARGET. THE NEW GENERATOR WAS USED TO OBTAIN A BEAM OF H PRIMEPOSITIVE AND A BEAM OF N PRIMEPOSITIVE. AT 14 KV ION ENERGY, A PULSE DURATION OF 100 MUSEC, A DISTANCE OF 700 MM, AND A CROSS SECTION OF 15 CM PRIME2, THE AMPLITUDE OF H PRIMEPOSITIVE AT THE EXIT FROM THE 2ND TUBE INTO THE DETECTOR WAS SIMILAR TO 1 A AND OF N PRIMEPOSITIVE SIMILAR TO 150 MA. THE USE OF THE HE TARGET INCREASES THE PROTON CURRENT FROM 0.3 TO 1 A AND THAT OF N PRIMEPOSITIVE FROM 50 TO 150 MA.

UNCLASSIFIED

USSR

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DUBOVITSKAYA, R. K., KULAKOVSKAYA, V. P., ROMANOVSKAYA, L. M., SAVCHENKO, T. A.,
STOLYAROV, G. K., FEDOROV, A. T., FEL'DMAN, L. S.

Sistema Avtomaticheskoy Obrabotki Danykh na Baze Yazyka COBOL (Automated Data
Processing System Based on COBOL), Moscow, Statistika Press, 1971, 280 pp

Translation of Foreword [pp 3-4]: In the improvement of the efficiency of
national production, the most important role belongs to further introduction
of computers into the sphere of economics. Progress in this area is determined
to a great extent by the presence of automatic data processing systems for
economics information based on algorithmic languages available to a broad circle
of people dealing in the given area.

The automatic data processing system described in this book for the Minsk-
22M computer (BAOD) is based on a Russian version of COBOL (Common Business
Oriented language), the business information processing language which is wide-
spread abroad. The given system was developed at the Minsk design office of
the plant imeni S. Ordzhonikidze with the participation of the mathematics insti-
tute of the Belorussian SSR Academy of Sciences, and it is the first system using
COBOL for series-produced Soviet computers in the development of the language and
translator of the system the materials from the working group of algorithmic
economic data processing languages (GAYAPEI) of the Commission on Multifaceted
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USSR

DUBOVITSKAYA, R. K., et al., Sistema Avtomaticheskoy Obrabotki Danykh na Baze Yazyka KOBOL, Moscow, Statistika Press, 1971, 280 pp

Cooperation of the Academies of Sciences of the Socialist Countries were used.

The book is devoted to a description of the SAOD system and its components from the point of view of the user. The system consists of writing the program in the initial language, preparing the programs and data for computer input, translation and checkout of the working program during computations by the finished working program and also during special system servicing procedures.

Accordingly, the book contains information required by programmers and computer operators, a description of the equipment for preparing the data, and data required by people responsible for organizing the operation of the SAOD system as a whole. In addition, the book can be useful to developers of programming and data processing systems. It is assumed that the reader is acquainted with the principles of automatic programming and the application of computers in data processing problems.

When using the book as a practical guide, the reader should also be acquainted with the following materials on the software system for the Minsk-22 computer:

1. Software for the Minsk-2 (22) computer in the T mode. No 1. Standard

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USSR

DUBOVITSKAYA, R. K., et al., Sistema Avtomaticheskoy Obrabotki Danykh na Baze Yazyka KOBOL, Moscow, Statistika Press, 1971, 280 pp

Programs Library. Minsk, Mathematics Institute of the Belorussian SSR Academy of Sciences, 1968.

2. Software of the Minsk-2 (22) computer in the T mode. No 3. Symbolic coding system. Minsk. Mathematics Institute of the Belorussian SSR Academy of Sciences, 1969.

The authors consider it necessary to note that the success in using SAOD, just as any modern automatic data processing system, depends to a great extent on the clarity of organization of the operations with respect to its utilization within the framework of the general enterprise control system.

In addition to the authors, the following people participated in the development of the system at various stages: V. I. Gorbatsyevich, M. L. Gruzdova, V. A. Doroshek, L. A. Kozyabo, M. Ye. Nemenman, L. I. Panchina, V. N. Pionov, M. S. Presman, V. M. Skripnikova, et al.

