

Vector Studies

USSR

UDC 576.851.45.095.38:576.895.775].095.18:615.285.7

~~ALEKSEYEV, A. N.~~ BIBIKOVA, V. A., TATARINOVA, S. G., and KHRUSTSELEVSKAYA, N. M., All Union Scientific Research Institute of Disinfection and Sterilization, Ministry of Health USSR, and Central Asian Scientific Research Antiplague Institute

"Effect of the Systemic Poison Fluoroacetamide on the Viability of Infected Fleas and on the Development of the Plague Pathogen in Them"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 5, 1971, pp 571-577

Abstract: Administration of sublethal doses of the systemic organofluorine insecticide fluoroacetamide (a poison with intestinal action against rodent ectoparasites) to the great gerbil flea *Xenopsylla gerbilli minax* and the rat flea *X. cheopis* infected with a highly virulent strain of *Pasteurella pestis* quickly killed the fleas or resulted in elimination of the microorganism from the insects. Fluoroacetamide suppressed the formation of a proventriculus block in the fleas. The mechanism of action of the poison lies in its inhibiting vital functions of both the micro- and macroorganism. By inhibiting the reproduction of the pathogen in the flea intestine, fluoroacetamide is an antagonist of plague bacteria. On the other hand, by  
1/2

AM0033: 9

In the second volume of the handbook are examined the physico-chemical bases of the processes and industrial projects for the production of nitric acid and nitric fertilizers. The handbook is designed for technical engineers in the nitric and other branches of chemical industry. Each chapter has a bibliography, in all 294 references

$\frac{2}{2}$

21

19710039

A.M. ALEKSEYEV

A/A0033529

Simulin, N.A.; Mel'nikov, Ye. Ya.; Furman, M. S.; Prikhodko, I. I.  
Samarin, F. K.; Alekseyev, A. M.; Tveretskiy, S. A.; Aronovskiy, Ya. A.  
(editorial board)

Handbook for the Nitrogen worker. Vol. 2 (Spravochnik kuznitsa...  
Khimiya. 445 pp. (52652)

TABLE OF CONTENTS:

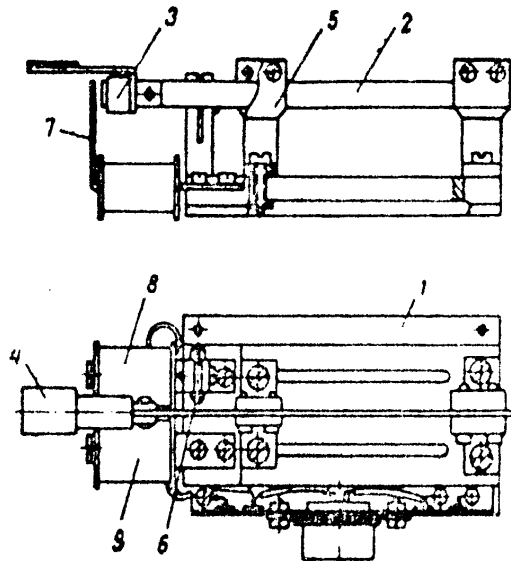
Preface			
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II	The Production of Nitric Fertilizers		111
III	Materials and Basic Special Equipment		111
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extreme position so that an initial current is allowed to flow in the exciter coil so that an initial current is allowed to flow in the exciter coil due to a constant forward bias applied to the transistor. The amplitude of oscillation is regulated by screw 6. 19.3.66. as 1062735/26-25. A.M. ALEKSEV, L.A. FEDOROVICH. (10.9.69.) Bul.14/18.4.69. Class 2lg. Int.Cl. H01h.

2/3

19761815

AA 0043457

Aleksander A.M.  
UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

241545 VIBRATING LIGHT MODULATOR is made simpler, smaller and stable. The excitation coil 8 is in the collector circuit of a transistor. When it is energised a combined flux in conjunction with permanent magnet 3 is produced which deflects moving armature 2. As it changes its position an emf is induced in both the exciter coil and the feedback coil 9 which is connected in the base of the transistor. An increase of collector current produces a signal in the base which further increases that current. With the armature fully deflected the induced emf drops to zero and the spring action forces the armature to return in the opposite direction; this time the induced emf reverse biases the transistor. This reverse biasing stops when the armature reaches the other

1/3

21

19761814

USSR

SHCHUKIN, V. N., ALEKSEYEV, A. M.

"Optimization of Plans for Development and Placement of Branches of Industry"

Optimizatsiya Planov Razvitiya i Raxmeshcheniya Otrasley Promyshlennosti  
[English Version Above], Novosibirsk, 1971, 169 pages (Translated from  
Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V652 K,  
unsigned).

Translation: The book will be abstracted article-by-article.

USSR

UDC 577.4

ALEKSEYEV, A. M., KRYUCHKOV, V. N.

"Optimization of the Construction Program in an Area which is Being Newly Built Up"

V sb. Metody i modeli territorial'n. planir. (Methods and Models of Territorial Planning -- collection of works), vyp. 2, Novosibirsk, 1971, pp 161-172 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V546)

No abstract

1/1



USSR

Alekseyev, A. M., Volkonsiy, V. A., Shapiro, A. D., *Ekonomika i Mat. Metody*, 1973, Vol 9, No 1, pp 3-18.

the best results as applied to partially integer problems. The results of solution of a number of practical problems are described briefly: 1) optimal development of the mining fund of the southern Kuznets basin, 2) optimal placement of mobile wood cutting units for cutting of the forest in the flooding zone of the Boguchanskaya Hydroelectric Power Plant, 3) optimal development and placement of permanent and temporary repair basis for railroad machine stations, 4) optimization of the plan for creation of a territorial production complex, matched to the plan of development of a construction base. 30 biblio. refs.

USSR

Alekseyev, A. M., Volkonsiy, V. A., Shapiro, A. D., *Ekonomika i Mat. Metody*, 1973, Vol 9, No 1, pp 3-18.

Most frequently, model (1)-(5) is used for planning or production of a group of enterprises or branches, both selection of versions of development of production and for the production program. Recently, formalizations such as (1)-(5) have begun to be applied also to path determination problems.

Calculations using a model make it possible to select the optimal combination of versions. Formation of the file of initial data is usually done manually, sharply limiting the number of versions which can be practically tested. The advantages and disadvantages of multiple-version and "versionless" statements of the problem are discussed. In the opinion of the authors, the multiple-version problem should be given the task of determining interrelationships between objects, while models of individual objects (perhaps of significantly more complex structure) should be used to formulate version in the multiple-version model. The greatest experience in automatic formulation of versions has been accumulated for the case of the linear model -- the tradition here extends back to the Danzig-Wolf decomposition algorithm.

As concerns the solution of the multiple-version problem itself, particular attention is given to the use of estimates in the problem, including integer variables. The methods of utilization of estimates described yield

USSR

ALEKSEYEV, A. M., VOLKONSIY, V. A., SHAPIRO, A. D.

"Methods of Optimization of Plans by Automatic Formation of Plan Versions and Their Applications"

Ekonomika i Mat. Metody [Economics and Mathematical Methods], 1973, Vol 9, No 1, pp 3-18 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V539, by Yu. Finkel'shteyn).

Translation: Versions of a problem of the following form are studied:

$$\sum_{k=1}^K \sum_{j=1}^{J_k} c_j^k x_j^k \rightarrow \min, \quad (1)$$

$$\sum_{k=1}^K \sum_{j=1}^{J_k} a_{ij}^k x_j^k \geq b_i, \quad i=1, \dots, I, \quad (2)$$

$$\sum_{j=1}^{J_k} x_j^k = 1, \quad k=1, \dots, K, \quad (3)$$

$$x_j^k \geq 0, \quad j=1, \dots, J_k, \quad k=1, \dots, K, \quad (4)$$

$$x_j^k = 0 \text{ or } 1, \quad j=1, \dots, J_k, \quad k=1, \dots, K, (K_1 = K). \quad (5)$$

Acc. Nr: **AP0038056**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, 1970, Vol 58, Nr 1, pp **354-359**

SELF-INDUCED TRANSPARENCY OF A GAS  
IN A MAGNETIC FIELD

A. I. Alekseyev, A. S. Chernov

Self-induced transparency of a gas in a magnetic field during traversal by a linearly polarized light pulse is investigated. It is shown that the external magnetic field considerably decreases the number of resonance atomic transitions for which self-induced transparency of the medium is possible. An analytic solution for a linearly polarized light pulse propagating without change of its shape or loss of energy is found in the case of atomic transitions involving a change of the total momentum  $1 \leftrightarrow 0$ ,  $1/2 \leftrightarrow 1/2$  and  $1 \rightarrow 1$ . In the presence of self-induced transparency the direction of rotation of light pulse polarization is opposite that of Faraday rotation in a monochromatic wave.

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**19731100**

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2/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AP0125810  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PASSAGE OF A WEAK  
MONOCHROMATIC WAVE THROUGH A GASEOUS RESONANCE MEDIUM LOCATED IN A  
STRONG MONOCHROMATIC FIELD OF A CLOSE FREQUENCY IS CONSIDERED. THE  
INVESTIGATION IS CARRIED OUT BY TAKING INTO ACCOUNT DEGENERACY OF THE  
LEVELS AND THE TENSOR NATURE OF THE COLLISION TERM. AMPLIFICATION OF  
THE WEAK WAVE DEPENDING ON THE POLARIZATION DIRECTION OF THE WEAK AND  
STRONG WAVES IS DETERMINED. IT IS FOUND THAT A VERY DISTINCT STRUCTURE  
APPEARS ON THE AMPLIFICATION CURVE OF THE WEAK WAVE; THE STRUCTURE  
DEPENDS ON RELAXATION PROCESSES IN THE MEDIUM AND MANIFESTS ITSELF  
DIFFERENTLY FOR PARALLEL AND PERPENDICULAR WAVE POLARIZATIONS. THE  
POSSIBILITY IS DISCUSSED OF EMPLOYING THE DETECTED POLARIZATION EFFECTS  
FOR INVESTIGATION OF COLLISION IN A GAS AND DETERMINATION OF THE LEVEL  
WIDTHS OF THE GAS MOLECULES. FACILITY: MOSKOVSKIY  
INZHENERNO-FIZICHESKIY INSTITUT.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--POLARIZATION PHENOMENA IN NONLINEAR SPECTROSCOPY -U-  
AUTHOR--ALEKSEYEV, A.I. A  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,  
NR 6, PP 2064-2074  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--MONOCHROMATIC RADIATION, GAS STATE, WAVE MECHANICS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/2232 STEP NO--UR/0056/70/058/006/2064/2074  
CIRC ACCESSION NO--AP0120810  
UNCLASSIFIED

USSR

ALEKSEYEV, A. I., et al, Teoriya i primeneniye psevdosluchaynykh signalov, "Nauka", 1969, 367 pp, ill., 1 r 29 k

for using pseudo-random signals in ISZ /artificial earth satellite/ communications systems, in laser systems, and for measuring distance and velocity. L.S.

