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UNCLASSIFIED

PROCESSING DATE--15OCT70

TITLE--SECONDARY ELECTRON EMISSION ON REFLECTION FROM FISSION FRAGMENTS
AND ALPHA PARTICLES -U-

AUTHOR--(02)-DAUKEYEV, D.K., LEBEDEV, S.YA.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970. 12(2), 655-6

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SECONDARY ELECTRON EMISSION, ELECTRON SPECTRUM, ANGULAR DISTRIBUTION, ALPHA PARTICLE, FISSION PRODUCT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/1244

STEP NO--UR/0181/10/012/002/0655/0656

CIRC ACCESSION NO--AP0115261

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

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CIRC ACCESSION NO--AP0115261

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

ABSTRACT. THE ENERGY SPECTRUM OF SECONDARY
ELECTRONS AND THEIR ANGULAR DISTRIBUTION WERE RECORDED. FOR ALPHA
PARTICLES, AS WELL AS FOR THE FISSION FRAGMENTS, THE COS OMEGA LAW IS
WELL OBEYED.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--23OCT70
 TITLE--ANGULAR AND TEMPERATURE FUNCTIONS OF ION ELECTRON AND ION ION
 EMISSION IN A GALLIUM ARSENIDE SINGLE CRYSTAL -U-
 AUTHOR-(03)-KAPUSTA, O.I., LEBEDEV, S.YA., DNELYANDOVSKAYA, N.M.
 COUNTRY OF INFO--USSR
 SOURCE--FIZ. TVERD. TELA 1970, 12(3), 913-15
 DATE PUBLISHED-----70
 SUBJECT AREAS--MATERIALS, PHYSICS
 TOPIC TAGS--GALLIUM ARSENIDE, SINGLE CRYSTAL, THERMAL EFFECT, ION
 EMISSION, ELECTRON
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1977/1493 STEP NO--UR/0131/70/012/003/0913/0915
 CIRC ACCESSION NO--AP0120280
 UNCLASSIFIED

PROCESSING DATE--23DCT70

UNCLASSIFIED

2/2 035

CIRC ACCESSION NO--AP0120280

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

ABSTRACT. A STUDY WAS MADE OF ANGULAR AND TEMP. DEPENDENCE OF IONIC ELECTRONIC AND IONIC IONIC (FOR POS. IONS) EMISSION DURING BOMBARDMENT OF GaAs SINGLE CRYSTALS BY AR IONS WITH AN ENERGY OF 70 KEV. THE MEASUREMENTS WERE CARRIED OUT UNDER THE FOLLOWING CONDITIONS: VACUUM IN THE TARGET REGION 2 TIMES 10 PRIME NEGATIVE 7 MM HG WITHOUT BEAM AND (5-6) TIMES 10 PRIME NEGATIVE 7 MM HG WITH THE BEAM, C.O. ON THE TARGET 0.5 MA.-CM PRIME 2, TEMP. INTERVAL OF THE MEASUREMENTS 100-600DEGREES. ANGULAR DEPENDENCE IS GIVEN OF IONIC IONIC AND IONIC ELECTRONIC EMISSIONS OF THE (100) FACE ON ITS ROTATION AROUND THE (100) AXIS AND THE (110) AXIS. THE CURVES WERE RECORDED AT THE SPECIMEN TEMP. OF 550DEGREES. BOTH ANGULAR DEPENDENCES ARE CHARACTERIZED BY ANISOTROPY DETD. BY A REGULAR DISTRIBUTION OF TARGET ATOMS. THE SAME DEPENDENCES FOR THE (111) FACE (ON ROTATION AROUND THE (110) AXES AT 550DEGREES SHOWS ITS INVERSE COSINE DEPENDENCE. TEMP. DEPENDENCES OF IONIC IONIC AND IONIC ELECTRONIC EMISSIONS CAN BE USED TO STUDY THE KINETICS OF THE ANNEALING OF DEFECTS. THE COEFF. OF IONIC IONIC EMISSION REACHES A PLATEAU AT HIGHER TEMPS. THAN THE COEFF. OF IONIC ELECTRONIC EMISSION. THIS INDICATES THAT IONIC IONIC EMISSION IS MORE SENSITIVE TO THE PURITY OF THE SURFACE.

UNCLASSIFIED

1/2 038 UNCLASSIFIED PROCESSING DATE--30OCT70
 TITLE--ANGULAR AND TEMPERATURE DEPENDENCES OF THE SECONDARY EMISSION OF
 INDIUM ANTIMONIDE SINGLE CRYSTALS DURING ARGON ION BOMBARDMENT -U-
 AUTHOR--(03)-KAPUSTA, J.I., LEBEDEV, S.YA., DMELYANDVSKIAYA, N.M.
 COUNTRY OF INFO--USSR
 SOURCE--FIZ. TVERD. TELA 1970, 12(4), 995-1000
 DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, MATERIALS
 TOPIC TAGS--INDIUM ANTIMONIDE, SINGLE CRYSTAL, ARGON, ION BOMBARDMENT,
 AMORPHUS MATERIAL, ION EMISSION, ELECTRON EMISSION, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1998/0919

STEP NO--UR/0181/70/012/004/0995/1000

CIRC ACCESSION NO--AP0121521
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PROCESSING DATE--30OCT70

2/2 038

CIRC ACCESSION NO--AP0121521
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. ION ELECTRON AND ION ION EMISSION WERE INVESTIGATED, DEPENDING ON THE TARGET TEMP. AND THE ANGLE OF INCIDENCE OF AR IONS WITH AN ENERGY OF 70 KEV ON (111) AND (110) FACES OF SINGLE CRYSTAL INS₈, AND THE DEPENDENCE WAS DETD. OF THE COEFFS. OF ION ELECTRON EMISSION ON THE ENERGY OF BOMBARDING IONS AT NORMAL INCIDENCE ON THE ABOVE FACES. AT SUFFICIENTLY HIGH TARGET TEMPS., THE RESULTS AGREE QUAL. WITH THE MODEL OF TRANSPARENCY IF ACCOUNT IS TAKEN OF THE SHIFTS OF ATOMS IN THE SURFACE LAYERS OF THE CRYSTAL. IN THE TEMP. VARIATIONS OF THE COEFF. OF ION ELECTRON EMISSION, 5 DIFFERENT REGIONS ARE OBSD., THE EXISTENCE OF WHICH IS RELATED TO ANNEALING OF RADIATION DEFECTS AND TO VARIATIONS IN THE AMORPHOUS LAYER PRESENT ON THE SURFACE.

UNCLASSIFIED

Composite Materials

UDC 620.178.3

USSR

LEREDEV, T. A., MARINETS, T. K., and OSTASHEV, V. V., Leningrad Polytechnic
Institute Imeni Kalinin

"Criteria for Estimating Cyclic Strength of Composite Materials"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 8, Aug 73, pp 994-996

Abstract: Questions of forecasting cyclic strength of reinforced composite materials are considered. A coefficient of effective projection K is introduced which is based on the linear increase of cyclic strength of the material in relation to the increasing volumetric content of reinforcement. The area of coefficient projection lies between $1 < K < 2$. Results are presented of the investigation of two composite materials -- a specimen from steel 20 with a volumetric reinforcement content of 9 and 14% in the form of high-strength U9 cold-drawn 0.8 mm in diameter and a specimen with combined matrix -- steel 20 and titanium QT4 with the same reinforcement. One illustration, one table.

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UDC 621.791.539.43

USSR

LEBEDEV, T. A., DEDEKAYEV, T. T., CSTASHEV, V. V., Leningrad

"Study of the Structure of the Transient Zone of a Composite Material During Cyclical Loading"

Kiev, Problemy Prochnosti, No 7, Jul 73, pp 75-79

Abstract: Results are presented from studies performed in order to construct an overall picture of the rupture of reinforced composite materials under cyclical loading. A composite material based on steel and titanium (steel 20 and titanium alloy OT4-1) was tested under flat bending in alternate directions. The relationship of surface reactions at the fiber-material boundary to the nature of rupture is demonstrated.

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USSR

GORBACHEV, L. A., LEBEDEV, T. A., and MARINETS, T. K., Leningrad

"Periods of the Process of Fatigue Failure"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 5, Sep-Oct 70,
pp 133-136

Abstract: An attempt is described to establish a relation between changes in the microstructure of a cycle-loaded metal (08 KP steel) and changes in the shape of the temperature curve. It was found that typical sections of this curve indirectly describe specific stages (periods) of fatigue failure. It is proposed that the process of fatigue failure be considered to comprise five periods. An assumption is made that the fatigue failure periods for one and the same metal, with respect to percentage and total service life, are constant magnitudes. The fatigue failure periods are as follows: 1) Incubation. Its duration depends on a number of factors, specifically on cycle stress. 2) Period of active formation of slip bands. 3) Period of local accumulation of damages and changes incurred during the first and second periods. This period

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USSR

GORBACHEV, L. A., et al, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki,
No 5, Sep-Oct 70, pp 133-136

creates conditions for the generation and growth of a main crack. 4) Period
of propagation and growth of the main crack. 5) Period of specimen failure.
The duration of this period for specimens of small cross section is insignifi-
cant. All these periods are clearly distinguished on the temperature curve.