The authors express their sincere appreciation to all who were of assistance in preparing this paper for publication, and they will be grateful to the readers and users of the SAOD system for comments, remarks, and suggestions.

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USSR

UDC 621.791.052.001.5:669-419.4:669.295+669.14

TRUBILKO, V. I., Engineer, SAVCHENKOV, V. A., Candidate of Technical Sciences, SOTNIK, I. S., Engineer, GROMOV, Ye. I., Candidate of Chemical Sciences, and VAYL, YE. I., Engineer

"Electrochemical Study of Welded Joints in Titanium-Steel Bimetal"

Moscow, Svarochnoye Proizvodstvo, No 2, Feb 71, pp 13-15

Abstract: A study is presented of the electrochemical behavior of individual sectors in the welded joint -- the seam metal, near-seam zone, and base bimetal. Comparison of the maximum values of anode current of polarization curves made in 37% hydrochloric and 77% sulfuric acid and in an aqueous solution of ammonium chloride indicates that the process of corrosion occurs more rapidly in hydrochloric acid, somewhat more slowly in 77% sulfuric acid. The corrosion resistance of the specimens studied (titanium-steel produced by rolling in a vacuum of $5 \cdot 10^{-5}$ mm Hg at 1000°C with 20% compression) in ammonium chloride was high. The same types of polarization curves were produced in all the corrosive media studied. The metal of the seam and the zone near the seam have more positive electrode potential than the bimetal in the initial state in the acids.

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USSR

UDC 621.791.011:669.14:62-761

TRUBILKO, V. I., Engineer, SAVCHENKOV, V. A., Candidate of Engineering Sciences, SOTNIK, I. S., and TERTYSHNAYA, N. K., Engineers, Ukrainian Scientific Research Institute of Metals

"Effect of Protective Coatings on the Properties of Weld Joints"

Moscow, Svarochnoye Proizvodstvo, No 1, Jan 73, pp 25-26

Abstract: Three types of primer paints (GF-570, GF-570RK, and FL-03K) were investigated to determine the effect of coating type and thickness on stability of arc burning, seam formation, welding mode, and weld joint properties as well as determination of the sanitary and hygienic conditions of the welding process. Tests were made using St. 3sp steel, 10 mm thick, with the following chemical composition: 0.19% C, 0.52% Mn, 0.21% Si, 0.018% S, and 0.011% P. Results of the tests showed that use of the above-mentioned primer paints, with a thickness of 15-25 microns, provides satisfactory weld joint properties when welding with standard modes. The seam metal had a ductility equal to that of the base metal. Increasing coating thickness leads to deterioration of the seam formation and development of pores. Strength is increased by means of slowing the welding speed.

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USSR

TRUBILKO, V. I., et al., Svarochnoye Proizvodstvo, No 1, Jan 73, pp 25-26

FL-03K primer caused pores to form in the metal seam, and porosity could only be eliminated by reducing the welding speed by 10-15%. Best coating and thickness for extended protection from corrosion was a 25-micron thickness of GF-570RK. One figure, 2 tables.

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USSR

UDC 621.396.963

DENBNOVETSKIY, S. V., MEDVEDENKO, B. I., SAVCHENKO, V. A.

"Dynamic Raster Display"

USSR Author's Certificate No 253179, Filed 30 Jul 68, Published 24 Feb 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9G50P)

Translation: This author's certificate introduces a dynamic raster display for displaying radar information containing a two-beam storage cathode ray tube with multiple reading, a recording beam modulator which is connected to the input unit and the recording line scanning generator via an AND gate. The output electrode is connected to the signal processing unit which is connected to the modulator of the reading beam of the storage cathode ray tube and the modulator of the kinescope. The device also contains an image erasure generator, a synchronizer and a shaper for the vertical deviation of the recording and reading beams. In order to insure step displacement of the image with line-by-line renewal of the information, counters are included between the input unit and the shaper of vertical recording beam deflections and also between the synchronizer and the shaper of vertical reading beam deflections. The signals from these counters are fed to a decoder which is connected to the inputs of the frame scanning generator of the kinescope and the image erasure generator.