2/2

- 29 -

USSR

UDC 621.391.82

ALEKSEYEV, A. I., SHEREMET'YEV, A. G., TUZOV, G. I., GLAZOV, B. I.

"Theory and Application of Pseudo-Random Signals"

Moscow, Teoriya i primeneniye psevdosluchaynykh signalov (cf. English above), "Nauka", 1969, 367 pp, ill., 1 r 29 k (from REZh-Radiotekhnika, No 4, 1970, Abstract No 4A90K)

Translation: Literature is generalized on the theory and application of pseudo-random (noise) signals formed on the basis of sequences of maximal duration or M-sequences. Despite the regular structure they bear all of the characteristics of random sequences. The auto correlation function of pseudo-random signals in the form of a double sequence is similar to the autocorrelation function for white noise, i.e.  $\delta$  - function. The authors study the requirements imposed on signals in discrete information transmission systems and in systems for measuring motion parameters by using information theory and the theory of statistical solutions. Basic problems of the theory of generation and optimal processing of pseudo-random signals were studied along with their interference resistance. A description is given of real possibilities

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USSR

IVOCHKIN, I. I., et al, Svarochnoye proizvodstvo, No 2, Feb 72, pp 15-17

optimal technological parameters of welding with the use of powder filler metal including the root gap, welding rate, electrode wire feed, granulation, and the amount of powder filler metal. The weld quality is rated on the basis of fusion depth, shape factor, weld continuity, and the heat efficiency of the welding. Proposed is a new automatic direct submerged (two-sided) welding technology with metal powder as the filler metal for low carbon and low-alloy steels up to 50 mm thick without bevelling. The new process is said to increase the welding efficiency two to three fold (as compared to conventional welding), decrease the cost per meter of weld by about 80%, and produce an economic effect within the 10-50 mm thickness range averaging at 330 rubles per ton. ( 3 illust., 3 tables, 4 biblio. ref.)

2/2

Welding

USSR

UDC 621.791.75.045-52+621.791.046

IVOCHKIN, I.I., ALEKSEYEV, A.I. (Candidates of Techn. Sciences) / VNIImontazhspetsstroy /, LEBEDEV, B.F. (Doctor of Techn. Sciences) / Institute of Electric Welding imeni Ye.O. Paton /, STEKLOV, O.I. (Cand. of Techn. Sciences) / Moscow Higher Technical School imeni N.E. Bauman /, IVOCHKIN, I.M. (Engineer) / Sokolovskiy Plant of Erecting Cranes / and MOTSOKHIN, S.B. (Engineer) / Trust No 7 /

"Automatic Submerged Arc Welding Using Powder Filler Metal"

Moscow, Svarochnoye proizvodstvo, No 2, Feb 72, pp 15-17

Abstract: The use of powder filler metal in submerged arc welding permits joining plate structures up to 50 mm thick without beveling in two passes at a lower per-unit consumption of heat energy. Described here is a new analytical technique for determining the

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ALEKSEYEV, A. I.

MEDICINE

FACTORS INVOLVED IN CHOICE OF THE MEDICAL PROFESSION BY SIBERIAN MEDICAL STUDENTS

Article by A. I. Alekseyev, Chief of Social Science and Public Health Department, Siberian State Medical University, Krasnoyarsk, Siberia, USSR. Published in *Journal of the American Medical Association*, 1971, pp. 202-206.

One of the most important tasks in the sphere of public health is defined in the instructions of the 23rd Congress of the CPSU: "to improve the level of development of the national economy, to raise the level of training of medical personnel, to further study, research and development and to improve the state of affairs in the field of medicine. The scientific and scientific base application of scientific and practical material and instructor personnel, introduction of new scientific methods in medical work provide the necessary prerequisites for preparing physicians who meet the present demands of medical science and its sister sciences. The quality of training specialists is also considerably affected by such factors as the composition of students, the reasons that induce them to a given field, their love or lack of love for the chosen specialty and a number of others which, on the whole, determine the students' attitude toward education and their "activity" in the course of acquiring knowledge. Without this, the most perfect pedagogic means and methods cannot yield the proper effect.

Elucidation of such factors could help develop criteria for screening candidates for medical institutions, not only according to the factors they received on the entrance examinations but also such factors that are particularly important for the medical profession, as will be and solvability for this profession.

In 1968, we passed out a special questionnaire questionnaire among senior year students (seniors), i.e., at a time when individuals who were or had been among medical institute students had been selected. There were several groups of questions reflecting the student's personality, his relatives (especially his three generations (brothers and sisters, parents, grandmothers and grandfathers)), factors involved in his choice of the medical profession, and his attitude toward his chosen specialty. We received 722 questionnaires that were filled

USSR

UDC 621.791.79.046.003.13

IVOCHKIN, I. I., ALEKSEYEV, A. I. (Candidates of Techn. Sciences),  
SOSEDOV, A. F. (Engineer), /VNIImontazhspetsstroy/, LEBEDEV, B. F.  
(Doctor of Techn. Sciences), AVRAMENKO, V. I. (Engineer) /Electric  
Welding Institute imeni Ye. O. Paton/, and IVOCHKIN, I. M.,  
/Sokolovskiy Plant of Metal Structures/

"Electroslag Welding With the Use of Powdered Filler Metal"

Moscow, Svarochnoye proizvodstvo, No 5, May 72, pp 17-19

Abstract: The article describes an electroslag process involving the feed of powdered filler metal (PFM) to the slag bath. The use of PFM enables more effective utilization of the welding heat, doubles the welding efficiency, and yields a weld with better properties. In addition, the article discusses equipment designed for electroslag welding of low-carbon and low-alloy steels, 25-60 mm thick, with PFM and a consumable electrode of continuous cross sections. A block diagram of a unit for proportioning and feeding PFM to the slag bath is shown. Various PFM compositions for low-carbon and low-alloy steels are cited and test data on the strength properties of the welds are given. (2 illustrations, 4 tables, 4 bibliographic references)

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USSR

A  
UDC 621.375.4

ALEKSEYEV, A. G., USTINOV, V. V.

"Analysis of the Stability of the Operating Conditions of Amplifiers with Feedback Made of Field Transistors"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t. svyazi. Vyp. 2 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute Vyp. 2), Leningrad, 1970, pp 176-179 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8D57)

Translation: A simple and sufficient universal procedure based on directional graphs is used to calculate the stability of the operating conditions of amplifiers with direct current feedback in which channel transistors are used.

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USSR

A  
621.334.66(038.8)

ALEKSEYEV, A. G., VASIL'YEV, M. P., KOZIN, I. V.

"Method of Measuring Comparative Magnetic Characteristics of Electron Synchrotron Electromagnets"

USSR Authors' Certificate No. 234549, Filed 13/01/67, Published 22/05/69  
(translated from Referativnyy Zhurnal Metrologiya I Izmeritel'naya Tekhnika, No. 4, 1970, Abstract No. 4.32.1358, unsigned)

Translation: A method is suggested for measuring comparative magnetic characteristics of electron synchrotron electromagnets, based on comparison of the indications of transducers with magnetization placed at corresponding points on the electromagnet being studied and a standard electromagnet. In order to increase accuracy while retaining measurement time, currents are passed through the magnetizing windings at the corresponding measurement points which are proportional to the magnetization fields of the standard electromagnet, and the currents set up in supplementary transducer windings, which are proportional to the difference of the electromagnet being studied, are used to determine the value of the magnetic field and its gradient.

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USSR

ALEKSEYEV, A. G., and VERKHOVSKAYA, T. A., *Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya*, Vol 36, No 6, 1972, pp 1297-1300

the successive recording of patterns in the small and large-angle region. By selecting the appropriate recording scale, the instrument constant for the small-angle study made can be determined with high accuracy, provided that the deflection system has good linear characteristics. The small-angle scattering of electrons by microinhomogeneities from several to hundreds of angstroms in size (depending on the atomic composition of the studied substance) is always accompanied by a relatively large background of inelastically scattered electrons, which must be eliminated if reliable information about the microstructure of a substance is desired in this region.

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USSR

UDC 621.385.833:537.533.74

ALEKSEYEV, A. G., and VERKHOVSKAYA, T. A.

"Study of Small-Angle Electron Scattering"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 36, No 6,  
1972, pp 1297-1300

Abstract: An attachment was developed for the EM-7 electron microscope for the direct recording of the intensity of scattered electrons. It includes a scintillation counter with an electron recording scheme according to the pulse count with a filter for sifting inelastically scattered electrons and with electromagnetic deflection coils. Deflection coils situated behind the projection lens are used for the detailed recording of the small-angle electron-diffraction patterns. Special coils, mounted directly behind the specimen before the magnification system, are provided for instrument calibration. One of the problems in small-angle diffraction is that of instrument calibration, which is simplified if the instrument includes a system for directly recording the electron-diffraction patterns and recording the diffraction curves on the tape of the self-recorder. The calibration coils make possible

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USSR

UDC 532.529

ALEKSEYEV, A. D.

"Effect of the Character and Regime of Motion of a Suspension Medium on the Pseudoliquefaction Characteristic"

Izv. Tomsk. politekhn. in-ta (Bulletin of Tomsk Polytechnical Institute), 1971, Vol. 175, pp 188-191 (from RZh-Mekhanika, No 12, Dec 71, Abstract No 12B1477)

Translation: The periodic supply of a pseudoliquefying agent to a layer of finely grained material strongly effects the properties of the pseudoliquefaction layer. Studies made on polydisperse materials (granulated chemical-pharmaceutical preparations and poppy seeds) at air supply frequencies of 3.35 and 10 Hz showed that with a periodic supply of a pseudoliquefying medium the rate of the beginning of pseudoliquefaction and the rate at which stable pseudoliquefaction is observed decrease. With a decrease in particle size there is observed a tendency toward a rise in the effectiveness of the periodic supply of the gas. V. A. Kernerman.

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USSR

UDC 8.74

POLONSKIY, A. E., ALEKSEYEV, A. D.

"Information Language for Describing Concepts Contained in Technological Documents"

V sb. Prom. kibernetika (Industrial Cybernetics -- collection of works), Kiev, 1971, pp 202-204 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V604)

No abstract

1/1

USSR

ALEKSEYEV, A. A., et al, USSR Author's Certificate No 240761, filed 14 Mar 68, published 15 Aug 69 (from RZh -- Elektronika i yeye primeneniye, No 2, Feb 70, Abstract No 2B605P)

Abstract: the transistor amplifier, the base of which is connected through a resistor with the collector of the control transistor. 1 ill. S.D.