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Acc. Nr: **A70043980**

Ref. Code: **UK0000**

PRIMARY SOURCE: **Geofizicheskiy Sbornik, Kiev, 1970, Nr 33, pp 43-48**

INCREASE MAGNETIC SUSCEPTIBILITY OF PRACTICALLY NON-MAGNETIC ERUPTIVE ROCKS (Experimental Data)

T. S. Lebedev, Yu. P. Orlovskiy, Yu. M. Lopy
(Institute of Geophysics, Academy of Sciences, Ukrainian SSR)

Summary

The contents of the report is presented which was made by the authors at the All-Union seminar of experimenters in the Institute of Geochemistry and Analytical Chemistry of the Academy of Sciences of the USSR (February 18-19, 1969, Moscow). Intrusive formations are known in the Mountain Crimea which belong to the zones of the Submontane Crimean-Caucasus and Krivoy Rog-Samsun physical fractures. Average value of magnetic susceptibility in the rocks of former zone is 1200, but of the latter it accounts only for $40 \cdot 10^{-6}$ CGSM. The composition of original rock-forming

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minerals of both zones is subidentical. It is supposed that the rocks of the former zone had acquired the extremal values of magnetic susceptibility as a result of allometasomatosis, of the latter due to autometasomatosis.

The samples of practically non-magnetic gabbro-diorites ($\bar{\chi} = 30 \cdot 10^{-6}$ CGSM) were placed into an autoclave with semi-normal solution of NaHCO_3 and were kept here during 120 hrs at a pressure of $0.32 \pm 0.02 \text{ atm}^h$ and at temperature of $430 \pm 30^\circ \text{C}$ in a natural geomagnetic field. After the experiment the values of magnetic susceptibility increased by 6 times ($\bar{\chi} = 196 \pm 10\% \cdot 10^{-6}$ CGSM). The increase in the magnetic susceptibility values occurred as a result of a polymorphous transition of Fe^{2+} dark colour component of the rock into a new modification. The latter is observed in a fine-dispersed state (the size of grains $< 0.001 \text{ mm}$) and is presented by pyrrhotite.

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Acc. Nr: AT0043979

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Ref. Code: CR0000

PRIMARY SOURCE: Geofizicheskiy Sbornik, Kiev, 1970, Nr 33,
pp 49-54

CHANGES IN MAGNETIC PROPERTIES OF FERROMAGNETIC MINERALS
AT ELEVATED PRESSURES AND TEMPERATURES

T. S. Lashin, N. P. Pozniashko

(Institute of Geophysics, Academy of Sciences, Ukrainian SSR)

Summary

Systematization and generalization of the data available in the publication have enabled the authors to derive graphs characterizing the effect of pressure on magnetic susceptibility and various types of remanent magnetization of the magnetite and ferro-magnetite. An attempt has been made to estimate changes in magnetic susceptibility under a simultaneous effect of pressure and temperature. The results of the studies should be used for devising the techniques of determining magnetic parameters of the crustal material at different depths.

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PROCESSING DATE--13NOV70

177 053

TITLE--COMMENTS ON WEIGHTLESSNESS IN SPACE -U-

AUTHOR--LEBEDEV, V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRAVDA, 10 JUNE 1970, P 2

DATE PUBLISHED--10JUN70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--WEIGHTLESSNESS, MANNED SPACECRAFT, MAN, VISION/(U)SOYUZ 9
MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1619

STEP NO--UR/90127/10/0007/000/0002/0002

CIRC ACCESSION NO--AN0131961

UNCLASSIFIED

PROCESSING DATE--13NOV70

UNCLASSIFIED

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CIRC ACCESSION NO--AV0131961

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

ABSTRACT. STUDY OF THE EFFECT OF WEIGHTLESSNESS ON MAN IS ONE OF THE MOST TIMELY SCIENTIFIC PROBLEMS ARISING IN THE COURSE OF SPACE CONQUEST. IT IS BEING STUDIED PERSISTENTLY DURING EACH SPACE FLIGHT. THE "SOYUZ-9" FLIGHT IS NO EXCEPTION. OUR COMMENTARY FOR TODAY IS DEVOTED TO ONE OF THE ASPECTS OF THIS MULTISIDED PROBLEM. MAN PERCEIVES THE POSITION OF HIS OWN BODY RELATIVE TO THE EARTH'S PLANE THROUGH HIS SENSES. THE SAME CAN BE SAID OF THE PERCEPTION OF THE POSITION OF OBJECTS AROUND HIM RELATIVE TO ONE ANOTHER. INFORMATION RECEIVED FROM THE ORGANS OF SENSE IS GENERALIZED BY DEFINITE PARTS OF THE CEREBRAL CORTEX. THUS A SPECIAL FUNCTIONAL SYSTEM IS FORMED WHICH MAKES IT POSSIBLE FOR MAN TO ORIENT HIMSELF PROPERLY IN SPACE. FOR THE OPTICAL ANALYZER, THE EYE, THE STIMULUS IS LIGHT ENERGY; FOR OTHERS IT IS MECHANICAL ENERGY. FOR EXAMPLE, THE OTOLITHIC INSTRUMENT TRANSMITS INFORMATION TO THE BRAIN WHEN THERE IS A CHANGE IN GRAVITY. ITS OPERATING PRINCIPLE IS RATHER SIMPLE. THE BOTTOM OF A SMALL SACCULUS IN THE INNER EAR IS COVERED BY NERVE SENSING CELLS HAVING FILAMENTS. WITHIN THEM, IN A JELLYLIKE FLUID, THERE ARE SMALL CRYSTALS OF CALCIUM SALTS, OTOLITHS. UNDER THE INFLUENCE OF GRAVITY THEY CAUSE STIMULATION OF THE NERVE CELLS INFORMING THE BRAIN ON THE MAGNITUDE OF PRESSURE; THE LATTER, NATURALLY, CHANGES DURING RAPID ASCENT OR DESCENT. THE SENSATIONS WHICH ARISE ARE KNOWN TO EVERYONE WHO USES HIGH SPEED ELEVATORS. THE PECULIARITIES OF HUMAN SPATIAL ORIENTATION DURING WEIGHTLESSNESS WERE STUDIED EVEN PRIOR TO THE FLIGHT BY YU. A. GAGARIN.

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PROCESSING DATE--13NOV70

UNCLASSIFIED

3/7 053

CIRC ACCESSION NO--AN0131961

ABSTRACT/EXTRACT--THE EXPERIMENTS WERE MADE IN A TWO SEAT JET AIRCRAFT IN WHICH A BRIEF STATE OF WEIGHTLESSNESS WAS REPRODUCED. THE COSMONAUT SAT IN THE REAR COMPARTMENT, STRAPPED TO HIS SEAT. THE PILOT PERFORMED A RIGHT OR LEFT BANK DURING THE FLIGHT WEIGHTLESSNESS SEGMENT. THROUGH AN INTERCOM THE COSMONAUT GAVE HIS IMPRESSIONS CONCERNING THE SPATIAL POSITION OF THE AIRCRAFT AND THE NATURE OF THE PERFORMED MANEUVER. AMONG SUBJECTS WHO KEPT THEIR EYES OPEN UNDER SUCH CONDITIONS THERE WAS NOT A SINGLE CASE OF SPATIAL DISORIENTATION. HOWEVER, WHEN THE EYES WERE CLOSED THERE WAS AN ILLUSORY PERCEPTION OF SPATIAL RELATIONSHIPS. NONE OF THE COSMONAUTS COULD DETERMINE THE TRUE NATURE OF AIRCRAFT MANEUVERING. THIS DISORIENTATION CAN BE ATTRIBUTED TO THE FACT THAT UNDER WEIGHTLESSNESS CONDITIONS THE INFORMATION FROM THE OTOLITHIC INSTRUMENT IS DISTORTED AND MAN LOSES HIS PROPER NOTIONS CONCERNING THE POSITION OF HIS BODY RELATIVE TO THE EARTH'S PLANE. DURING FLIGHTS MOST COSMONAUTS FORMED A PSYCHOLOGICAL IDEA AS TO WHAT WAS "UP" AND WHAT WAS "DOWN" IN THE SHIP, THIS WAS DEVELOPED DURING PRACTICE IN A TRAINER. THIS CONCEPT ENABLED THEM TO ORIENT THEMSELVES FREELY WITH BOTH OPEN AND CLOSED EYES. IT ONLY CHANGED IN THOSE CASES WHEN THE COSMONAUTS VIEWED THE STAR SKY "BELOW" THROUGH THE PORT AND SAW THE SURFACE OF OUR PLANET "ABOVE". IN PERFORMING DIFFERENT MANEUVERS THE COSMONAUT MUST CLEARLY VISUALIZE WHAT POSITION THE SHIP IS OCCUPYING RELATIVE TO THE EARTH'S HORIZON OR SOME OTHER OBJECT IN SPACE AND IN WHAT DIRECTION IT IS MOVING.