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USSR

UDC 66.099.2:661.635.213

KARMYSHOV, V. F., BURYAK, K. A., ZAYKOVSKIY, A. V., (DECEASED), BAYEV, A. YA.,
SAVCHENKO, V. A., and PERMINOVA, L. YA.

"Granulation of Ammophos by the Pressing Method"

Moscow, Khimicheskaya Promyshlennost', Vol 48, No 6, Jun 72, pp 434-436

Abstract: A method for the granulation of multipurpose fertilizers by the pressing method was developed at the Scientific Research Institute of Fertilizers and Insectofungicides imeni Ya. V. Samoylov. This method is being applied for the production of granulated ammophos/ammorium phosphate fertilizer/ at the Dzhambulsk Superphosphate Plant. Ammophos pulp with a 50% water content is subjected to spray drying. The dry powder is classified and then compressed to form plates. In the pressing stage 6.56 t/hr of powder (fresh + recycled material) yielded 4.08 t/hr plates and 2.48 t/hr of fine material that had the same granulometric composition as the initial ammophos and was fully recycled. Crushing of the plates resulted in a commerial granulated product with a grain size of 1-3 mm (2.27 t/hr from 4.08 t/hr plates), fine powder with a grain size < 1 mm, that was recycled, and an oversize grain fraction that was reground. One of the principal problems in connection with the process is formation of a large amount of fine material that has to be recycled. Formation of fine material in the amount of 37.8%

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USSR

KARMYSHOV, V. F., et al., Khimicheskaya Promyshlennost', Vol 48, No 6,
Jun 72, pp 434-436

in the pressing stage is due principally to the porous structure of the powder being compressed, which contains only 30% of solids, and its high air content. The air contained in the powder interferes with feeding of the powder into the space between the rollers, producing spraying of the powder. It also reduces the adhesion between powder particles. To obtain a lower ratio of fine material that has to be recycled, methods must be developed for reducing the amount of air in the powder.

2/2

USSR

UDC: 621.375.82

LOTKOVA, E. N., IVANOV, M. N., SAVCHENKO, V. F., and SOBOLEV, N. N.

"Radiation Generation in the Five-Micron Region With a CO₂+N₂+He Mixture"

Moscow, V sb. Kvant. elektronika (Quantum Electronics--collection of works) "Sov. radio," No 1(13), 1973, pp 137-139 (from RZh--Fizika, No 7, 1973, Abstract No 7D1024)

Translation: Generation is obtained in the five-micron region in a laser tube with a CO₂+N₂+He mixture cooled by liquid nitrogen. The oscillation was observed, and an amplification of 40 lines corresponding to the oscillatory-rotatory transitions of the CO molecule in the v'-v" interval from 4-3 to 12-11 was measured. Authors' abstract

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S/019/62/000/021/021/067
A156/A126

AUTHOR: Savchenko, V. I.

TITLE: A method of measuring the depth of stratification of a p-n junction in germanium plates

PERIODICAL: Byulleten' izobreteniy, no. 21, 1962, 30

TEXT: Class 2lg, 11₀₂. No. 151397 (728502/26 of May 3, 1961). This method of measuring the depth of stratification of a p-n junction in germanium plates is novel by that, to give more accurate measuring results and to be simpler than others, the sample under test is submerged in distilled water and a conical hole is etched out of the germanium plate in the p-n junction area. After this the junction is stripped; at the same time the etching conditions are changed and with the aid of a microscope the depth of stratification of a p-n junction is visually determined.