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Controls

USSR

UDC 621.316.721 (088.8)

ALEKSEYEV, A. A., GONCHAROV, A. M. (Gorkovsk. issled. fiz.-  
tekhn. in-t pri Gor'kovsk. Un-te -- Gorkiy Research Physical  
Technical Institute Attached to Gorkiy University)

"Current Regulator"

USSR Author's Certificate No 240761, filed 14 Mar 68, published  
15 Aug 69 (from RZh -- Elektronika i yeye primeneniye, No 2,  
Feb 70, Abstract No 2B605P)

Abstract: A current regulator for digital order busses of  
memory devices with tunnel diodes is patented. The regulator  
is connected in an emitter follower circuit and in series with  
the load a resistance is connected, the magnitude of which can  
be commutated by an exterior signal. To assure nondependence  
of the current on the load the possibility of control by  
the digital order current, the emitter of the follower is con-  
nected through a positive feedback network to the emitter of  
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to primarily work. These formulas are intended to control various types of mental, nervous, and hormonal changes in the central nervous system such as hysteria, neurotic pains, fears of all kinds, obsessions, and various phobias. The objective of the higher (second) stage is to bring a person from a more physical and contemplative state that, so to speak, pulls and elevates the soul.

While the second stage was not used by Soviet medicine, the seven formulas of the first stage quickly were accepted by many physicians and patients, not only for a while. It gradually became clear that the seven classical formulas could not cope with the different nervous and mental disorders that one could have wished. Therefore, various modifications of the initial text of autogenous training began to appear everywhere. Their authors adhered to the main principle of Schultz's method but altered the formulas for autogenetic training according to the objectives they set for themselves.

For example, Schultz thought his method should not be used for long periods of time. The Russian psychiatrist G. Mironov and A. Kozlov worked out their own version which they called "hypocognitive training" and claimed it should be effective in controlling hypochondria. Another example to help considerably healthy persons, without special help and care, to control stress in the field of thinking situations they saw in connection with the All-Union Institute of Physical Culture developed a special technique of autogenetic training called "hypnotic-salutary training". This type of training specifically excludes entirely formulas that induce a sensation of heaviness and tingling which that provide relaxation of the muscles and joints. Under a few other examples could be cited of the many different modifications that were developed to solve various concrete problems.

It is that however wishes to do by another class of healthy persons, now able to study any method of autogenetic training to suit his personal requirements. The only requirement that a sick person should do is under the guidance of a physician, secure a healthy individual can work by himself after consulting a physician. A physician can suggest the most appropriate method and advice on the specific to be followed. We have all the conditions in the field for raising the people's level of mental hygiene. There are psychoanalysts in many cities who can provide the necessary help for anyone desiring it. In addition, two operational centers are in operation. One, in Moscow, is the Psychotherapy Department of the Ukrainian Institute for Postgraduate Medicine headed by Professor I. S. Vel'ozhnyy. The other, in Moscow, is the Psychotherapy Department of the Soviet Institute for Postgraduate Medicine headed by Professor V. Ye. Pozharov.

And now let us formulate the question this way: What means to one self-regulation of his mental and physical states? The answer, perhaps everyone, however is suffering from poor health, so that he can recover and then maintain his sense of well-being. Also a healthy person, so that he can avoid getting sick, in spite of the various difficulties in the way of doing so, and remain mentally healthy.



ALEKSEYEV, A.

SPRS 08430  
13 March 1973

AUTOSUGGESTION

Article by A. Alekseyev, Moscow, Health Education, Bulletin, No. 1, 1973, pp. 13-14.

There are problems toward which our attitude keeps changing constantly over long years; at times they lose their urgency, at others they attract very close attention. Such problems include, above all, those relating to the search for ways and means of controlling the human mind and developing its potential. Interest in the subject is literally growing from year to year.

First Stage - Normal

If all the organs and systems of a person are functioning according to the laws of nature and if his ability to work, sleep, his appetite, and social relations do not arouse concern and his frame of mind is good, we say everything is all right with him and his life is normal.

A great deal is being done to ensure such normalcy. Specifically, an army of medical men is working to assist in the arduous organization of sound work, rest, and dietary regimens, to help clean the air and water, to design rational clothing and footwear, to combat noise, dirt, foci of infectious diseases, and many other factors injurious to health.

Such physicians are the servants of that vast branch of medicine called sanitation and hygiene. Hygienists are like border guards. Their duty is to prevent the enemy from entering the land of the normal and thus protect the people's health.

It has long been true that disease, like fire, is easier to prevent than to cure. That is why we can rightly say that sanitation and hygiene are the medicine of the future. It will be a future in which diseases will have been virtually conquered and the medical men will be working mostly to keep the people physically and mentally healthy.

MS # 58456  
13 March 73

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106843

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

ABSTRACT. THE EFFECTS OF A BUTADIENE STYRENE BLOCK COPOLYMER DST-30 (I) (CONTG. 30PERCENT STYRENE) ON THE PHYSICOMECH. PROPERTIES OF POLY(VINYL CHLORIDE) (II) WERE STUDIED. INTRODUCTION OF LARGER THAN 60 PARTS I-100 PARTS II BROUGHT ABOUT INCREASED TENSILE STRENGTH AND RELATIVE ELONGATION, SUGGESTING THAT I WAS A POLYMERIC PLASTICIZER OF II. THE FREEZE RESISTANCE, FLEXURAL STRENGTH, TEAR STRENGTH, AND REBOUND RESILIENCE INITIALLY DECLINED WITH ADDN. OF I, REACHING A MIN. AT 60-70 PARTS I, AND ON FURTHER ADDN. OF I, INCREASED, PRESUMABLY DUE TO LIMITED COMPATIBILITY BETWEEN I AND HIGHLY POLAR II. AN INTERLAYER PLASTICIZATION MECHANISM IS PROPOSED.

UNCLASSIFIED



1/2 030 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--POLYMERIC COMPOSITIONS BASED ON POLY(VINYL CHLORIDE) AND BUTADIENE  
STYRENE THERMOELASTIC PLASTIC MATERIALS FOR ARTIFICIAL LEATHER -U-  
AUTHOR--DENISENKO, I.S., KOVALEV, N.F., MISHUSTIN, I.U., ALEKSEYENKO, V.I.

COUNTRY OF INFO--USSR

SOURCE--KOZH., OBUV. PROM. 1970, 12(2) 44-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYVINYL CHLORIDE, BUTADIENE STYRENE RESIN, LEATHER,  
COPOLYMER, TENSILE STRENGTH, ELONGATION, FREEZING, PLASTICIZER (UN)USTRO  
BUTADIENE STYRENE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FPAMF--1989/0187

STEP NO--UR/0498/79/012/002/0044/0046

CIRC ACCESSION NO--AP0106843

UNCLASSIFIED



2/2 030

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107094

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A POLYESTER URETHANE (I) (BASED ON A PREPOLYMER PREPD. FROM POLY(OXYPROPYLENE) GLYCOL OF MOL. WT. 1000 AND 2,4-TOLYLENE DIISOCYANATE IN A MOLE RATIO OF 1:2) WAS MODIFIED WITH POLY(VINYL CHLORIDE) (II), CHLORINATED II, NITROCELLULOSE, AND A 30PERCENT ACRYLONITRILE VINYL ACETATE COPOLYMER (III) DISSOLVED IN HCONME SUB2. III MODIFIED I HAD SUPERIOR PHYSICOMECH. PROPERTIES, I.E. MIN. RIGIDITY AND VAPOR PERMEABILITY (3.9 MG-CM PRIME2 HR).

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--MODIFICATION OF POLYESTER URETHANES BY RIGID POLYMERS FOR PREPARING  
ARTIFICIAL LEATHER FOR CLOTHING -U-  
AUTHOR--(04)-FREIDGEM, K.I., ALEKSEYENKO, V.I., YABKO, YA.M., POLINSKIY,  
S.L.  
COUNTRY OF INFO--USSR

SOURCE--KOZH.-OBUV. PROM. 1970, 12(2) 41-4

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LEATHER, POLYURETHANE RESIN, POLYOXYPROPYLENE, GLYCOL, ORGANIC  
ISOCYANATE, POLYVINYL CHLORIDE, NITROCELLULOSE, ACRYLONITRILE,  
COPOLYMER, ACETATE, POLYMER PHYSICAL PROPERTY, PLASTIC MECHANICAL  
PROPERTY, CLOTHING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1989/0489

STEP NO--UR/0498/70/012/002/0041/0044

CIRC ACCESSION NO--AP0107094

UNCLASSIFIED

USSR

UBC 669.15.018.44

ALEKSEYENKO, N. N., GORYNIN, I. V., YEFIMOV, A. V., RAZOV, I. A., SIKORSKIY,  
U. F.

"Effect of Scale and Neutron Irradiation When Testing 15Kh2NFA Heat-Resistant Steel"

Metallovedeniye -- V sb. (Physical Metallurgy -- collection of works), No 14, Leningrad, Sudostroyeniye Press, 1970, pp 186-193 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 41635)

Translation: The effect of the scaling factor on improving the critical embrittlement temperature of 15Kh2NFA heat-resistant steel is studied. It is established that the magnitude of the scaling effect is reached in 80-100 mm samples, and it is ~50°. Neutron irradiation at 150° with a dose of  $10^{20}$  neutrons/cm<sup>2</sup> ( $E > 1$  megaelectron volt) lowers the scaling effect somewhat with an increase in sample size from 5 to 10 mm. It is demonstrated that low sensitivity of this steel to scale and also to loading rate and neutron irradiation arises from its alloying and uniform structure of the sorbite as a result of quenching and tempering. There are 2 illustrations, 6 tables, and a 14-entry bibliography.

1/1

2/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105179

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A THEORETICAL TREATMENT IS PRESENTED OF THE TEMP. DEPENDENCES OF THE MOBILITIES IN  $n$ -GaTe, TAKING INTO ACCOUNT THE EFFECT OF HETEROGENEITIES. AN ANAL. OF THE RESULTS SHOWS THAT IN A SUFFICIENTLY LOW OHMIC SAMPLE, THE VOL. OF THE  $n$ -GaTe OCCUPIED BY HETEROGENEITIES IS SMALL, BUT THE DISTANCE BETWEEN THEM IS COMPARABLE TO THE ELECTRON MEAN FREE PATH. IN A MORE HEAVILY COMPENSATED SAMPLE, THE VOL. OCCUPIED BY THE HETEROGENEITIES IS GREATER, THE DISTANCE BETWEEN THEM IS GREAT AND THE SCATTERING ON THEM IS LESS SIGNIFICANT. THE MOBILITY IN THIS CASE INCREASES WITH AN INCREASE IN TEMP. IN SUCH A SAMPLE, A RECOMPENSATED AREA MAY EXIST IN WHICH THE FERMI LEVEL LIES SIMILAR TO 0.6 EV FROM THE CONDUCTION BAND. ON THE BOUNDARY OF THESE REGIONS, AN ELEC. FIELD BARRIER IS FORMED, TENS OF EV IN MAGNITUDE. AS THE DEGREE OF COMPENSATION INCREASES, THE PROBABILITY OF THE FORMATION OF SUCH OHMIC REGIONS INCREASES AND, AS A RULE, THE MOBILITY AT ROOM TEMP. IS LOW.