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PROCESSING DATE--13NOV70

CIRC ACCESSION NO--A40131961

ABSTRACT/EXTRACT--HERE IS WHAT V. F. BYKOVSKIY STATED ABOUT IN FLIGHT ORIENTATION: "AFTER SWITCHING TO MANUAL ORIENTATION I BEGAN TO LOOK FOR THE EARTH. I LOOKED OUT THE PORT AND IN THE 'VZOR' (SIGHT). IN THE 'VZOR' A SMALL SEGMENT OF THE HORIZON WAS VISIBLE ON END. I IMMEDIATELY UNDERSTOOD THAT THE RIGHT PORT WAS AT TOP, IN THE ZENITH". WORKING THE CONTROL LEVER, THE SHIP COMMANDER CORRECTLY ORIENTED IT. MAJOR COMPLEXITIES ARISE DURING THE RELATIVE MANEUVERING OF SPACECRAFT. SITUATIONS CAN ARISE, FOR EXAMPLE, WHEN A COSMONAUT WILL SEE NEITHER THE EARTH NOR OTHER LANDMARKS. THIS SITUATION WAS GIVEN THE NAME "UNORIENTED VIEWING". THE FACT IS THAT UNDER THESE CONDITIONS THE EYE DOES NOT FOCUS ON A DISTANT OBJECT, BUT FOR SOME RELATIVELY SHORT DISTANCE, WHICH HINDERS CORRECT ESTIMATION OF DISTANCE. IN SOME CASES THIS IMPEDES THE COSMONAUT'S WORK. FOR EXAMPLE, DURING FLIGHT OF THE AMERICANS MCCIVITT AND WHITE IN GENI 4 THEY WERE ASSIGNED THE MISSION OF VISUALLY DETERMINING THE DISTANCE TO THE SECOND ROCKET STAGE DURING APPROACH TO IT. MCCIVITT FOUND THAT THE DISTANCE WAS 120 METERS. IN ACTUALITY IT WAS 600 METERS. DURING EMERGENCE FROM THE SHIP INTO OPEN SPACE AND WHEN PERFORMING REPAIR WORK IN ORBIT ONE MUST BE ABLE TO ORIENT ONESELF PARTICULARLY WELL. PRELIMINARY TESTS IN A SPECIAL AIRCRAFT LABORATORY WERE ARRANGED FOR CHECKING THE ABILITY TO ORIENT ONESELF IN AN UNSUPPORTED POSITION. THE COSMONAUTS WERE ASSIGNED THE MISSION OF MOVING THROUGH THE "BASIN OF WEIGHTLESSNESS" FOR SOME TIME (FIVE-TEN SECONDS), CLOSE THEIR EYES AND ATTEMPT TO DETERMINE THEIR SPATIAL POSITION.

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PROCESSING DATE--15NOV70

CIRC ACCESSION NO--AND131951

ABSTRACT/EXTRACT--THEN THEY WERE TO OPEN THEIR EYES AND COMPARE THEIR VISUALIZED POSITION WITH THE ACTUAL SITUATION. IT WAS FOUND THAT DURING THE FIRST TWO TO FIVE SECONDS OF MOVEMENT WITH CLOSED EYES THE SUBJECTS COULD STILL GIVE THEMSELVES A MORE OR LESS CORRECT REPORT CONCERNING WHAT WAS GOING ON. IN SO DOING THEY TAKE INTO ACCOUNT THEIR RATE OF MOVEMENT AND SENSE THEIR OWN ROTATION. HOWEVER, DURING THE SECONDS WHICH FOLLOW ORIENTATION BECOMES A DIFFICULT MATTER. THE FLIER-COSMONAUT A. G. MIKOLAYEV, FOR EXAMPLE, WROTE IN A REPORT ON SUCH AN EXPERIMENT: "AFTER BEGINNING MOVEMENT AND CLOSING THE EYES IN THE FIRST TEST DURING WEIGHTLESSNESS I ESTIMATED FROM MEMORY MY POSITION IN SPACE. I SENSED THAT IN ADDITION TO MOVEMENT OF THE BODY THROUGH THE 'BASIN' I WAS EXPERIENCING BODY ROTATION TO THE RIGHT." ACCORDING TO MY RECKONINGS, I SHOULD BE APPROXIMATELY IN THE MIDDLE OF THE 'BASIN'. WHEN I OPENED MY EYES I SAW THAT IN ACTUALITY I WAS NEAR THE RIGHT SIDE OF THE AIRCRAFT WITH MY FACE ORIENTED TOWARD THE 'CEILING'. UPON EMERGING FROM A SPACESHIP MAN ENCOUNTERS AN UNSUPPORTED STATE. HE IS CONNECTED TO THE SHIP BY ONLY A FLEXIBLE LINE. UNDER THESE CONDITIONS THE SENSATIONS ARISING FROM TOUCHING ANY OBJECTS ARE LOST. IN MAN THE PSYCHOLOGICAL CONCEPTS CONCERNING HIS POSITION, BASED ON DIFFERENT SENSATIONS, ARE DESTROYED. HE IS FORCED TO ORIENT HIMSELF BY RELYING EXCLUSIVELY ON VISUAL PERCEPTION. IN THE COURSE OF PREPARATION OF A. A. LONOV FOR THE WORLD'S FIRST EMERGENCE INTO OPEN SPACE A COORDINATE SYSTEM WAS SELECTED IN WHICH THE SHIP ITSELF SERVED AS ONE OF THE "REFERENCE" COORDINATES; IT WAS TO SERVE AS "BELOW".

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PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AN0131961

ABSTRACT/EXTRACT--THIS CONCEPT WAS PROMOTED AND ADOPTED IN THE COSMONAUT'S CONSCIOUSNESS DURING PREPARATIONS FOR THE FLIGHT. NOW WE WILL GIVE A.

A. LEONOV'S IMPRESSIONS ON EMERGENCE INTO OPEN SPACE: "DURING MOVEMENTS IT WAS NECESSARY TO ORIENT ONESELF IN SPACE ON THE MOVING SHIP AND THE 'STANDING' SUN, WHICH WAS OVERHEAD OR BEHIND THE BACK". IN ONE OF THE EMERGENCES AS A RESULT OF REPULSION FROM THE SPACESHIP THERE WAS A COMPLEX ROTATION ABOUT THE TRANSVERSE AND LONGITUDINAL AXES OF THE BODY. NONSCINTILLATING STARS BEGAN TO FLOAT BEFORE MY EYES AGAINST A BACKGROUND OF AN INFINITE SKY, DARK VIOLET IN COLOR WITH TRANSITION TO A VELVET BACKNESS. THE APPEARANCE OF THE STARS WAS REPLACED BY THE APPEARANCE OF THE EARTH AND SUN. SOON ANGULAR VELOCITY WAS REDUCED DUE TO TWISTING OF THE LINE. DURING ROTATION, ALTHOUGH THE SHIP COULD NOT BE SEEN, MY IDEA AS TO ITS POSITION WAS NOT LOST AND NO DISORIENTATION OCCURRED. MY SPATIAL POSITION RELATIVE TO THE SHIP COULD BE JUDGED FROM THE STARS, SUN AND EARTH, MOVING IN THE FIELD OF VIEW. THE LINE, WHEN IT WAS COMPLETELY TAUT, ALSO WAS A GOOD ORIENTATION AID". AMONG PEOPLE ON EARTH THE CONCEPT OF "PASSAGE" IS USUALLY ASSOCIATED WITH WALKING. UNDER WEIGHTLESSNESS CONDITIONS IN THE ORDINARY SENSE OF THE WORD IT IS IMPOSSIBLE TO WALK ALONG THE SURFACE OF THE SHIP, FOR EXAMPLE, TO GET TO ANOTHER POINT; THERE IS NO SUPPORT UNDERFOOT AND NO FORCES HOLDING A MAN TO THE SURFACE.