[Abstracter's note: Complete translation]

Card 1/1

1/2 - 014 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CATALYTIC SYSTEM FOR HYDROGENATION OF UNSATURATED ALDEHYDES -U-

AUTHOR--(05)-KHIDEKEL, M.L., BAKHANOVA, E.N., ASTAKHOVA, A.S.,
BRIKENSHTEYN, KH.A., SAVCHENKO, V.I.
COUNTRY OF INFO--USSR

S
SOURCE--U.S.S.R. 164,352.
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 47(9)
DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METAL CATALYST, ORGANIC PHOSPHORUS COMPOUND, CHEMICAL PATENT,
HYDROGENATION, ALDEHYDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
ROXY REEL/FRAME--3007/0829

STEP NO--UR/0482/70/000/000/0000/0000

IRC ACCESSION NO--AA0136263

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

IRC ACCESSION NO--AA0136263

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE CATALYTIC SYSTEM
CONTAINS A CATALYST, AN VIII GROUP METAL, AND AN ACTIVATING ADDITIVE.
PHOSPHINES OF FORMULA R PRIME1 SUBN R PRIME2 SUMMNEGATIVE P, WHERE N
EQUALS 0-3, M EQUALS 0-3, AND R PRIME1 AND R PRIME2 ARE ALKYL OR ARYL
RADICALS, ARE USED AS THE ACTIVATING ADDITIVE. FACILITY: FILIAL
ORDENA LENINA INSTITUTA KHIMICHESKOY FIZIKA AN SSSR.

172 010 UNCLASSIFIED PROCESSING DATE--300CT70
 TITLE--PREPARATION OF UNSATURATED ALCOHOLS BY THE HYDROGENATION OF
 ALPHA,BETA UNSATURATED ALDEHYDES IN THE PRESENCE OF AN IRIIDIUM CATALYST
 AUTHOR--(05)-KHIDEKEL, M.L., BAKHANOVA, E.N., ASTAKHOVA, A.S.,
 BRIKENSHTEYN, KH.A., SAVCHENKO, V.I.
 COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 499

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROGENATION, IRIIDIUM, CATALYST, ALDEHYDE, FURAN, BENZENE
 DERIVATIVE, ALCOHOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1997/0625

STEP NO--UR/0062/70/000/002/0499/0499

CIRC ACCESSION NO--AP0119537
 UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119537

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE PRESENCE OF IR CATALYST, UNSATD. ALDEHYDES, SUCH AS CH SUB2. CHCHO, MECH:CHCHO, PHCH:CHCHO, AND FURYLACROLEIN, ARE HYDROGENATED TO UNSATD. ALCS. IN 70-100PERCENT YIELDS. THE REACTION IS RUN AT NORMAL PRESSURE AND ROOM TEMP. THUS, 3 MILLIMOLES PHCH:CHCHO IN 10 ML 96PERCENT ETOH WITH 0.5 G 5PERCENT IR-C GAVE AFTER UPTAKE OF 1 MOLAR EQUIV. H, 100PERCENT PHCH:CHCH SUB2 OH. A 2ND MOLE H WAS TAKEN UP AT A MUCH REDUCED RATE. THE CATALYST MAY BE REUSED REPEATEDLY.

FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DESIGN OF A REACTOR FOR SYNTHESIZING TRIOXANE -U-
AUTHOR--SAVCHENKO, V.I.
COUNTRY OF INFO--USSR
SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(3), 171-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL REACTOR, ORGANIC SYNTHESIS, TRIOXANE, FORMALDEHYDE,
SULFURIC ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0814 STEP NO--UR/0064/70/046/003/0171/0174
CIRC ACCESSION NO--AP0124481

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE—30OCT70

2/2 007

CIRC ACCESSION NO--AP0124481

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

ABSTRACT. THE RATE OF FORMATION OF TRIOXANE IN AQ. HCHO CONTG. H SUB2 SO SUB4 (AS CATALYST, AT 100DEGREES) INCREASES WITH INCREASING HCHO CONC. A SERIES OF EQUATIONS FOR THE RATE CONST. OF THE REACTION AND FOR THE MATERIAL BALANCE IN A REACTOR FOR TRIOXANE SYNTHESIS ARE DERIVED. IN A CONTINUOUS SYNTHESIS PROCESS AN INCREASE IN THE REFLUX RATIO INCREASES THE TRIOXANE CONC. IN THE REACTOR AND DECREASES THE REACTOR OUTPUT (BECAUSE OF INCREASED HYDROLYSIS OF THE TRIOXANE).