FACILITY: FIZ. TEKH. INST. IM. IOFFE, Leningrad, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--EFFECT OF HETEROGENEITIES ON THE MOBILITY OF ELECTONS IN CADMIUM  
TELLURIDE -U-

AUTHOR--(03)-ALEKSEYENKO, M.V., ARKADYEVA, YE.N., MATVEYEV, O.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 414-16

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CADMIUM TELLURIDE, ELECTRON MOBILITY, CRYSTAL DEFECT, IMPURITY  
LEVEL, PARTICLE DISTRIBUTION, FERMI LEVEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0092

STEP NO--UR/0449/70/004/002/0414/0416

CIRC ACCESSION NO--AP0105178

UNCLASSIFIED

USSR

UDC 517.927

ALEKSEYENKO, M. I., Mogilev Machine-Building Institute

"On the Question of the Unique Solvability of a Linear, Periodic Boundary Value Problem"

Minsk, *Differentsial'nyye Uravneniya*, Vol 9, No 2, Feb 73, pp 203-210

Abstract: The article suggests a construction for the function of periodic boundary conditions and on this basis formulates a series of conditions for the unique solvability of the periodic boundary value problem

$$Ly = \sum_{l=0}^n p_l(t) y^{(l)} = f(t), \quad p_n(t) = 1, \quad y^{(i)}(0) = y^{(i)}(a), \quad i = 0, \dots, n-1.$$



UDC 669.15.018.8(088.8)

USSR

FEDOTOVA, L. S., ALEKSEYENKO, M. F., POTAK, YA. M., BELYAKOVA, V. A., ORZHEKH-  
OVSKIY, YU. F., SHEPETOV, V. A., TOPILIN, V. V., DORONIN, V. M., KLYUYEV,  
M. M.

"Stainless Steel"

USSR Author's Certificate No 276434, Filed 25 Jul 68, Published 13 Oct 70  
(from RZh-Metallurgiya, No 4, Apr 71, Abstract No 41637P)

Translation: A steel for operation at temperatures up to 600° is proposed with the following composition (in %): C 0.05-0.09, Cr 10.5-12, Ni 1.4-1.8, Mo 0.35-0.5, Nb 0.06-0.15, V 0.15-0.25, Si < 0.6, Mn < 0.6, Ce < 0.02. The ratio of the alloying elements satisfies the formula  $0.68\% \text{ Cr} + (\% \text{ Mo} + \% \text{ V} + \% \text{ Si}) + 0.5\% \text{ Nb} - (30\% \text{ C} + \% \text{ Ni} + 0.5\% \text{ Mn}) < 6.6$ . After quenching from 1,000° and tempering at 570°, at 20, 500, and 550° the steel has  $\sigma_B$  of 120, 70, and 55 kg/mm<sup>2</sup>,  $\sigma_T$  of 100, 75, and 55 kg/mm<sup>2</sup>,  $\delta$  of 12% and  $\psi$  of 60-65%, respectively;  $\sigma_{500}^{500}$  and  $\sigma_{100}^{550}$  are 56 and 32 kg/mm<sup>2</sup>, respectively.

1/1

USSR

UDC 539.67

KRIVONOGOV, G. S., MATVEYEV, V. V., ALEKSEYENKO, M. F., LIVSHITS, B. G.,  
and YAKOVLEV, A. P.

"Certain Regularities of Magnetic Hysteresis in Stainless Martensite Class Steels"

Sb. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 170-175

Abstract: The effect of temperature and static stresses on the magnitude of hysteresis losses in stainless steels of the martensite class, related mainly to the process of irreversible displacements of  $90^\circ$  domain walls, is studied.

Expressions are derived for the dependence of damping decrement on temperature, static stresses, and magnetomechanical hysteresis constants. The effect of various heat treatment conditions on magnetomechanical hysteresis is discussed. Good agreement was obtained between experimental and theoretical data. 4 figures, 5 references.

1/1

2/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121132

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRIME60 CO GAMMA RAYS (1-200 KRADS) AND 630 MEV PROTONS (1-100 KRADS) WERE USED, LETHAL DOSES BEING 150 AND 50 KRADS, RESP. NONE OF THE DOSES OF IRRADN. RESULTED IN AN INCREASE IN THE CROP. OVER THE DOSE INTERVAL OF 1-20 KRADS NO DIFFERENCES WERE FOUND BETWEEN THE ACTIONS OF PROTONS AND GAMMA RAYS. FOR HIGHER DOSES THE ACTION OF PROTONS WAS MUCH STRONGER THAN THAT OF GAMMA RAYS. IRRADN. WITH PROTONS IN LOW DOSES (1-5 KRADS) RESULTED IN A SLIGHT STIMULATION OF THE INITIAL GROWTH. FACILITY: INST.  
MED.-BIOL. PROBL., MOSCOW, USSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--BIOLOGICAL EFFECTIVENESS OF PROTONS AND GAMMA RAYS FOR CARROTS  
DURING PRESOWING IRRADIATION OF SEEDS -U-  
AUTHOR-(02)-GERTSUSKIY, D.F., ALEKSEYENKO, L.V.  
COUNTRY OF INFO--USSR  
SOURCE--RADIOBIOLOGIYA 1970, 10(1), 94-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--AGRICULTURE CRUP SEED, PROTON RADIATION BIOLOGIC EFFECT, GAMMA  
RADIATION, COBALT ISOTOPE, RADIATION DOSAGE, RADIATION PLANT EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/0458 STEP NO--UR/0205/70/010/001/0094/0097  
CIRC ACCESSION NO--AP0121132  
UNCLASSIFIED

# ALEKSEYENKO, L. V.

EFFECT OF FLIGHT FACTORS ON RADIATION DAMAGE TO CHROMOSOMES IN DORMANT PEA SEEDS

Article by L. V. Alekseyenko, L. N. Alekseyenko and K. A. Tsirupinskiy, Moscow, Soviet Journal of Microbiology, Vol. 9, No. 6, 1971, submitted for publication 25 June 1971, pp 31-32.

SO: JPRS 553100  
DT FIA 75

DOC 382736-148-110-5-576-311-327, 095, 14, 029, 78, 028

24-70 50720 (hd1934)

Abstract: Dormant pea seeds with a moisture content of 10-15 percent exposed before flight to UCB gamma irradiation in doses of 5 and 10 kilorads were carried aboard the Kosmos-368 artificial earth satellite during the postirradiation period. A synchronous experiment was conducted 5 days after the launching. The experiment consisted of the change in the ambient atmosphere aboard the satellite and was also filmed by a "transport" control camera of orbit and observational directions in real time. The damage in the pea chromosomes during the flight was determined from autoradiograms. The percentage of surviving cells, beyond analytical error, for each dose of irradiation with postirradiation results for the dormant seeds. An analysis of the experimental data by the statistical variations method revealed no effect from satellite flight, the ambient atmosphere, and delivery to the launchers. The damage level correlated only with the irradiation dose.

It is well known in radiobiology that irradiated dormant plant seeds react relatively evenly to different external factors by a decrease or increase in the degree of radiation damage. The many data from experimental investigations, which have not been accumulated enable us to postulate that irradiated dormant biological objects may prove to be suitable in studying the modifying influence exerted on radiation damage by spaceflight factors, constituting the overall and malisic effect. This paper gives the results of an experiment for studying the effect of spaceflight factors aboard the Kosmos-368 artificial satellite on radiation damage of chromosomes in dormant pea seeds.

ALEKSEYENKO, L. V.

SOJPRS 55100

4 FEB 72

UDC 629.78.048:582.699.4.057

CHANGE IN GROWTH PROCESSES IN IRRADIATED LETTUCE SEEDS

Article by Yu. I. Shandorov, A. I. Miller, ~~and L. V. Alekseyenko~~, ~~from the Institute of Space Biology, Moscow, U.S.S.R.~~, submitted for publication 25 June 1971. pp 11-27

Abstract: The effect of spaceflight factors on the biological effectiveness of X-rays was studied with respect to lettuce seeds. It was found that the flight exerted no significant effect on the energy of seed germination. The length of the primary root in flight specimens irradiated before flight was similar to that in the ground controls. According to this test, flight factors increased the effectiveness of postflight irradiation insignificantly. The influence of a synchronous exposure implied the weight of primary plants to the greatest extent. The seed exposure to all the doses tested during the flight resulted in a slight increase of plant weight in comparison with the laboratory controls.

We studied the influence of flight factors and ionizing radiation on initial plant processes (sprouting energy and germination of seeds, growth of the primary root), and also on the energy of germination at the initial period in ground plants. The experimental plan provided for a clarification of the influence of flight factors on the appearance of a radiobiological effect (seed irradiation prior to flight) and the realization of this effect (seed irradiation after flight). As is well known, the radiation effect on any seeds begins to appear when the weight of their primary root at that time one observes both the realization of the damage and the appearance of a radiobiological effect associated with a germination of plant seeds. During the initial period of the damage effect of radiation on plants is pronounced. With an increase in plant age recovery processes begin to predominate and the effect of small irradiation doses that the plant can be smoothed out.

272 028

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0131482

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETICS OF LN(BRO SUB3) SUB3 (LN  
EQUALS LA, PR, ND, SM, CD, DY, HO, ER, YB, LU, AND Y) THERMAL DECOMP.  
WAS STUDIED AT 160-280DEGREES IN A PURE N ATM. BY A SPRING BALLANCE  
METHOD. THE BROMATES WERE SYNTHETIZED FROM THE RESP. OXIDES AND HBRO .  
SUB3. THE EXPTL. DATA WERE TREATED ACCORDING TO THE EQUATION ALPHA  
EQUALS 1 MINUS EXP(MINUS KTAU PRIMEN) WHERE ALPHA EQUALS FRACTION OF  
DECOMP. BROMATE, TAU EQUALS TIME, K EQUALS REACTION RATE CONST., N  
EQUALS CONST.; THE ACTIVATION ENERGIES WERE COMPUTED. THE ACTIVATION  
ENERGIES OF BROMATE DECOMP. DECREASE IN THE LA-LU SERIES; THIS DECREASE  
IS EXPLAINED BY THE INCREASING ROLE OF CATION POLARIZATION IN THE SAME  
SERIES. FACILITY: TOMSK. GOS. UNIV. IM. KUIBYSHEVA, TOMSK,  
USSR.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--KINETICS OF THE THERMAL DECOMPOSITION OF RARE EARTH AND YTTRIUM  
BROMATES -U-  
AUTHOR-(03)-YAKUNINA, G.M., ALEKSEYENKO, L.A., SEREBRENNIKOV, V.V.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 60-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--BROMATE, RARE EARTH COMPOUND, CHEMICAL REACTION KINETICS,  
THERMAL DECOMPOSITION, YTTRIUM COMPOUND, ACTIVATION ENERGY, MATHEMATIC  
EXPRESSION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3004/0896 STEP NO--UR/0057/70/044/001/0060/0063  
CIRC ACCESSION NO--AP0131482  
UNCLASSIFIED



USSR

ODINTSOV, V. S., et al., Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 1, Jan/Feb 70, pp 224-226

treated with eserine. Microphotography showed that the dark-brown zones in the ganglia and connectors of the central nervous system of the larvae are areas of localization of the greatest acetylcholinesterase activity, leading to the conclusion that the intensity of the coloration may serve as a criterion of the intensity of acetylcholinesterase activity. It was histochemically established that acetylcholinesterase is highly active in certain zones of all ganglia of the central nervous system, particularly in the areas of the neuropil, synaptic connections, and peripheral zones. Slight coloration in other zones of the ganglia is an indication of low acetylcholinesterase activity. The high acetylcholinesterase activity in the central nervous system of the wintering larvae of gnats indicates that the property of continuous development is characteristic of this species, and is responsible for the large increase of the spring population of these particularly vicious blood-sucking insects.