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CIRC ACCESSION NO--AN0131961
ABSTRACT/EXTRACT--YE. V. KHRUNOV,

WHO WAS THE FIRST PERSON IN HISTORY TO MAKE SUCH A "WALK", SHARED HIS IMPRESSIONS AS FOLLOWS: "WHILE STILL ON EARTH, DURING TRAINING, WE FOUND THAT TO MOVE IN SPACE, TO 'WALK' ALONG THE SHIP FROM ONE PLACE TO ANOTHER, IS BEST DONE... ON THE HANDS, USING THE RIGID HANDRAILS AS SUPPORT". "IN THIS WAY, GRASPING THE HANDRAILS, I APPROACHED THE MOTION PICTURE CAMERA. HOLDING ONTO THE RAILING WITH ONE HAND, I TOOK THE MOTION PICTURE CAMERA FROM ITS SUPPORT WITH THE OTHER. THEN, USING THE SAME METHOD, 'ON MY HANDS' I MOVED ALONG THE SURFACE OF THE ORBITAL STATION INTO THE 'SOYUZ-4' SHIP COMPARTMENT". THE MOVEMENT OF A. A. LEONOV IN OPEN SPACE, PASSAGE OF COSMONAUTS FROM SHIP TO SHIP, LANDING OF PEOPLE ON THE LUNAR SURFACE, THESE ARE ESSENTIALLY MAN'S FIRST STEPS IN OPEN SPACE. ON FUTURE FLIGHTS, WHEN MANNED VEHICLES ARE SENT TO OTHER PLANETS AND COSMONAUTS USING JET DEVICES ARE ABLE TO WITHDRAW FARTHER FROM THEIR SHIPS, MORE COMPLEX PROBLEMS WILL ARISE IN FORMING SPATIAL CONCEPTS. IN THESE CASES IT WILL BE NECESSARY TO HAVE TWO OR MORE COORDINATE SYSTEMS, RATHER THAN ONE, FOR AIDING SPATIAL ORIENTATION, HAVING DIFFERENT "REFERENCE" COORDINATES. PSYCHOLOGICAL STUDIES SHOW THAT SWITCHING FROM ONE SUCH SYSTEM TO ANOTHER IS A COMPLEX PROBLEM. DIFFERENT RELATIONSHIPS ARISE AMONG THE ORGANS OF SENSE IN THIS CASE THAN ON EARTH. VISION BECOMES OF PRIMARY IMPORTANCE. ACCORDINGLY, THE PROBLEM OF MAN'S ORIENTATION IN SPACE MUST BE THOROUGHLY INVESTIGATED.

UNCLASSIFIED

PUBLICATIONS

USSR

GAGARIN, Yu. and LEBEDEV, V.

Psikhologiya i Kosmos (Psychology and the Cosmos)

Moscow, "Molodaya Gvardiya," 2d edition, 1971, 341 pp

Translation: Annotation: Having taken the step into the uncertainty of the Universe, Yuriy Gagarin has stepped into immortality. The grandeur of his daring exploit will be realized many times in the future and in new ways. Many generations will be raised with his life being used as an example. Books and poems will be written and songs composed about Gagarin.

And always people will be asking: what sort of a man was he?

Whoever has had the good fortune to know Yuriy Gagarin, will forever remember the charming image of a wise, courageous, honest, modest man, a loyal comrade, and a true Communist. And not just simply remember, for Gagarin infected all who came in contact with him with his love of life, purposefulness, and creativeness.

Yuriy Gagarin was indisputably one of the finest people of our time, and it was for this reason that he had the honor of being the first to rise to the stars and the first to travel the Cosmic routes.

This book is about Man in the Cosmos. It was fated to become the living

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USSR

GAGARIN, Yu. and LEBEDEV, V., Molodaya Gvardiya," 2d edition, 1971, 341 pp

testament of the first Cosmonaut in the World. Yuriy Gagarin placed his author's signature on the cover on 25 March 1968; a day later he was gone.

In his book Gagarin speaks of the Cosmos and courage, the horizons of science and human daring. In these pages are his quests and doubts, and his dreams of the future.

Table of Contents:

The Swallow, the Herald of Spring

The Cosmonaut and the Robot

Without Leaving the Ground

The Crew of an Interplanetary Spacecraft

Emotions in the Cosmos

In the Weightless World

The Riddles of Silence

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Entomology

USSR

LEBEDEV, V. A., Administration for Plant Protection, USSR Ministry of Agriculture

"Status of and Prospects for Biological Control Methods"

Moscow, Zashchita Rasteniy, No 5, 1973, pp 47-49

Abstract: Representatives of the major research organizations concerned with plant protection held a seminar at the Exhibit of Achievements of the USSR Economy from 12-15 February 1973 to discuss progress made in recent efforts to develop biological methods of protecting plants against insects, rodents, and disease. Reports were presented on Trichogramma (V. A. Shcheletil'nikov and G. N. Tsibul'skaya), large-scale breeding of entomophages (G. V. Gusev), protection of entomophages on crops (Ye. N. Beletskiy), use of microbiological preparations to control plant pests and diseases (N. S. Hedorinchik), automated breeding of insects (S. V. Andreyev), control of the red spider (N. V. Bondarenko and A. G. Ushchekov), biological control of quarantine pests (N. N. Shutova), large-scale breeding and utilization of entomophagous insects (lacewing flies, serphids, etc.) to protect vegetables (B. P. Adashkevich), and chemical sterilization of the codling moth (N. I. Petrushova).

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USSR

LEBEDEV, V. A.

"Inverse Equations for Interpolation of the Sudden Component of a Markov Process"

Teoriya Veroyatnostey i yeye Primeneniya [The Theory of Probabilities and Its Applications], 1973, Vol 18, No 2, pp 427-431 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V90)

Translation: Suppose (θ_t, η_t) , $0 \leq t \leq T$, is a two-dimensional process, where the unobserved component θ_t is a sudden Markov process with denumerable set of states $E = \{\alpha, \beta, \dots\}$ and initial distribution $p(\beta) = P\{\theta_0 = \beta\}$, $\beta \in E$, such that $p(\beta) > 0$ for all $\beta \in E$. Observed process η_t , $0 \leq t \leq T$, is assumed to have the stochastic differential

$$d\eta_t = A(\theta_t, \eta_t, t)dt + B(\eta_t, t)dw_t$$

where w_t is a standard Wiener process, independent of process θ_t , where η_0 is a nonrandom quantity.

For $0 \leq t \leq \tau \leq T$, we represent

$$p_{\beta\alpha}(\tau, t) = P\{\theta_\tau = \beta | \theta_t = \alpha\}, \alpha, \beta \in E.$$

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LEBEDEV, V. A., Teoriya Veroyatnostoy i yeye Primeneniya, 1973, Vol 18,
No 2, pp 427-431

and assume that

$$(p_{\beta\alpha}(t + \Delta, t) - \delta(\beta, \alpha)) / \Delta \rightarrow \lambda_{\alpha\beta}(t)$$

where $\Delta \rightarrow 0$ evenly for α and β , where $\lambda_{\alpha\beta}(t)$ are continuous for t evenly
for α and β and

$$|\lambda_{\alpha\beta}(t)| \leq K_1 < \infty.$$

We also represent

$$L_{(x,t)} f_{\alpha}(t) = \sum_{\beta \in E} \lambda_{\alpha\beta}(t) f_{\beta}(t),$$

$$L_{(a,t)}^* f_{\alpha}(t) = \sum_{\beta \in E} \lambda_{\beta\alpha}(t) f_{\beta}(t).$$

Suppose

$$\mathcal{F}_{\tau} = \sigma(\omega: \eta_s, s \leq \tau), \quad \pi_{\beta}(\tau) = P\{0_{\tau} = \beta | \mathcal{F}_{\tau}\},$$

$$\pi_{\alpha}(t, \tau) = P\{0_{\tau} = \alpha | \mathcal{F}_{\tau}\}, \quad \pi_{\alpha\beta}(t, \tau) = P\{0_{\tau} = \alpha | \mathcal{F}_{\tau}, 0_{t} = \beta\}$$

where $\tau \geq t$, $\alpha, \beta \in E$. This article presents the ideas of production of
the equations

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LEBEDEV, V. A., Teoriya Veroyatnostey i yeye Primeneniya, 1973, Vol 18, No 2, pp 427-431

$$\frac{\partial \pi_{\alpha}(t, \tau)}{\partial t} = \pi_{\alpha}(t) L_{(\alpha, t)} \frac{\pi_{\alpha}(t, \tau)}{\pi_{\alpha}(t)} - \frac{\pi_{\alpha}(t, \tau)}{\pi_{\alpha}(t)} L_{(\alpha, t)}^* \pi_{\alpha}(t)$$

with initial conditions $\pi_{\alpha}(\tau, \tau) = \pi_{\alpha}(\tau)$ and

$$\frac{\partial \pi_{\alpha\beta}(t, \tau)}{\partial t} = \pi_{\alpha}(t) L_{(\alpha, t)} \frac{\pi_{\alpha\beta}(t, \tau)}{\pi_{\alpha}(t)} - \frac{\pi_{\alpha\beta}(t, \tau)}{\pi_{\alpha}(t)} L_{(\alpha, t)}^* \pi_{\beta}(t)$$

with initial conditions $\pi_{\alpha\beta}(\tau, \tau) = \delta(\alpha, \beta)$. The basic moments of the proof of the existence and uniqueness of the solution of the following system of equations are given:

$$\frac{\partial \varphi_{\alpha}(t, \tau)}{\partial t} = \pi_{\alpha}(t) L_{(\alpha, t)} \frac{\varphi_{\alpha}(t, \tau)}{\pi_{\alpha}(t)} - \frac{\varphi_{\alpha}(t, \tau)}{\pi_{\alpha}(t)} L_{(\alpha, t)}^* \pi_{\alpha}(t)$$

with initial conditions $\varphi_{\alpha}(\tau, \tau)$ of rather general form.