UNCLASSIFIED

USSR

UDC 620.17

SAVCHENKO, V. I., SHOKOT'KO, S. G.

"Freezing" Thermoelastic Deformations With the Application of Radiation"

V sb. VII Vses. konf. po polarizats.-optich. metodu issled. napryazh., 1971.
T. 3 (VII All-Union Conference on the Polarization-Optical Method of Studying
Stresses, 1971, Vol. 3 -- Collection of Works), Tallin, 1971, pp 30-33
(from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V1652)

Translation: The possibility of "freezing" thermoelastic deformations by radiation with gamma-rays from Co^{60} of a uniformly heated model of ED-6M material in a high-temperature state is discussed. A technique of "freezing" of deformations was proposed on the basis of a study of the effect of Co^{60} gamma-rays on the loaded sample. By this technique a model was heated to a high elastic state and the temperature field (the minimum temperature in the model should not decrease the "freezing") is produced by additional heating. The thermal stresses relax and the optical anisotropy in the model disappears. After ceasing the radiation the nonuniform heating is removed and the thermodynamic state corresponding to the temperature field but with an inverse sign arises in the model. Cooling of the model fixes the optical anisotropy and the cut of the model on the media does not destroy the "freezing" picture. The proposed technique was worked out

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USSR

SAVCHENKO, V. I., SHOKOT'KO, S. G., VII Vses. konf. po polyanizats.-optich. metodu issled. napryazh., 1971. T. 3, Tallin, 1971, pp 30-33

on a disc with a central opening in which an axisymmetric temperature field was produced by an additional heating along the external contour. A comparison of experimental and computational values of the stresses support the possibility of "freezing" of thermoelastic deformations by irradiation of nonuniformly heated bodies. 5 ref. V. D. Kopytov.

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Inorganic Compounds

USSR

UDC 548.0:537.228.4

SINYAKOV, YE. V., GOLOVYANKO, A. A., and SAVCHENKO, V. G., Dnepropetrovsk State University

"Electo-optical Properties of Single Crystals of $BaTiO_3-Ta_2O_5$ Solid Solutions"

Moscow, Akademii Nauk SSR Kristallografiya, Vol 16, No 3, May-Jun 71, pp 553-556

Abstract: To clarify the effect of replacing Ti^{+4} ions in $BaTiO_3$ with Ta^{+5} ions on the electro-optical properties of barium titanate monocrystals, the temperature functions of quadratic electro-optical coefficients $n_0^3(R_{11}-R_{12})$ and $n_0^3R_{44}$ of single crystals of $BaTiO_3-Ta_2O_5$ solid solutions were investigated. Different impurity concentrations were used (Ta_2O_5 content: 0.05, 0.1, 0.2 and 0.3 mol %). The measurements were taken above the Curie point by optical polarization at $\lambda = 6328 \text{ \AA}$ with a 50 Hz AC field applied to the crystal along the [100] and [110] axes. Mirror-surface crystals were selected and prepared into $1.5 \times 0.8 \times 0.25 \text{ mm}$ specimens. The light was propagated perpendicular to the (001) plane. It was found that with an increase in the impurity concentration, electro-optical coefficients rise sharply (particularly the coefficients

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USSR

SINYAKOV, YE. V., et al., Akademii Nauk SSR Kristallografiya, Vol 16, No 3, May-Jun 71, pp 553-556

$n_0^3(R_{11} - R_{12}))$ and this rise is the more pronounced, the closer the measurements are made to the Curie point. At 20-30° from the Curie points the electro-optical coefficients of the BaTiO₃-Ta₂O₅ solid solutions are practically identical to those of pure barium titanate. The rise in coefficients made close to the Curie point was shown to be caused by the reduction in the difference between the Curie point and the Curie-Weiss temperature obtained from electro-optical measurements.

2/2

- 7 -

USSR

UDC:620.179.16

SAFONOV, A. I., SAVCHENKO, V. P.