2/2

USSR

A  
UDC 591.8:577.4:591.481:595.774  
ODINTSOV, V. S., TERTYSHNYY, V. N., and ALEKSYENKO, I. P., Institute  
of Organic Chemistry, Academy of Sciences Ukrainian SSR, Kiev

"Localization of Acetylcholinesterase Activity in the Central Nervous  
System of Larvae of Blood-Sucking Gnats (Diptera; Simuliidae) Develop-  
ing in Winter."

Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 1, Jan/Feb 70, pp  
224-226

Abstract: Young larvae of blood-sucking gnats (species *Simulium*),  
obtained from forest ponds and streams in the Kiev area in January,  
1969, were used. With the help of specially prepared needles, the  
nervous network was exarticulated from the larvae, placed in icecold  
distilled water, and (after fixation) incubated in a medium from which  
 $Pb(NO_3)_2$  was excluded. Acetylthiocholine iodide was used as a sub-  
strate. Hydrogen sulfide in Ringer solution was used to impart a  
dark-brown color to the colorless copper thiocholate. The nervous  
network was then washed with distilled water, treated with 10% neu-  
tral formalin, washed again, and embedded in glycerin-gelatin. In  
control experiments, the nervous network prior to incubation was  
1/2

USSR

UDC 621.311.21(282.247.32):624.146.2.004.28

ALEKSEYENKO, I. E., engineer

"Ice Problems at the Dniepro GES imeni V. I. Lenin"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 1, January 1971, pp 28-31

Abstract: In the spring of 1954 difficulties were experienced at the DnieproGES with chunks of ice of 2 to 4 square meter being sucked to the inlet racks of unit No 9 resulting in pressure drop across the racks of 2 meter which is the strength limit of the rack. The turbine gates were partly closed to reduce the flow and therefore the pressure drop across the rack, the ice chunks were then washed out by the flow of water the temperature of which was 0.2 to 0.3°C.

In January 1969 a lengthy storm with low air temperature resulted in super-cooling of water and formation of slush to the depth of 20 meters. This slush caused icing along the entire height of the inlet racks. The thickness of the porous laminar ice exceeded 50 cm. There was some damage to the racks and to the hoisting equipment when the racks were raised for removing the ice.

1/1

USSR

GUREVICH, S. M., et al., Avtomaticheskaya Svarka, No 3, Mar 71,  
pp 27-29

molybdenum-carbon-iron alloys increases.

The mean hardness of welded joints of molybdenum alloys with  $\delta = 1$  mm at various distances from the weld is plotted. These data show that an increase in hardness along the axis of the weld and a decrease at the fusion line are especially characteristic for alloys of the molybdenum-carbon system. Group VIII alloying of molybdenum with carbon leads to a smoother variation of hardness with respect to joint cross section; irridium and nickel have the most favorable effects.

2/2

USSR

UDC 621.791.011:669.28

GUREVICH, S. M., NERODENKO, M.M., ~~ALEKSEYENKO, G. N.~~, Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences, Ukrainian SSR, BIRYUKOVA, T. A., and SHCHUKYN, A. A., Moscow

"Weldability of Some Molybdenum Alloys"

Kiev, Avtomaticheskaya Svarka, No 3, Mar 71, pp 27-29

Abstract: A study was made of the weldability of molybdenum alloyed with carbon and group VIII elements (iron, cobalt, nickel, and irridium). The test procedure is described, and the mechanical properties of welded joints of the molybdenum alloys are tabulated. It was found that iron, cobalt, nickel, and irridium refine the structure of the weld. Group VIII elements increase the difference between the ultimate strength and yield point of joints made of alloys of molybdenum with carbon. In the entire investigated range of concentrations of these elements, the ratio  $\sigma_{0.2}/\sigma_B$  during bending is minimal for joints of molybdenum-

carbon-nickel and molybdenum-carbon-irridium alloys. With an increase in iron content the ultimate strength of the joints of

1/2

USSR

ALEKSEYENKO, G. N., et al, Avtomaticheskaya svarka, No 4, Apr 72, pp 47-49

promotes strengthening of the metal bond in the boundary layers owing to the localized increase of electron concentration. This strengthening of grain boundaries by nickel appears to be the determining factor in raising the plasticity of TSM-3 alloy in recrystallized state. (2 illustrations, 3 tables, 4 bibliographic references)

2/2

Heat Treatment

USSR

UDC 621.791.856:669.28

ALEKSEYENKO, G. N., NERODENKO, M. M. (Electric Welding Institute imeni YE. O. PATON, Academy of Sciences Ukrainian SSR), BIRYUKOVA, T. A., DANIELYAN, T. A., MAL'TSEV, M. V., FREZE, N. I., and SHCHUKIN, A. A. (Moscow)

"Effect of Heat Treating on the Properties of Molybdenum-Carbon-Nickel Alloys and Their Weld Joints"

Kiev, Avtomaticheskaya svarka, No 4, Apr 72, pp 47-49

Abstract: The study deals with the properties of intermediate products from TSM-3 structural molybdenum alloy (0.05-0.10% wt % C and 0.01-0.10% Ni) following annealing. The specimens were tensile-tested at room temperature, at  $2.5 \cdot 10^{-3} \text{ sec}^{-1}$  deformation rates and were arc-welded in a controlled inert-gas atmosphere. The specimens were pre-annealed for 1 hour in vacuum ( $10^{-5} \text{ mm Hg}$ ) at 800, 1100, 1200, 1300, 1400, 1500, 1600, and 1700°C. Metallographic examinations indicate that recrystallization begins at 1200°C and is completed at 1400°C. Maximum plasticity was shown by specimens with a completely recrystallized structure. Pre-annealing appears to upgrade the weld quality. Nickel tends to concentrate along the grain boundaries and not only hinders carbon diffusion, but also

1/2

USSR

UDC 575.1:591.526+576.8.095.14

DUBININ, N. P., SHEVCHENKO, V. A., ALEKSEYENOK, A. Ya., CHEREZHANOVA, L. V.,  
and TISHCHENKO, Ye. M.

"Genetic Processes in Populations Exposed to Ionizing Radiation"

Moscow, Uspekhi Sovremennoy Genetiki, No 4, 1972, pp 170-205

Abstract: The article is a review of experimental and theoretical studies concerned with the effects of radiation on populations and biocenoses. It summarizes and systematizes the published data and the authors' long-term observations on the genetic processes that take place in populations chronically and protractedly exposed to radiation. It also examines and discusses the processes at work in populations of unicellular organisms (microalgae), higher plants, and mammals. The genetic adaptation of populations to chronic, protracted radiation is discussed, 13 tables, 13 illustrations, bibliography of 7 references.

1/1



USSR  
ALEKSEYCHIK, M. I.

UDC: 517.9

"The Significance in a Differential Game of Specified Duration"

Moscow, Prikladnaya Matematika i Mekhanika, vol 36, No 2,  
189-200

Abstract: In this differential game the first player tries to minimize the value of a functional reward while the second tries to counteract his opponent's attempts. The problem the author sets himself is to investigate directly the existence of a significance in this game. While such an investigation would encounter insuperable obstacles when directed at a continuous game, it is susceptible of solution if the game is considered to be discrete -- i.e., of specified duration -- when the game becomes an approximation of some set of games in various steps. Two sequences, consisting of minimum and maximum values of the reward in these discrete games, are considered. If the sequences converge to a common limited value, that value is defined as the generalized significance of the differential game. The game itself is an extension of a proposal by R. Ayvaks in his book, Differentsial'nyye igry (Differential Games) published by "Mir," 1967.

1/1

USSR

UDC: 621.317.335.029.64

ALEKSEYCHIK. L. V., KAZANTSEV, Yu. A.

"On a Resonance Method of Measuring Permittivity in the Centimeter Wave Band"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 71-72 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A344)

Translation: The authors give equations for the wave numbers inside and outside of the dielectric cavity for a system made up of a dielectric resonator excited in the  $TE_{11\delta}$  mode and a small ferrite ZhIG sphere located in the external field of the resonator. It is shown how the wave numbers and resonance frequency of the sphere can be experimentally found and used for determining permittivity  $\epsilon$ . The high accuracy of the method is noted ( $\leq 1\%$  error). The method should be used for values of  $\epsilon$  in the range from 50 to 5000 for materials with small losses ( $\tan\delta < 10^{-3}$ ) in the centimeter wave band. Bibliography of two titles. E. L.

1/1

USSR

UDC 577.1:615.7/9

KUZIV, R. S., and ALEKSEVICH, Ya. I.

"Effect of Qualitatively Different Protein on Some Biochemical Indices of the Blood of Animals Subjected to the Action of Elemental Sulfur"

Faktory vneshn. sredy i ikh znachenije dlya zdorov'ya naseleniya. Resp. mezhved. sb. (Ambient Factors and Their Significance for Public Health. Republic Interdepartmental Collection), 1970, vyp. 2, pp 51-55 (from RZh-Biologicheskaya Khimiya, No 5, 10 Mar 71, Abstract No 5F2057)

Translation: Prolonged (4 months) introduction of elemental sulfur (9.3 mg/kg per day; daily) into the stomach of rats led to development of activity of catalase and peroxidase of the blood and reduced the concentration of SH groups. There was almost no change in the total concentration of blood proteins, albumins and globulins. The addition of casein to the ration normalized the biochemical indices, which the authors attribute to a reduction of intoxication. The introduction of soybean protein or meat was less effective.

1/1.