Author's view

Hydraulic and Pneumatic

USSR

UDC 627.81:551.48(47+57)

BOYKOVA, K. G., SHEVCHENKO, G. N., and LEBEDEV, V. A.

"Principles of Hydrologic Calculations When Planning Engineering Measures to Protect National Economic Projects in the Far East from Flooding (1967)"

Izuch. i ispol'z vodn. resursov SSSR. 1966-1967 -- V sb. (Study and Use of USSR River Resources. 1966-1967 -- Collection of Works), Moscow, Nauka Press, 1970, p 74 (from RZh-Elektrotehnika i Energetika, No 2, Feb 71, Abstract No 2 D20)

Translation: This article contains a study of the problem of expediency of applying the time lag constant (for the rise and fall period) in calculations of high rain floods causing significant flooding of shore areas. One of the problems was to determine the possible decrease of storage of the Zeyskiy and Dagsmarskiy Hydroelectric Power Plant Reservoirs and how to avoid significant flooding in the tailrace in doing this. The obtained scheme for analyzing the flood hydrograph in the outlet considering the natural transformation offers the possibility of sufficiently well-founded calculation of the drop in height of the flood wave as the result of regulating the runoff from reservoirs and channel capacity. An example of calculating the inflow and transformation of flood waters by channel capacity and reservoirs considering
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BOYKOVA, K. G., et al., Izuch. i ispol'z vodn. resursov SSSR. 1966-1967 -- V sb. (Study and Use of USSR River Resources. 1966-1967 -- Collection of Works), Moscow, Nauka Press, 1970, p 74 (from RZh-Elektrotehnika i Energetika, No 2, Feb 71, Abstract No 2 D20)

the flood formation centers is presented. The ordinates of the lag curves for τ and n from 2 to 12 were calculated on the Promin' computer. Calculations of the maximum flood runoff are presented.

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Inorganic Compounds

USSR

UDC 669.8715'822 + 541.134

LEBEDEV, V. A., SEREGIN, V. M., POYARKOV, A. M., NICHKOV, I. P., and
RASPOPIN, S. P., Ural Polytechnical Institute Imeni S. M. Kirov,
Sverdlovsk

"Thermodynamic Properties of Liquid Alloys in the System Uranium-Gallium"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 47, No 3, Mar 73, pp 712-714

Abstract: Thermodynamic properties of the UGa_3 compound and liquid solutions in equilibrium with this compound have been investigated by means of e.d.s. method in temperature interval 423-811°C. The data agreed well with literature values. Existence of two modifications of UGa_3 has been proposed with characteristic ΔH and ΔS values, constant in a wide range of temperatures. The high temperature form of UGa_3 is more stable and ordered.

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USSR

UDC: 519.2

LEBEDEV, V. A.

"On Transformation of Systems of Stochastic Differential Equations"

Teoriya veroyatnostey i yeye primeneniya (Probability Theory and its Applications), 1972, 17, No 4, pp 748-751 (from RZh-Kibernetika, No 5, May 73, abstract No 5V93 by R. Liptser)

Translation: Let $(x_t, y_t, t < T)$ be a diffusion process which satisfies the system of stochastic equations

$$dx_t = a(x_t, y_t, t) dt + \sum_{i=1}^2 b_i(x_t, y_t) d\omega_i(t), \quad dy_t = A(x_t, y_t, t) dt + B(y_t, t) d\omega_1(t) \quad (1)$$

with independent Wiener processes $(\omega_i(t), \omega_i(t) < T)$.

It is proved that if the functions $a(x, y, t); A(x, y, t); b_i(x, y, t), i=1, 2;$

$\frac{\partial b_i(x, y, t)}{\partial x}, b_i(v, y, t)B(y, t)^{-1} A(x, y, t)$ satisfy the Lipschitz condition with

respect to (v, x, y) uniformly over $t < T$ and a condition of the type $g^2(v, x, y, t) < k(1 + v^2 + x^2 + y^2)$ (k does not depend on t), then there will be

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LEBEDEV, V. A., Teoriya Veroyatnostey i yeye primeneniya, 1972, 17, No 4, pp 748-751

a function $F(x, t)$ such that the process $(x_t, y_t, t < T)$ $y_t = F(x_t, t)$ satisfies the system of stochastic differential equations

$$dx_t = \bar{a}(x_t, t) dt + \bar{b}(x_t, t) d\omega_1(t), \quad dy_t = \bar{\lambda}(y_t, t) dt + B(y_t, t) d\omega_2(t) \quad (2)$$

with certain functions $\bar{a}(x, t)$, $\bar{b}(x, t)$. In this connection, the function $F(x, t)$ is reversible, and there is a one-to-one correspondence between (x_t, t) and (y_t, t) .

In a number of instances reducing equations (1) to equivalent equations (2) facilitates solution of certain problems in filtration of random processes.

1/2 037 UNCLASSIFIED PROCESSING DATE--0200T70
TITLE--CHEMICAL EFFECTS OF ELECTRON CAPTURE BY CERTAIN IODINE-125
COMPOUNDS STUDIED BY THE MOSSBAUER EFFECT ON TELLURIUM-125 -U-
AUTHOR--(04)--BABESHKIN, A.M., LAMYKIN, E.V., LEBEDEV, V.M., NESMEYANOV,
A.N.
COUNTRY OF INFO--USSR
SOURCE--VESTN. MOSK. UNIV. KHIM. 1970, 11(1), 117-118
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SPECTROSCOPIC ANALYSIS, MOSSBAUER EFFECT, TELLURIUM, IODINE,
FROZEN FLOW, NITRIC ACID, AQUEOUS SOLUTION, ELECTRON CAPTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0615 STEP NO--UR/0189/70/011/001/0117/0118
CIRC ACCESSION NO--AP0107212

UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107212

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE MOESSBAUER EFFECT OF PRIME125 TE, WITH THE ABSORBER BETA PRIME125 TED SUB3 AND THE SOURCE PRIME125 I, IN VARIOUS CHEM. FORMS (NAI, NAI.2H SUB2 O, KIO SUB3, NA SUB3 H SUB2 IO SUB6, FROZEN SOLNS. OF NAI IN H SUB2 O, AND OF NA SUB3 H SUB2 IO SUB6 IN 0.1 N HNO SUB3). FOR NAI A SINGLET LINE OF REGULAR SHAPE AND WITHOUT BROADENING WAS FOUND. FOR NAI.2H SUB2 O AND THE FROZEN SOLN. OF NAI IN H SUB2 O, A SPECTRUM WITH QUADRUPOLE SPLITTING WAS OBTAINED, DELTA IS GREATER THAN 10 MM-SEC. FOR KIO SUB3 THE SPECTRUM WAS BROADENED GREATLY, ASYM., AND SEPD. INTO 2 SINGLET'S WITH AN INTENSITY RATIO OF SIMILAR TO ONE HALF, INDICATING THAT, AFTER ELECTRON CAPTURE IN KIO SUB3, THE TE IS STABILIZED IN MORE THAN 1 FORM. FOR THE FROZEN SOLN. OF NA SUB2 H SUB2 IO SUB6 IN 0.1 N HNO SUB3, THE SPECTRUM WAS GREATLY BROADENED AND ASYM. DUE TO THE PRESENCE OF MORE THAN 1 STABILIZED FORM OF TE.

UNCLASSIFIED

USSR

UDC 669.755'822

SEREGIN, V. M., POYARKOV, A. M., LEBEDEV, V. A., NICHKOV, I. F., and PASPOPIN, S. P.

"Thermodynamic Properties of Uranium-Antimony Alloys"

Moscow, Atomnaya Energiya, Vol 32, No 5, May 72, pp 419-421.

Abstract: The method of electromotive forces was applied in a study of the thermodynamic properties of liquid solutions and the USb_2 compound and for a more exact definition of the dissolution limit of U in liquid Sb. The results are discussed of experiments in which the emf between U and its two-phase (L+ USb_2) alloys was measured. The thermodynamic characteristics of U in the USb_2 compound were calculated for 1000°K from the equation $E = 0.820 - 0.26 \cdot 10^{-3}T + 0.003$ v, which was found to characterize the linear nature of the emf temperature dependence. Tabulated data show the activity coefficients of U and its solubility in liquid Sb which were calculated from given formulas. Calculated values of U solubility limits in Sb are compared with data in other publications. Three tables, five formulas, five bibliographic references.