"Ultrasonic Immersion Testing of Welded Edges of Turbine Blades"

Defektoskopiya, No. 3, 1970, pp. 49-54

Abstract: The possibility is studied of revealing internal defects and the effective cross section of the welded seam in turbine blades by a shadow method in an immersion bath with focusing of ultrasonic oscillations by an acoustical lens. A schematic diagram is presented of a device for recording of the results of testing. The operating principle of the immersion bath and the basic principles of the method and of interpretation of test results are outlined.

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USSR

UDC 621.371.332.3

ANDREYEV, G. A., SAVCHENKO, V. P., SOKOLOV, A. V., and STROGANOV, L. I.

"Using FM Signals of the Submillimeter Range for Revealing the Structure of Local Dispersion of an Extended Body"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 111-116 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10G10)

Translation: The resolving power and noise immunity of secondary radiation reception from locally dispersive extended bodies are analyzed. It is noted that complex continuous signals (particularly linearly frequency modulated signals) are used to improve the sensitivity. To obtain information regarding the level and position of the dispersive elements using LFM signals, coherent reception with subsequent nonlinear transformation of the reference and dispersed signals as well as low-frequency filtration is required. Under large-scale experimental conditions, a radial resolving power of 2.7 cm is realized with a signal/noise ratio of about 23 dB. Four illustrations, bibliography of three. N. S.

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USSR

UDC 621.791.011:669.15-194

XAKHOVSKIY, N. I., FARTUSHNYI, V. G., and SAVCHENKO, V. S., Institute of Electric Welding imeni YE. O. Paton, Academy of Science UkrSSR

"Effect of Silicon on the Weldability, Structure, and Properties of Austenitic Steel Weld Joints"

Kiev, Avtomaticheskaya Svarka, No 4, Apr 71, pp 9-13

Abstract: Weld seams of Cr-Ni steels containing 4-6% Si and up to 0.8% Nb were studied (grades OKh23N18, OKh20N20S2, OKh20N20S4, OKh20N20S5, and OKh20N29S6). Corrosion tests of steels with 4-6% Si with or without Nb exhibited selective corrosion of the heat-affected zone when exposed to 65% boiling nitric acid. Corrosion was much greater in those welds made in steels containing Si and Nb. Metallographic analysis showed that a second phase is precipitated from the austenite solid solution grain boundaries in the form of fine substrates almost encircling the entire grain. Tensile and yield strengths increase slightly with increased Si content while reduction in area and elongation tend to drop off and impact strength drops off sharply with increased Si content. Seven figures, 3 tables, 7 bibliographic references.

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UDC 612,79.015.11.014.424

SAVCHENKO, Ye. D., and OSIPENKOVA-VICHTOMOVA, T. K., Moscow Scientific Research Institute of Roentgenology and Radiology, Ministry of Public Health, RSFSR

"The Effect of Bremsstrahlung Radiation Emitted by 25 MEV Betatron on the Activity of Nonspecific Phosphatases of the Skin"

Moscow, Arkhiv Patologii, Vol 33, No 11, 1971, pp 28-32

Abstract: Shifts in alkaline and acid phosphatase activity in various parts of the skin were determined. Twenty-two patients with malignant tumors were treated using a 25 Mev betatron source; the single dose was 300 rad, the cumulative dose, 3,000-12,000 rad over a period of 3-9 weeks. Histochemical studies were conducted for 4-1/2 years following treatment. In 18 out of 22 cases, a small amount of acid phosphatase was found in normal skin, and in 4 cases, alkaline phosphatase was present; both were found primarily in the basal layer. During the first few days following irradiation in 1,200-1,500 rad doses, a small amount of alkaline phosphatase appeared in cells of the granular and basal layers; it increased in cells of the walls of small vessels (endothelium and adventitia) and in nuclei of perivascular infiltrate cells. Large amounts were found in lymphocytes, less in macrophages. Acid phosphatase activity was concentrated in the basal layer. By the end of one month,

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acid phosphatase increased, while alkaline phosphatase decreased.

The first days following 3,000 rad treatment showed impaired differentiation of the epidermis with obliteration of cellular layers. Acid and alkaline phosphatase increased in all epidermal layers; and acid phosphatase appeared in nuclei of the stratum corneum (parakeratosis).