2/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70  
CIRC ACCESSION NO--AP0129470  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RECOVERY PHENOMENA EXHIBITED BY MARAGING FE,NI,MO, FE,NI,TI, AND FE,NI,MO,CO ALLOYS WERE STUDIED. THE EXTENT OF THE RECOVERY PROCESS DEPENDED ON THE DEGREE OF DECOMPOSITION OF THE SOLID SOLUTION AND THE DIFFERENCE BETWEEN THE TEMP. OF PRELIMINARY AGEING AND RECOVERY IN EACH CASE. THE EXTENT OF THE RECOVERY ALSO DEPENDED TO SOME EXTENT ON THE PROPORTION OF CO IN THE ALLOYS. IN SOME CASES A METASTABLE PHASE WAS FORMED DURING THE LOW TEMP. AGEING OF THE FE,NI,MO,CO ALLOYS.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--PHENOMENON OF RECOVERY IN ALLOYS WITH AGEING MARTENSITE -U-  
AUTHOR-(03)-ALEKSENKO, E.A., KULINICHEV, G.P., PERKAS, M.D.  
COUNTRY OF INFO--USSR A  
SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 335-339  
DATE PUBLISHED----FEB70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--SOLID SOLUTION, CHEMICAL DECOMPOSITION, IRON ALLOY, NICKEL  
ALLOY, MOLYBDENUM ALLOY, COBALT ALLOY, TITANIUM ALLOY, METAL AGING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3003/0214 STEP NO--UR/0126/70/029/002/0335/0339  
CIRC ACCESSION NO--AP0129470  
UNCLASSIFIED

ABSTRACT  
UDC 621.383.6  
Physical Models of Low-Frequency Filters and Instabilities in the Operation of the Structures of the Средночастотный коллекторный транзистор in the Collection Средночастотный коллекторный транзистор by V. V. Lukin, No 5, P. 6. Sovetskoye Radio Publishing House, 1972.

This article gives a classification and comparative analysis of known physical models of low-frequency noise and instability in the electrical characteristics of the structures. The interrelationships of the physical models that produce noise and instability is emphasized. Several methods are examined for decreasing instability and noise.

The article contains 13 figures and 44 bibliographic references.

UDC 621.383.6-021.383.14.13  
Basic Parameters and Equivalent Circuits of Integrated Parametric Amplifiers. A. A. Kozlov, A. A. and S. M. Lukin in the Collection Микроэлектроника edited by V. V. Lukin, No 5, P. 27. Sovetskoye Radio Publishing House, 1972.

An evaluation is given of the possibility of using the noise use of integrated circuits of parametric amplifiers in microelectronic equipment for processing analog signals. Conditions are examined for supplying signals to the operational amplifier, its equivalent circuits and basic parameters.

The article contains 14 figures, 3 tables, and 20 bibliographic references.

ALEKSENKO, A. G.

Microelectronics

ISSN 07333  
25 October 1972

MICROELECTRONICS

Excerpt from Russian-language book edited by P. V. Lukin, Mikroelektronika, No. 5, 1972, Sovetskoye Radio Publishing House, Moscow, URN 621-382:621.396:6-161.5.

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USSR

ALEKSENKO, A. G.

"On Requirements for Engineers in the Design and Production of Microelectronic Equipment"

Kiev, IVUZ Radioelektronika, Vol 14, No 11, Nov 71, pp 1385-1387

Abstract: The author discusses the nontraditional requirements which must be met by engineers working in the design and production of microelectronic equipment. These requirements are based on the necessity for integration of information separated by professional barriers relating to such areas as cybernetics, physics, chemistry, technology, precision instrument building, circuit engineering, applied mathematics and systems engineering. Some general requirements are outlined for a system designed for training such specialists. Bibliography of fourteen titles.

1/1



USSR

UDC: 621.396.6-181.5

ZOLOTAREV, T. V., OSTAPENKO, G. S., PETROV, L. N., UDOVIK, A. P.,  
ARAKCHEYEVA, I. A., NIKISHIN, V. I., and ALEKSENKO, A. G.

"Effect of Distributed Capacitance and Geometric Dimensions of  
Monolithic Circuit Resistors on Their Frequency Characteristics"

Kiev, Investiya VUZ--Radioelektronika, Vol. 13, No. 10, pp 1272-1275

Abstract: This brief communication deals with parasitic effects in integrated circuits manufactured by the planar-epitaxial process, with the elements separated by p-n junctions. The resistors in such a circuit are inserted by diffusion methods, and are thus especially subject to parasitic elements including a distributed transistor and distributed capacitances of p-n junctions. As proof, the cross section of an integrated circuit with its diffusion resistor is shown, and with it the equivalent circuit. From this circuit, the authors conclude that the frequency effect of the resistor is inversely proportional to the width of the resistor --- at least up to the practical limit of resistor width, which is about 10  $\mu$ . Nomograms are shown which can be used for determining the geometric dimensions and limiting frequency of the monolithic resistors from the known resistance values, or the reverse. A plot of the frequency characteristics of two monolithic resistors is also given.

1/1

USSR

UDC 621.382.8-416

ALEKSENKO, A.G., CHESNOKOV, M.N.

"Topological Transformation During Design Of Film Hybrid Integrated Circuits"

V sb. Mikroelektronika (Microelectronics--Collection Of Works), Moscow, Izd-vo "Sovetskoye Radio," No 4, 1971, pp 133-140

Abstract: The paper describes the principal steps of the topological design (i.e., determination of the "geometry" of the components, their efficient disposition on the substrate, and the composition of the connection diagram assembly as applied to the type of construction of the body provided) of film hybrid microcircuits and the method of transformation of the passive part of a network [tsep'] based on the shifting of the edge of the graph. An example is given of design sketches of the arrangement on the substrate of components of hybrid integrated circuits. 4 fig. 5 ref.

1/1

USSR

UDC 521.122 + 546.732'131 + 547.496.3

ALEKSENKO, V. A., DULOVA, V. I., and KREMLEV, M. M., Dnepropetrovsk  
Chemical-Technological Institute imeni F. E. Dzerzhinskiy

"Complex Formation of  $\text{CoCl}_2$  With N-Aryl-N'-diphenoxythiophosphonothioureas"

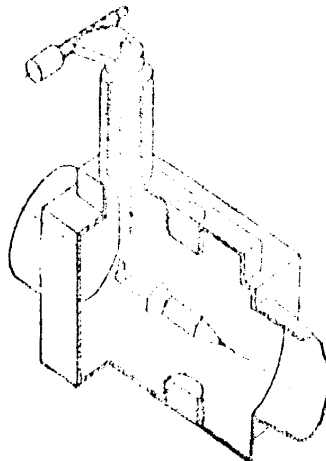
Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2211-2216

Abstract: A series of novel N-aryl-N'-diphenoxythiophosphonothioureas has been synthesized and their ionization constants have been determined. The complex formation of these phosphonothioureas with  $\text{CoCl}_2$  in acetone has been investigated spectrophotometrically. It has been shown that the graduated instability constants of these complexes are correlated with Hammett's constants. Some of the complexes formed have been isolated; their structure and properties have been studied, the IR spectra were reported.

1/1

USSR

KOPTEV, V. I. et al., Soviet Patent No 304586



2/2

USSR

USSR: 00.7.010.1

KOPEV, V. I., ALKHAZIN, L. V., MARSHOV, Ye. S., PUPKOV, V. V.,  
STEKHEV, K. A.

"A Device for Determining the Angle of Attack of a Model in a Wind Tunnel"

Moscow, Otkrytiya, Izobreteniya, Prikladnyye Obraztzy, Tekhnika, Zhuki,  
No 2, Jan 72, Author's Certificate No 22536, Division G. USSR Patent  
published 23 Dec 72, p 135

Translation: This Author's Certificate introduces a device for determining the angle of attack of a model in a wind tunnel. The device contains a mechanism for setting angles of attack, a model holder, and recording equipment. The angle-setting mechanism is mounted in the rear section of the wind tunnel. As a distinguishing feature of the patent, the unit is designed for improved precision in determining the angle of attack in any plane. Fastened to the walls of the working section of the wind tunnel are the poles of a permanent electromagnet, and a pickup coil responds to a change in the axial position of the current-carrying coil. This is installed in the model or in the holder along with the model.

1/2

ALEKSAR YAN, I. V.

SO: JPRS 54940  
20 DEC 71

UDC: 614.355 (049.3)

MILITARY SOCIAL HYGIENE AND MODERN TIMES

*(Public Health)*

Article by Professor I. V. Aleksaryan, U.A. Yarobov, Moscow, Sovetskoye Sotsializm, Russian, No. 11, 1971, submitted 22 May 1971, pp 41-45

Soviet public health is a well organized and comprehensive system of socioeconomic and medical measures directed toward the prevention and treatment of disease, to provide for optimum development of the growing generation, and create healthy working and living conditions. The scientific theoretical basis of public health is social hygiene, the science that deals with national health protection, with the social bases of medicine and public health.

The organic unity of social hygiene and Soviet public health organization ensures the undividedness of theory and practice in our country. The main objective of social hygiene is to analyze the main patterns determining the correlation between health and public health care and social conditions, and to provide a Marxist-Leninist solution to the problem of correlation between social and biological elements. The results of such analysis predetermine the necessary theoretical bases for elaboration of a system of practical public health measures as a whole and in the different branches of public health in accordance with the achievements in science and practice.

An extremely important section of social hygiene is investigation of the different aspects of the problem related to the effect of wars on the health of the people, investigation of the means of reducing the adverse effect of wartime factors on the health of the people, and development of measures to increase the effectiveness of therapeutic and preventive care for all population groups in wartime.

The timeliness of development of this section of social hygiene is determined by the fact that aggressive imperialistic forces still exist and are active in the modern world. The original aggression of the USA against the nations of Indochina continues, based in being shed in different parts of the

with reference to the article by M. Gavrilov, "Formation and Tasks of the Social Hygiene of War," *Sovetskoye Sotsializm*, No. 7, 1971.

Public Health

USSR

ALEKSANDROV, A. P., et al., Optika i Spektroskopiya, Vol 29, No 6, Dec 70, pp 1064-1069

$C_{nh}$ ,  $S_n$ ,  $D_n$ ,  $D_{nd}$ ,  $D_{nh}$  with  $n \geq 2$  remain constant in atom substitutions on the isolated axis of molecular symmetry  $\alpha$ , coinciding with the principal axis  $\alpha$  of the inertia tensor.

3. The partial derivatives  $\frac{\partial I_{\alpha\alpha}}{\partial q}$  and constants  $t_{\alpha\alpha}$  of molecules belonging to the point groups  $C_n$ ,  $C_{nv}$ ,  $C_{nh}$ ,  $S_n$ ,  $D_n$ ,  $D_{nd}$ ,  $D_{nh}$  with  $n \geq 3$  and  $V_d$  remain constant in atom substitutions on the isolated axis of symmetry  $\alpha$ , coinciding with the principal axis  $\alpha$  of the inertia tensor.

2/2

USSR

UDC 539.194.01

ALEKSANDROV, A. P., ALIYEV, M. R., and ALEKSANYAN, V. T.