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Phytology

USSR

UDC 632:938.2

LEBEDEV, V. B., Candidate of Agricultural Sciences, Saratov Institute of Agriculture, Saratov

"Evaluation of the Resistance of Wheat to Leaf Rust"

Moscow, Zashchita Rasteniy, No 12, 1971, p 38

Abstract: Studies in 1964-70 indicated that infection with brown leaf rust of irrigated wheat in Saratovskaya Oblast' often assumes the dimensions of a general epiphytotic -- 70-100% of the plants are infected. In experiments conducted in 1967-68 at a nursery, the susceptibility of wheat of 20 USSR and foreign varieties planted in the same field was determined upon 1) natural and 2) artificial infection. Wheat of the high susceptible variety Saratovskaya 36 was planted around the nursery [in experiments with natural infection]. Artificial infection was carried out by means of a suspension of uredospores of local origin. The data obtained on the percentage of infection of plants indicated that the results obtained by artificial infection made possible a more accurate estimation of the relative resistance of the 20 varieties than those obtained with natural infection. The data on the percentage of infection of individual varieties in 1967 and 1968 showed a closer correspondence with artificial than natural infection. The only inconsistent results on artificial

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USSR

LEBEDEV, V. B., Zashchita Rasteniy, No 12, 1971, p 38

infection were obtained for the Canadian varieties Pembina and Selkirk, for which the percentages of infection in 1968 were much higher than in 1967. A possible explanation for this is an appearance in 1968 of physiological races of rust in the local population that were of insignificant importance in 1967. A similar behavior of the variety Pembina had been observed in the vicinity of Leningrad.

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USSR

UDC 633.11"321":582.285.2

LEBEDEV, V. B. and NATAL'INA, O. B.

"Susceptibility of Spring Wheat Varieties to Brown Leaf Rust Under Irrigation Conditions"

Moscow, Seleksiya i Semenovodstvo, No 1, 1971, pp 69-70

Abstract: The resistance of 22 spring wheat varieties (including five Canadian) to brown leaf rust (a major disease of wheat in the southeastern USSR) was studied in field experiments in 1967, a year of abnormally high temperatures and dry summer, and 1968, a year of more rainfall than usual. In both years half of the plants were watered while the other half were not. It was found that the plants on the irrigated plots in both years were more severely affected than controls in all the growth stages. Two new hard wheat varieties (Saratovskaya 40 and Khar'kovskaya 51) displayed considerable resistance and two of the Canadian wheats (Lee and Sa 4543) remained entirely immune to the disease.

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USSR

UFG 621.396.6-181.48

LEBEDEV, V. B.

"Simulation of Technological Process Dimensional Networks Using Digital Computers"

V sb. Metody mat. i fiz. modelir. i optimiz. parametrov radioelektron. apparatury. No 1 (Methods of Mathematical and Physical Simulation and Optimization of the Parameters of Radio Electronic Equipment. No 1 -- collection of works), Moscow, 1972, pp 54-57 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No 7V247)

Translation: The method of simulating technological process dimensional networks is discussed for topologic design of microelectronic devices based on the application of dimensional graph theory. There are 2 illustrations.

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1/2 041 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THE STUDY OF GRAVITY FORCE EFFECT ON AEROSOL MOTION IN A
CURVILINEAR GAS FLOW -U-
AUTHOR-(02)-MASLOV, V.YE., LEBEDEV, V.O.
COUNTRY OF INFO--USSR
SOURCE--INZHENERNO-FIZICHESKIY ZHURNAL, 1970, VOL 18, NR 1, PP 59-63
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--AEROSOL, GRAVITY, MOTION MECHANICS, GAS FLOW
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0543 STEP NO--UR/0170/70/013/001/0059/0063
CIRC ACCESSION NO--AP0121215

UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121215

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIG. 1. SCHEME OF EXPERIMENTAL INSTALLATION: (A) ANNULAR CHANNEL IN NORMAL POSITION; (B) THE SAME FOR TURNED OVER CHANNEL. FIG. 2. TRAJECTORY OF AEROSOL MOTION (OOD NUMBERS, MODEL IN NORMAL POSITION; EVEN, TURNED OVER). FIG. 3. C EQUALS $(\Delta \Phi - \Phi_{SUBC})$ TIMES 100PERCENT VERSUS LGFR. SUMMARY. THE RESULTS OF EXPERIMENTAL STUDY OF THE EFFECT OF GRAVITY FORCE ON AEROSOL MOTION IN A CURVILINEAR FLOW ARE PRESENTED. IT IS SHOWN THAT AN SUFFICIENTLY HIGH VALUE OF THE FROUDE NUMBER FOR THE FLOW IT IS THE ONLY CRITERION DETERMINING THE DEGREE OF GRAVITY FORCE EFFECT ON AEROSOL BEHAVIOUR IN CURVILINEAR FLOWS.

UNCLASSIFIED

Current Sources

USSR

UDC 621.362.2

LIDORENKO, N. S., LEBEDEV, V. F., SIMONOV, V. A.

"High-Reliability Thermoelectric Batteries"

Izvestiya Akademii Nauk SSSR, Energetika i Transport, No 6, 1971, pp 99-104.

ABSTRACT: A study is made of a thermoelectric packet type battery without insulation, in which the insulation units are replaced with connecting pipes having high electrical resistance. The effectiveness of this design was evaluated by comparing the integral current in the primary circuit of the battery with the parasitic current leaks through the connecting pipes. These currents were determined from the electrical field of the heat conductor, which was determined in turn from the LaPlace equation with boundary conditions found using supplementary electrical analogues. Practical recommendations are given for the production of similar batteries. A photograph and cross-sectional drawing of such a battery are presented. The leakage current in the thermal batteries was found to be 4-6% of the current passing through the elements. The distribution of potential in each junction indicated that there were no circulating currents in each half-element. The energy characteristics of these batteries depend significantly on the thickness of the walls and pipe lengths. As wall thickness is increased from 0.1 to 0.7-0.8 mm, current leaks increase in proportion to the ratio of cross-sectional areas.

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USSR

UDC: 621.396.4(088.8)

MATSKOV, A. A., MUSAYELYAN, S. A., DANIELYAN, S. A., LEBEDEV, V. F.

"A Modulation Device for a Radio Relay Station With Unilateral Phase-Pulse Modulation"

USSR Author's Certificate No 278777, filed 14 Jan 69, published 26 Nov 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D399 P)

Translation: A modulation device is proposed for a radio relay station with unilateral phase-pulse modulation. The device contains a low-frequency amplifier, envelope restitution circuit, comparator and output pulse shaper connected in series, and also a sawtooth reference voltage generator connected to the comparator. To reduce nonlinear distortions of the modulating signal, connected to the input of the low-frequency amplifier is a series circuit comprised of a buffer amplifier and a compensation signal shaper which may be made in the form of a modulating signal detector whose output is connected through a coupling circuit to one of the comparator outputs.
V. P.

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USSR

UDC: 621.396.43

MATSKOV, A. A., MUSAYELYAN, S. A., DANIELYAN, S. A., LEHEDEV, V. A.

"A Modulation Device for a Radio Relay Station With Unilateral Pulse Position Modulation"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratzay, Tovarnyye Znaki, No 26, 1970, Soviet Patent No 278777, Class 21, filed 14 Jan 69, p 43

Abstract: This Author's Certificate introduces a modulation device for a radio relay station with unilateral pulse position modulation. The unit contains a low frequency amplifier, envelope restoration circuit, comparator and output pulse shaper all connected in series, and also a reference sawtooth voltage oscillator connected to the comparator. As a distinguishing feature of the patent, nonlinear distortions of the modulating signal are reduced by connecting a series circuit at the output of the low frequency amplifier consisting of a buffer amplifier and a compensation signal shaper which may be made in the form of a modulating signal detector whose output is connected in addition to one of the comparator outputs through a coupling circuit.

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USSR

UDC 621.376.6

MATSKOV, A. A., MUSAYELYAN, S. A., LEBEDEV, V. F., DANIELYAN, S. A.

"A Modulation Device for a Radio Relay Station"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obratny, tovarnyye znaki, 1970, No 36, Soviet Patent No 288062, class 21, filed 11 Aug 69, published 3 Dec 70, p 61

Translation: This Author's Certificate introduces a modulation device for a radio relay station with unilateral pulse-time modulation. The device contains a series hook-up comprised of a low-frequency module, an envelope restitution circuit and a comparator connected to an output pulse shaper and a sawtooth voltage generator which includes a charging capacitor and a master current stage. As a distinguishing feature of the patent, mutual interference between channels is eliminated by making the comparator with two transistors of the same conductivity type. The emitters of these transistors are tied together and connected to the charging capacitor, and the collectors are also tied together and connected to the output pulse shaper, e. g. through a trigger winding. The base of one of the transistors is connected to the output of the envelope restitution circuit, while the base of the other is connected to a blanking voltage source, e. g. through a resistive divider.