A larger dose (6,000-7,000 rad) and a longer time lapse (2-4 months) resulted in greatest nonspecific enzyme activity in all cell layers. Differentiation in epidermal cells with proliferation in the presence of skin atrophy increased. Proliferating cells contained large amounts of alkaline and acid phosphatase. Following a 6,000-7,000 rad dose, nonspecific phosphatase activity with proliferation of cells and impaired differentiation was observed even after 1-1/2 years.

A 10,000 rad dose greatly reduced the content of alkaline and acid phosphatase in the skin with lasting results; cellular enzymatic activity had not resumed after 1-4-1/2 years. Following a 6,000 rad dose, phosphatase content in the
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epidermis approached the normal level after 4-1/2 years. The findings indicate a shift in enzymatic activity in epidermal cells, which can to some extent explain impaired differentiation and proliferation of epithelial cells.

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UDC 616.36-092.9-085.849.19

LAGUNOVA, I. G., SAVCHENKO, Ye. D., GARVEY, N. N., LIKHOVETSKAYA, L. L., SHAMAYEVA, G. G., KLIMOV, A. D., and MOGUTOV, V. I., Moscow, Scientific Research Institute of Roentgenology and Radiology, Ministry of Health RSFSR

"The Effects of Neodymium Laser Irradiation on the Rat Liver"

Leningrad, Voprosy Onkologii, Vol 18, No 1, 1972, pp 91-94

Abstract: Single irradiation of a 2 by 5 mm abdominal area over the rat liver with pulsed neodymium laser rays with initial energy of 100-200 joules and incident density of 1000-4000 joules/cm² causes local injury to the liver tissue, ranging from degenerative changes to complete necrosis. Destruction of blood vessels occurs in the central zone and paralytic vasodilation with edema in the peripheral zone. Proliferation of fibroblasts begins after 5 days, and a capsule is formed around the injured area. Connective tissue cells and bile capillaries grow toward the necrotic center along with blood vessels. Eventually, hepatocytes, lymphocytes, and macrophages appear. On the 20th day, the necrotic area is filled with patches of new hepatic parenchyma. After stronger irradiation (3000-4000 joules/cm²), the injury is more severe and recovery slower.

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UDC 621.313.322-81.3.013.8

SAVCHENKO, YE. V.

Ionnoye Vozbuzhdeniye turbogeneratorov. TGV-200 (Ion Excitation of TGV-200 Turbogenerators), Kiev, Tekhnika Press, 1970, 207 pp ill., 54 k (from RZh-Elektrotehnika i Energetika, No 4, Apr 71, Abstract No 4 Ye108 K)

Translation: The ion self-excitation system of the TGV-200 turbogenerator is described. The operating conditions and characteristics of the two-group conversion system and the mercury rectifiers with auxiliary equipment used in it are investigated. An analysis of the statistical and dynamic characteristics of the excitation control system with a powerful excitation regulator is presented. The abnormal operating conditions of the ion excitor and operation of the excitation system under normal and emergency generator conditions are considered. Some measures are proposed with respect to improving the reliability of the excitation system elements. There are 66 illustrations, 9 tables and a 45-entry bibliography.

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UDC: 8.74

SAVCHENKO, Yu. G.

"Utilizing Natural Information Redundancy in Pattern Recognition Problems"

V sb. Sistemy avtomatich. upr. (Automatic Control Systems--collection of works), Kiev, 1971, pp 49-55 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4v580)

Translation: The set of binary sequences acting on the input of a recognition system is a redundant alphabet set. In order to solve the problem of one-to-one correspondence between any binary sequence and a pattern number, it is necessary to find a decoding procedure which admits of correction of typical errors in the assignments of the pattern aggregate. It is proposed that systematic and group codes be used for this purpose. Note is taken of the considerable difficulties involved in the realization of decoding procedures if recognition is done in the space of the receptors. The possibility of using redundant information in converting the space of receptors to the space of useful features is considered. An example is given of an automaton for recognition of graphic characters. Bibliography of five titles. B. Knyazev.

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