"Isotopic Relations Between Centrifugal Expansion Constants of Polyatomic Molecules"

Leningrad, Optika i Spektroskopiya, Vol 29, No 6, Dec 70, pp 1064-1069

Abstract: The article formulates a number of general relations between the centrifugal expansion constants of polyatomic molecules of the product rule and sum rule type. Relations are obtained for a number of particular cases which are important in practice. The following conclusions are stated:

1. Isotopic substitution of an atom in the center of gravity of a molecule leaves unchanged the values of all derivatives  $\frac{dI_{\alpha\alpha}}{dq}$ ,  $\frac{\partial I_{\alpha\alpha}}{\partial q}$  and the corresponding  $\tau$ -constants.
2. The partial derivatives  $\frac{\partial I_{\alpha\alpha}}{\partial q}$  and constants  $\tau_{\alpha,\alpha,\alpha,\alpha}$  of molecules belonging to the point groups  $C_n$ ,  $C_{nv}$ ,  $1/2$



USSR

PAPAYAN, G. L., et al., Biologicheskii Zhurnal Armenii, Vol 23, No 5, May 70,  
p 107

A broncho-spasmolytic effect is also observed. Administered in minimum doses to decerebrate cats with natural breathing occluded by opening of the chest, it reduces the bronchial spasm produced by intravenous introduction of proserine.

The results obtained in this study of preparation 2134 on the curarizing effect produced by curariform substances permit the conclusion that the preparation has a selective antagonistic effect with respect to depolarizing relaxants. The anticurarizing effect of the preparation is particularly pronounced when it is administered beforehand.

A similar property which is observed in compounds of the furan series should serve as a basis for directed synthesis of more effective anticurarizing preparations which counteract the effect of relaxants.

2/2

Pharmacology and Toxicology

USSR

UDC 615.785.3

PAPAYAN, G. L., ASRATYAN, S. N., and ALEKSANYAN, R. A., Institute of Fine Organic Chemistry, Academy of Sciences Armenian SSR

"The Effect of Preparation 2134 on the Curarizing Effect of Drugs with Depolarizing Action"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 23, No 5, May 70, p 107

Translation: It has been established in studies with narcotized and decerebrate cats that the new preparation 2134 (from furan derivatives) exerts an anti-curarizing effect when administered in minimum quantities. The drug especially restores skeletal muscles, which are weakened by the effect of the usual doses of relaxants of the depolarizing type (ditiline, listenone, and decamethonium); it almost completely restores the depressed respiration produced by these relaxants.

Initial introduction of preparation 2134 in a dose of 0.5 mg/kg prevents relaxation and depression of respiration produced by twice the dose of the aforementioned depolarizing relaxants.

Preparation 2134 does not exert a significant influence on the curarizing effect of relaxants of a competitive type of action (paramyon and diplacin).

1/2

Pharmacology and Toxicology

UDC 541.69+547.554

USSR

MNDZHOYAN, A. L., (DECEASED), MARKARYAN, E. A., ALEKSANYAN, R. A., KHORENYAN, G. A., BALAYAN, R. S., and ARUSTAMYAN, ZH. S., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Academy of Sciences Armenian SSR, Yerevan

"Derivatives of Arylalkylamines. II. Constitution and Physiological Activity of Some Substituted Arylalkylamines and Their Derivatives"

Yerevan, Armyanskiy Khimicheskly Zhurnal, Vol 24, No 8, 1971, pp 703-713

Abstract: By condensing the chlorides of substituted phenylacetic, diphenylpropionic, and diphenylacetic acids with phenyl- and phenoxyisopropylamine, amides I were prepared. Reduction with  $\text{LiAlH}_4$  converted compounds I into the substituted arylalkylamines II. By cyclizing the amides according to Bishler-Napieralski and then reducing, tetrahydroisoquinoline derivatives III were synthesized. By reacting phenylisopropylamine with indanones and reducing the ketimines that formed, aminoindans IV were obtained. Hydrochlorides of compounds II, III, and IV were effective as coronary dilatants (table). The formulas and properties of compound I and of the hydrochlorides of II and III are listed in tables.

1/1

USSR

MNATSAKANYAN, V. A., et al., Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 1, 1972, pp 66-72

physical constants, such as  $n_D^{18}$ ,  $[\alpha]_D^{17}$ ,  $R_f$  for thin-layer chromatography, IR spectral data and others, are given for the compounds and their methiodides.

USSR

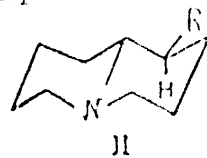
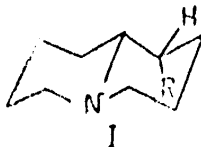
UDC 547.94+547.834.2

MNATSAKANYAN, V. A., ARUTYUNIAN, L. S., ALEKSANYAN, R. A., and KARASHYAN, E. S.,  
 Institute of Fine Organic Chemistry imeni A. L. Mndzhoyana, Academy of Sciences  
 SSR (Yerevan)

"Modification of Alkaloid Structures. V. Some Alcohols of the Lupinine and  
 Epilupinine Series"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 1, 1972, pp 66-72

Abstract: A series of eight amino alcohols, homologs derived from the  
 (-) lupinine (structure I,  $R = CH_2OH$ ) and its diastereomer (+) epilupinine  
 (structure II,  $R_1 = CH_2OH$ ) were synthesized from (-) lupinine.



The influence of their methiodides on the ring circulation was studied. Both  
 forms were obtained for  $R = R_1 = CH_2CH_2CH_2OH$ ,  $CH_2O-(CH_2)_3OH$ ; only I was obtained  
 for  $R = CH_2CH(CH_2OH)_2$ ; and only II was obtained for  $R_1 = CH_2CH_2OH$ . A number of

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USSR

ALEKSANYAN, A. G., et al., Kvantovaya Elektronika, No 3, 1971, pp 15-22

per unit of time per unit of volume by extrinsic radiation or the electron beam, respectively, and to connect the value of  $Q$  with the extrinsic pumping. The article contains 5 figures and a bibliography of 25 entries.

2/2

USSR

UDC 621.373.5

ALEKSANYAN, A. G., POLJEKTOV, I. A., and POPOV, YU. M.

"The Influence of Impurity Concentration on the Threshold Characteristics of Semiconductor Lasers"

Moscow, Kvantovaya Elektronika, No 3, 1971, pp 15-22

Abstract: This article first summarizes previous research on the stated problem and then proceeds to examine the threshold characteristics of semiconductor lasers as a function of the degree of doping and temperature in the model of optical transitions from the parabolic conduction band to the impurity acceptor band with a gaussian distribution of the state density. The authors have computed the amplification factor and the rate of spontaneous recombination; they also found the dependence of the threshold current, the Fermi quasi-levels, and the generation frequency of the semiconductor laser on the impurity concentration and temperature. Formulas and graphs are used to demonstrate their findings and show the influence of impurity concentration on threshold characteristics. The results obtained in this article may also be used to investigate the threshold characteristics of semiconductor lasers excited optically and electronically. It is necessary only to re-define the meaning of the term  $Q$  as the number of electron-hole pairs created

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USSR

UDC 621.375.82

ALEKSANYAN, A. G., POLUEKTOV, I. A., POPOV, Yu. M.

"Light Amplification Coefficient in Highly Doped Semiconductors"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works),  
No. 2, Moscow, "Sov. radio", 1972, pp 77-83 (from RZh-Fizika, No 10,  
Oct 72, Abstract No 10D987)

Translation: The light amplification coefficient was calculated for interzonal transitions in a semiconductor under conditions of high doping. Analytical expressions were obtained for the Fermi quasi levels of electrons and holes which are applicable over a wide range of temperatures and admixture concentrations. The qualitative features of the results are discussed. Examples of a calculation of laser threshold characteristics for this type of optical transition are given. 12 ref. Authors abstract.



USSR

UDC: 621.378.35+535.345.1

ALEKSANYAN, A. G., POLUKTOV, I. A., POPOV, Yu. M.

"Light Amplification Factor in Heavily Doped Semiconductors"

Moscow, Evantovaya Elektronika, Sbornik Statey, No. 2(8), 1977,  
pp 77-83

Abstract: The coefficient of light amplification is computed for transitions between bands in a semiconductor under conditions of heavy dopant injection. Analytical expressions are found for the Fermi quasi-levels of electrons and holes, applicable over a wide range of temperatures and dopant concentrations. The qualitative particulars of the results are discussed. Examples are given of calculation of the laser threshold characteristics for the given type of optical transitions. The author thanks B. G. Yelitsyev for constructive criticism. Two illustrations, bibliography of twelve titles.

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USSR

UDC 621.373.421.1(088.8)

ARTYM, A. D., ALEKSANYAN, A. A., SIVERS, M. A., Leningrad Polytechnical Institute  
imeni Kalinin

"A Generator of Harmonic Oscillations"

USSR Author's Certificate No 258393, Filed 26 Feb 68, Published 14 Apr 70 (From  
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D375)

Translation: This Author's Certificate introduces a generator of harmonic oscillations with AM dephasing. The oscillator is based on controlled diodes and contains a DC voltage supply source, charging and discharging chokes, commutators, a resonance tank system, and a source of controlling voltage (phase or time modulator). To extend the modulation range while simultaneously assuring high linearity of the modulation characteristic, the charge-discharge chokes are equipped with auxiliary recuperation windings, each of which is connected through an isolating diode to the supply source of the oscillator. V. P.

1/1

USSR

UDC (539.551+531.424):(546.24+546.683-143)

ANDRIANOVA, T. N., ALEKSANDROZ, A. A., OKHOMIN, V. S., RAZUMEYCHENKO, L. A.,  
PANINA, Z. I.

"Viscosity and Density of Melts in the Thallium-Tellurium System"

Teplofizika Vysokikh Temperatur, Vol 9, No 5, 1971, pp 934-937.

Abstract: Results are presented from studies of the viscosity and density of melts in the thallium-tellurium system in the concentration interval from 32 at.% Te to 100% Te and in the temperature interval from the melting point to 1,300°K. Analysis of the isotherms of the properties studied shows the existence in the liquid phase of the stable compound  $Tl_2Te$ , which does not dissociate over a broad temperature range. An analysis is presented of structural changes in melts of the concentrations studied.