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UDC 621.565.83:428.84

USSR

GANIN, YE. A., KARICHEV, Z. R., LEBEDEV, V. F., RATNER, V. M., RAYETSKIY, A. S.,
SIMONOV, V. A.

"Experimental Thermoelectric Air Conditioner"

Moscow, Kholodil'naya tekhnika, No. 9, Sep 71, pp 12-15

Abstract: The thermoelectric room air conditioner developed by the authors that has thermobatteries with a coaxial flow of heat and electric current is described. The air conditioner consists of a thermoelectric battery unit, a power supply unit, and a system for automatically maintaining a given temperature level. Air conditioning occurs in the thermoelectric battery unit where the air is heated, cooled and cleaned of dust depending on the operating regime of the batteries. Air from the room is pumped through the battery unit as a result of rarefaction produced by a turbine fan and again enters the room. The hot junctions of the air conditioner are cooled by tap water. The thermoelectric battery unit consists of 24 batteries which are fastened in a circle on two bands of brackets forming a complete cylinder, with the internal diameter connected with the input opening of the turbine. The semiconducting materials of the thermocouples were the trinary alloys Bi Te Sb and Bi Te Se which are widely used in thermo-

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USSR

GANIN, YE. A., et al, Kholodil'naya tekhnika, No. 9, Sep 71, pp 12-15

electric refrigeration devices. The power supply of the thermobatteries was 220 amp and was chosen on the basis of their maximum cold productivity which was 90-100 kcal/hr. Tests showed that for a water temperature of 20°C and an air temperature of 25°C, the refrigeration capacity of the air conditioner was about 2200 kcal/hr. This required a power of 3.2 kW and the air was cooled in the conditioner to 9°C. When the air conditioner was used as a heat pump, tests showed that for temperatures of the cooling order of 5°C and air temperatures of 12°C, the amount of heat obtained was approximately 3100 kcal/hr. The air conditioner weighed about 100 kg. It is noted that despite the greater requirement for electrical energy as compared with compression air conditioners, the cost of using thermoelectric conditioners may be lower since the necessity for expensive maintenance and capital repairs is avoided.

- END -

CSO: 1861-W

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- 144 -

UIC: 629.78.017.2

USSR

LEBEDEV, V. G., PROKHORENKO, V. I., SIMOROV, I. M.

"Determining the Orientation of a Rotation-Stabilized Artificial Satellite
From Telemetric Data Sent by Magnetometers"

Moscow, Upr. dvizhushchimisya ob'yektami. Tr. IV Vses. soveshch. po avtomat.
upr. Tbilisi, 1968--sbornik (Control of Moving Objects. Works of the Fourth
All-Union Conference on Automatic Control. Tbilisi, 1968--collection of
papers), 1972, pp 311-312 (from RZh-Raketostroyeniye, No 10, Oct 72, ab-
stract No 10.41.63)

Translation: The authors consider the problem of determining the angular
position of an artificial satellite stabilized by rotation with an angular
velocity of more than 3 deg/s from data of magnetometric measurements sent
over a telemetric channel. The method of determining the angular position
of the rotating satellite is based on harmonic analysis of signals sent
from the magnetometers. The parameters of orientation of the artificial
satellite relative to an absolute coordinate system are determined on the
basis of a comparison of the laws of variation in the average values of the
amplitudes, frequencies and phases of the components of the vector of inten-

1/2

USSR

LEBEDEV, V. G. et al., Upr. dvizhushchimisya ob"yektov. Tr. IV Vses. soveshch. po avtomat. upr. Tbilisi, 1968--sbornik, 1972, pp 311-312

sity of the earth's magnetic field in projection on the associated axes of the artificial satellite with the corresponding characteristics of the isolated harmonic components of the signals. The proposed method enables determination of the angular position of a rotating satellite both in the mode of rotation and in the mode of "tumbling". Methods are presented for evaluating the systematic and total error in determining the angular position of a rotation-balanced satellite by the given method. Bibliography of 4 titles. Résumé.

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UDC 533,70

USSR

LEBEDEV, V. I., and ADIGANOV, A. A., Academician of the Academy of Sciences of the Tadzhik SSR

"Green's Functions and Their Spectral Representation for Classical Mixtures"

Dushanbe, Doklady Akademki Nauk Tadzhikskoy SSR, Vol 16, No 3, 1973, pp 29 - 32

Abstract: The successful application of the method of Green's Functions to describing classical systems consisting of particles of a single type makes it interesting to attempt to describe a classical system with a variety of particles by Green's Functions. The authors have obtained spectral representations and a sequence of equations which determine the two-time delay and advance of Green's Functions for systems consisting of a mixture of particles.

As in the single component system, Green's Functions of order S are related to the corresponding Green's Functions of order $S+1$. In order to find approximate solutions for the Green's Functions it is therefore necessary to uncouple the sequence of equations using the theory of perturbations or to approximate higher order Green's Functions by lower order Green's functions with the aid of an analog of Wick's quantum mechanical theorem for the classical case.

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USSR

UDC: 620.78.53.001.2

LEBEDEV, V. I.

"Reproducing a Given Law of Acceleration on a Double Centrifuge"

Tr. Leningr. politekhn. in-ta (Works of Leningrad Polytechnical Institute), 1972, No 321, pp 99-102 (from RZh-Metrologiya i Imeritel'naya Tekhnika, No 6, Jun 72, Abstract No 6.32.385)

Translation: The paper describes the design of a rotary electromechanical stand for studying the amplitude-frequency response of accelerometers. An analysis is made of the way that misalignment between the shafts of the working rotor and the rotary table, radial wobble of the base surfaces, and end tilt of the plane of the rotary table to the axis of rotation affect the law of acceleration being reproduced. Formulas are given for acceleration in a projection on coordinate axes which coincide with the axes of sensitivity of the instrument being studied. Three illustrations, bibliography of three titles.

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LEBEDEV, V. I.

JPRS 57878
2 Jan 73

- 1 -

LI - USSR - A

7 JANUARY 1973

PSYCHOLOGICAL COMPATIBILITY IN INTERPLANETARY FLIGHT

Article by USSR Pilot-Commander G. L. Lebedev and V. I. Lebedev. In the Proceedings of Psychological Compatibility in Interplanetary Flight, Moscow, 1972, pp 14-17.

Developing as the superior synthesis of the latest achievements of science, technology, and production, in turn, astronautics has created truly boundless prospects for interplanetary scientific and technical progress. We are witnessing a process of development of outer space, whose scale trends are manifested in the utilization by the national economy of scientific discoveries made in the course of flights by automatic stations and men in outer space, as well as of many scientific and technological accomplishments which have become possible thanks to the development of modern rocket-space technology.

No single branch of science and technology has developed in such a headlong manner as astronautics. The number of complex projects realized between 4 October 1957, the launching of the first artificial earth satellite, and our days has been so immense that it enables us, in the next few years, to make a qualitative leap in the conquest of outer space. In March 1966 a symposium was held in the U.S. dedicated to problems of forecasting in the conquest of outer space over the next 10 years. In the past six years such forecasts have become considerably more specific. Today the future of space research for the next two decades is shaping up in a more specific manner.

In the period between 1975 and 1985 large permanent orbital stations, serviced by people, will be launched in an orbit around the earth. Such orbital stations will represent a complex of individual blocks, cabins, and laboratories. They will ensure not only scientific research work but the docking of space engines in orbit, and their assembly and check up, as well as the fueling, repair, and launching of ships in outer space.

UDC 621.374.33

USSR

LOSKUTOV, B. P., LEBEDEV, V. I., and GUSEV, A. V.

"Calculation of the Duration of Blanking Processes in Five Diode Circuits for Activating an Integrated Transistor"

V sb. Mikroelektronika. Vyp. 1 (Microelectronics. No 1--collection of works), Moscow, Atomizdat, 1971, pp 63-74 (from FZh-Radiotekhnika, No 6, Jun 71, Abstract No 6G305)

Translation: A quantitative study is made of the blanking processes in integrated microcircuits in which semiconductor diodes made simultaneously with the transistors are actually formed by the integrated transistor structures. The analysis is done by solving continuity equations for the minority nonequilibrium carriers in the base and collector of the integrated drift transistor with regard to the effect of barrier capacitances. It is shown that in a single microcircuit, diodes can be produced with a resorption time from hundredths of a ns to several μ s, using five diode circuits for transistor activation. Bibliography of ten titles.
N. S.