1/1

2/2 009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0137716

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REDN. OF THE LOWER TI  
CHLORIDES PROCEEDS IN SEVERAL STAGES. TICL SUB3 PLUS 3NA EQUALS TI PLUS  
3 NA CL; TICL SUB3 PLUS NA EQUALS TICL SUB2 PLUS NA CL; TICL SUB2 PLUS 2NA  
EQUALS TI PLUS 2NA CL. THIS REDN. CAN BE CONSIDERED THE RESULTS OF A  
CLOSED CIRCUIT ELEC. CELL IN WHICH CURRENT IS GENERATED BY THE REACTION  
2NA SUB2 PRIME POSITIVE PLUS TI PRIME2 POSITIVE YIELDS 4NA PRIME  
POSITIVE PLUS TI.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--MECHANISM OF THE REDUCTION OF LOWER CHLORIDES OF TITANIUM WITH  
SODIUM -U-  
AUTHOR--ALEKSANDROVSKIY, S.V. A  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., TSVET. MET. 1970, 13(1), 48-52  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--SODIUM CHLORIDE, CHEMICAL REDUCTION, TITANIUM CHLORIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3008/0631 STEP NO--UR/0149/70/013/001/0048/0052  
CIRC ACCESSION NO--AT0137716  
UNCLASSIFIED

USSR

UDC 669.721.725.018.9

TAYTS, A. Yu., ALEKSANDROVSKIY, S. V., ABROSIMOVA, Ye. N., PETROVA, F. A.,  
KHABAROVA, N. P.

"Study of the Process of Production of Magnesium Alloy, Alloyed With Beryllium"

Tr. Vses. N-i. i Proyechn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 144-149. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G201 by the authors).

Translation: A technology is described for production of a casting alloy in the Mg-Al-Zn-Mn system (type Mg55) with Be added. Due to the addition of Be, the oxidation of the alloy during melting and pouring is sharply reduced, allowing a decrease in the consumption of S and flux, and the losses of alloy with the bottom sediment are also decreased. Due to the poor solubility of Be in Mg, a 2 or 3 times excess quantity must be introduced to the charge. The influence of slight ( $5 \cdot 10^{-4}$ - $15 \cdot 10^{-4}\%$ ) additions of Be on the structure, and mechanical and corrosion properties of the alloys is studied. The introduction of up to 0.008% Be to the Mg alloy does not result in significant enlargement of the grain, the mechanical properties are not reduced, and the corrosion properties are even increased. The production of Mg alloy with addition of Be has been undertaken on the commercial scale. 3 figs; 1 table; 5 biblio refs.

1/1

USSR

UDC 669.721.042.6

ALEKSANDROVSKIY, S. V., VLASOV, V. A., LIBERMAN, M. D., POSKANENKOV, V. V.

"Experience in Production of Castings of Magnesium Alloys by Casting Under Pressure for Various Machine-Building Products"

Tr. Vses. N-i. i Proyechn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 155-162. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G194 by the authors).

Translated: A description is presented of the manufacture of various products (hand and portable tools, motorcycles, motor vehicles) with Mg alloy parts. The parts were produced by casting under pressure. The results of testing have shown the possibility of industrial application of Mg alloys in place of aluminum alloys. 5 figs, 1 table.

1/1

Explosives and Explosions

USSR

UDC 541.427.6

MERZHANOV, A. G., ZELIKMAN, Ye. G., and ALEKSANDROVSKAYA, Ye. D.

"Theory of Degeneration of Thermal Explosion"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 2, Feb 71, pp 379-382

Abstract: Experimental data are reported in support of the sequence proposed by the authors for the degeneration of thermal explosion. The kinetics and thermal explosion were studied of two model reactions of tetryl; an auto-catalytic reaction and a first-order reaction. Degeneration characteristics were determined from the experimental data for the reactions tetryl-picric acid and tetryl-limestone. Experimentally obtained values agreed well with the theoretically calculated ones.



2/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0132496

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC STUDIES REVEALED THAT ONE OF THE LIGANDS FROM THE  $\text{Co}(\text{ALCL SUB4})\text{SUB2}$  COMPLEX WERE READILY SUBSTITUTED BY  $\text{ALCL SUB3}$  THIOPHENE (I) TO GIVE A CATALYST CAPABLE OF INITIATING CIS 1,4 POLYMER. OF BUTADIENE. THE MOL. WT. OF POLYBUTADIENE INCREASED WHENEVER THE CONCN. OF  $\text{CoCl SUB2 ALCL SUB3 I}$  WAS INCREASED, PRESUMABLY DUE TO HIGHER CONCN. OF THE CATALYST AND OF  $\text{ALCL SUB3 I}$ , WHICH WAS ALWAYS FORMED ALONG WITH THE CATALYST. FACILITY: MOSK. INST TCHKGI KHIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--NATURE OF ACTIVE CENTERS DURING BUTADIENE POLUMERIZATION ON COBALT  
CATALYSTS -U-  
ALTHGR-(04)-BYRIKHIN, V.S., FEDOROV, N.P., ALEKSANDROVSKAYA, O.I.,  
MEDVEDEV, S.S.  
CCUNTRY OF INFC--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(30, 589-92  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--BUTADIENE, POLYMERIZATION, COBALT COMPLEX, CATALYST, ALUMINUM  
COMPOUND, THIOPHENE, POLYBUTADIENE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3005/0224 STEP NO--UR/0020/70/191/003/0589/0592  
CIRC ACCESSION NO--AT0132496  
UNCLASSIFIED

UNCR

ANDREYEVSKAYA, E.K., Gidrotekhnicheskoye Stroitel'stvo, No 4, April, 1971,  
pp 19-24

Graphs of temperatures and stresses for the period between 1962 and 1969 are presented. Until 1967 when filling the fore bay with water began the fluctuations of stress were seasonal following the fluctuations of temperature.

No tension stresses were detected on the upstream face of the dam after the fore bay has been filled with water.

The measured stresses agreed closely with the calculated ones provided that thermal stresses and stresses due to moisture in the concrete were taken into account.

USSR UDC: 620.173.21.627.81:621.311.21(282.251.2).001.42

ALEKSANDROVSKAYA, E. K., Engineer

"Stresses in Krasnoyarskaya GES Dam During Construction and Initial Operation"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No. 4, April, 1971, pp 19-24

Abstract: Field measurements of actual stresses in a concrete dam check the validity of design calculations. 600 strain gages have been embedded in the concrete of the subject dam for this purpose.

High thermal stresses occurred in the beginning of the construction due to high differences of temperatures between the center and the face of a block caused by non-uniform cooling. Later, since the end of 1963, this difficulty was overcome mainly by cooling the newly poured concrete by water circulating through pipes.

ALEKSANDRAOVSKAYA, E. K., et al., V sb Nuachn. issled. po hidrotekhn. v 1969 g.  
- T. 1, Leningrad, Energiya Press, 1970, pp 135-136

elastic insert receives no hydrostatic pressure.

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UDC 621.311.21.001.42

ALEKSANDROVSKAYA, E. K., GUSEV, YU. N.

"Natural Studies of Stresses and Strains in the Water Conduit, the Spiral Chamber and the Ship Elevator of the Krasnoyarsk Hydroengineering Complex"

V sb. Nauchn. issled. po gidrotekhn. v. 1969 g. T. 1 (Scientific Research in Hydroengineering in 1969. Vol 1 -- collection of works), Leningrad, Energiya Press, 1970, pp 135-136 (from RZh-Elektrotehnika i Energetika, No 4, Apr 71, Abstract No 4 D132)

Translation: The purpose of this experiment was to determine the actual stresses and strains in the metal and concrete of the indicated structures and to compare the measured values with the calculated ones to check correspondence of the calculation techniques used and the prerequisites for actual operation of the structural elements. The experimental results demonstrated the following: the measured stresses are significantly lower than the calculated stresses (the metal and reinforced concrete shells were each calculated for the total hydrostatic pressure individually). Especially large safety margins were obtained in the sections of conduits which pass through the massive concrete. The stresses increase only at points where cracks have obviously formed in the prefabricated concrete shell; the reinforcing of the spiral chamber located above the  
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2/2 020

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0113572

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. METHODS ARE DESCRIBED FOR DETN. NOT ONLY OF FORM AND SIZE OF CLAY PARTICLES IN K DEPOSITS BY ELECTRON MICROSCOPY BUT ALSO FOR THE OBSERVATION OF THE EFFECT OF ADMIXTS. OF NA CL AND KCL OR OF THE FLOTATION AGENTS CM CELLULOSE AND OCTADECYLAMINE ON FLOCCULATION AND OF NA SUB4 P SUB2 O SUB7 ON THE PEPTIZATION OF THE CLAY PARTICLES AND THE CONDITION OF THE DISPERSIONS. THE CLAYS PARTICLES WERE SPED. FROM KCL BY TREATMENT WITH BOILING H SUB2 O AND FROM CARBONATES BY N HCL. FACILITY: INST. OBSHCH. NEORG. KHIM., MINSK, USSR.

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Ecology

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ALEXANDROVA, V.B.

"Modeling in Plant Ecology"

Leningrad, Botanicheskii Zhurnal, Vol. 55, No. 3, 1970, pp. 340-350

Abstract: This is a very broad review of works on ecology, of the USSR, and the methods or systems used in the study of plants. The idea, of this cover category, need not depict all characteristics of the subject, as it should clearly illustrate those, and only those, characteristics which are the subject of study. It should contain that constant from which the subject can be studied, and the whole should be illustrated graphically in accordance with scientific methodology. Multiplicity of models is necessary to study the multiplicity of biologic and ecological factors, and they should be capable of showing the functional interrelationship with the methods actually studied by various models. Real models can be vegetation maps or specially designed experimental installations. But the most promising methods in plant ecology are mathematical models, geometric models, punched-card representations of plant communities, etc. Mathematical modeling with computers will probably be the most efficient research method for ecologists.

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ALEKSANDROVA, V. D., Botanicheskiy Zhurnal, Vol 56, No 9, Sep 71, pp 1225-1238

E. Odum's construct (1959, 1966) for energy flow through an ecosystem is criticized since he neglected the role of the soil as a special energy accumulator and a rich nitrogen reserve.

According to the data of V. R. Volobuyev (1964) and V. A. Kovda (1970), the "humus shell" or pedosphere is a source of enormous latent energy. Volobuyev's data on soil component energy reserves show chernozem energy reserves to be ten times greater than the energy contained in steppe vegetation. According to Kovda, in some grassland biogeocoenoses the quantity of energy concentrated in humus is 20 to 30 times greater than the energy store of the biomass, while the mean order of energy reserves in the biomass and in the "humus shell" is approximately the same:  $1.5 \times 10^{19}$  kilocalories in the biomass and  $1.2 \times 10^{19}$  kilocalories in the "humus shell." Thus in response to Odum's construct, a biogeocoenosis diagram is proposed wherein the soil is represented as a specialized energy reservoir.

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Sep 71, pp 1225-1238

combined into larger scale chorologic units, similar in composition to geovegetative systems or to drainage basin systems. Within these types of boundaries mixed biogeocoenoses are linked by matter and energy flow patterns.

Biogeochore is a term used to designate any chorologic unit in the biogeocoenotic shell: from the elementary biogeochore, or biogeocoenosis, to the largest biogeochore, the whole biogeocoenotic shell of the earth.

An ecosystem is an aggregate of living creatures, linked together by trophic ties, plus the inanimate components of their environment, drawn by them into reciprocal processes for exchange of energy and matter. This Russian concept of the term ecosystem was adopted from the writings of Tansley (1935) and Lindeman (1942).

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