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USSR

UDC 654.034.5

BURAK. B.A., LEBEDEV. V.I., and PLOTNIKOV. V.M., Moscow Higher Technical College imeni ~~Nestor Bauman~~

"Some Problems in Selecting Criteria in the Task of Pattern Recognition"

Leningrad, Prihorostroyeniye, No. 5, 1971, pp. 66-70

Abstract: The task of selecting informative criteria is a bottleneck in the theory of pattern recognition because of the lack of an adequate mathematical apparatus. Estimates which are used in information theory do not take into consideration the specific features of pattern recognition. The authors of the present article assume that the criteria being used are mutually statistically independent and that their individual probability distributions are normal and have the same parameters. By applying these assumptions to two commonly used estimates, they obtain formulas for a combined estimate of the statistical distributions and for the probability of an error in recognition. The use of these formulas gives a rough estimate of the required number of inputs of a recognition automaton. The authors emphasize that this method of selecting criteria is only approximate, and its effectiveness is also limited by the assumption of normal probability distributions.

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Acc. Nr.

AP0036348

Abstracting Service:
CHEMICAL ABST. 4-70

Ref. Code

UK 0007

69304f Geochemistry of thallium (regular character of its isomorphism). Lebedev, V. I. (Leningrad Gos. Univ., Leningrad, USSR). ~~Geochemistry~~ 1970, (1), 78-81 (Russ). An attempt is made to find an explanation of the obsd. substitution of Fe by Tl in disulfides while it is lacking in pyrrhotite as well as of the substitution by it in sulfides of a no. of other elements (Co, Ag, Zn, Pb, Mo) despite the substantial difference between the valency magnitude and the size of effective radii of ions and atoms. The assumed explanation is given on the basis of comparing Tl and the mentioned elements in corresponding compit. in an excited state by using the system of ionic-at. radii which Tl has recently proposed. BLJR.

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18 di

REEL/FRAME
19721186

AA0052684

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, 2-70

24353' DRILL simultaneously shear-tests ground
at any depth in disturbed conditions and
varying consistencies: the hollow housing (1) has
a three or four blade bit (2) and encloses the
axially free bar (3) whose bottom end terminates
in the vaned wheel (4). This wheel lies in a
cruciform cavity provided in the bit (5), thus
protecting the wheel during drilling. The lower
end of the wheel protrudes beyond the bit and
carries a rectangular blade or cutter (6) which
protects the cone from wear during drilling. The
drive (not indicated) is at the upper end of the
axial bar.

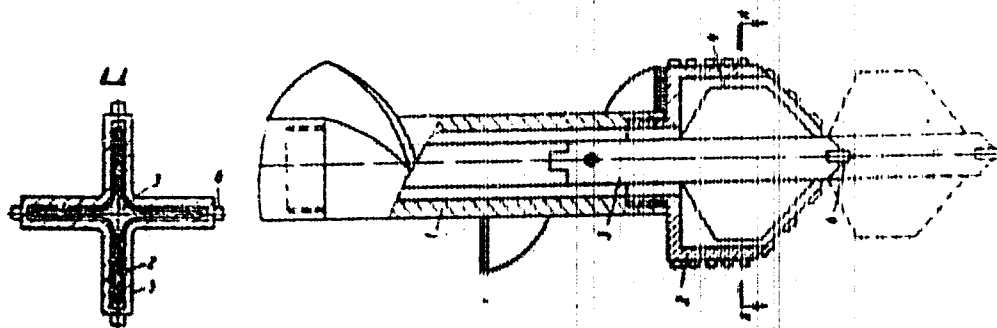
26.1.68. as 1213313/29-14, ARONOV, A.E. and
LEBEDEV, V.I. "Energoset'proekt" Res. & Des. Inst.
(24.9.69) Bul. 17/14.5.69. Class 5a, 42k Int.
Cl. E 21b, G Clf.

18

19821461

AA0052684

Vsesoyuznyy Gosudarstvennyy Proyektiro-Issledatel'skiy i Nauchno-Issledovatel'skiy Institut "Energoat'proekt"



19821462

1/2

1/2 022 UNCLASSIFIED PROCESSING DATE--11SEPT0

TITLE--SIMILARITIES AND DIFFERENCES IN THE STRUCTURE OF TYPICAL CHEMICAL
ELEMENTS DETERMINING THEIR ROLE IN NATURE -U-

AUTHOR--LEBEDEV, V. I.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK LENINGRADSKOGO UNIVERSITETA, NO 6, GEOLOGIYA, GEDGRAFIYA,
1970, NR 1, PP 36-45

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INORGANIC CHEMISTRY, CARBON, OXYGEN, FLUORINE, PHOSPHORUS,
ELECTRON DENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1928/1301

CIRC ACCESSION NO--AP0106079

STEP NO--UR/0307/70/000/001/0036/0045

UNCLASSIFIED

PROCESSING DATE--11SEP70

UNCLASSIFIED

2/2 022

CIRC ACCESSION NO--AP0106079

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

ABSTRACT. REASONS FOR SIMILARITIES AND DIFFERENCES BETWEEN THE ELEMENTS OF THE SECOND AND THIRD PERIODS NAMED "TYPICAL" BY D. I. MENDELEEV, AND PARTLY THE ELEMENTS OF OTHER PERIODS ARE GIVEN IN THE ARTICLE. ONE OF THE MOST IMPORTANT REASONS FOR THE DIFFERENCE IN CHEMICAL PROPERTIES OF THE ELEMENTS BELONGING TO THE SECOND PERIOD, C, N, O, F, AND THOSE WHICH ARE ELECTRON ANALOGUES OF THE THIRD PERIOD, SI, P, S, CL, LIES IN THE FACT THAT THE ELECTRONS OF THE FORMER GROUP ARE P, CAINOSYMMETRICS AND OF THE LATTER ARE REPEATED P, SYMMETRICS. THE CAINOSYMMETRY PHENOMENON OF C, N, O, F ATOMS IS THAT THE ELECTRON DENSITY MAXIMA OF THEIR 2P, ELECTRONS ARE LOCATED NEARER THE NUCLEUS THAN THOSE OF 2S PRIME², ELECTRONS. SINCE CHEMICAL BOND, AS IT WAS ESTABLISHED BY THE AUTHOR (LEBEDEV, 1967, 1969), IS DUE TO THE OVERLAPPING OF THE MAXIMA OF VALENT ELECTRONS IN THEIR BASIC OR EXCITED STATE, THERE MUST BE SHARP DIFFERENCES BETWEEN C AND SI, N AND P, AND SO ON. SUCH DIFFERENCES EXIST IN REALITY.

UNCLASSIFIED

USSR

UDC: 621.372.061

L
LEBEDEV, V. I.

"Interference Stability Reserve of Integrated Elements"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Electrical Communications Technology--collection of works), Vyp. 5, Moscow, "Svyaz", 1970, pp 104-115)

Translation: The author gives the results of calculation of the reserve of static interference resistance for diode-transistor, transistor-transistor circuits, circuits with direct connections, and circuits with common emitters. Chief attention is given to analyzing the reserve ($U_{rs}^{(+)}$) for interference of positive polarity as the most dangerous interference. The reserve ($U_{rs}^{(-)}$) for interference of negative polarity is greater as a rule than $U_{rs}^{(+)}$. The computational results are confirmed by experiment. Nine illustrations, one table, bibliography of eight titles. Resumé.

1/1

USSR

LEBEDEV, V. I., Avtomat. upr i vychisl. tekhn., Vyp. 10, Moscow, Mashinostroyeniye Press, 1972, pp 141-164

perceptron is investigated in the form of the variation problem of minimizing the functional of the conditional Bayes risk by selecting the extremals with simultaneous variation of the thresholds of the effectors and weights of the A-elements.

In the paper a study was also made of the causes of unsatisfactory execution of individual steps of the solution of the recognition problem in the perceptron, and recommendations are made with respect to their optimization. When planning, designing and optimizing the perceptron, the known methods of the classical recognition theory can be used. The bibliography has 15 entries.

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USSR

UDC 8.74

LEBEDEV, V. I.

"Statistical Analysis of the Perceptron"

V sb. Avtomat. upr. i vychisl. tekhn. (Automatic Control and Computer Technology -- Collection of Works), No 10, Moscow, "Mashinostroyeniye," 1972, pp 141-164 (from RZh-Matematika, No 9, Sep 72, Abstract No 9V678)

Translation: An adaptive recognition device of the perceptron type is discussed from the position of a general formulation of the problem of pattern recognition. A series of solutions of typical problems in pattern recognition consists of four stages: measurements of the pattern parameters, formation of a system of indicators, determination of statistical descriptions of separate classes in the chosen space of indicators, and construction of a separating surface. The paper shows that the mechanism for solving the recognition problem in a perceptron is encompassed in the given sequence. The nonoptimality of the structure of the parameter space, a perceptron achieved by its retina, and the low informative capacity of statistical descriptions of the separated classes in this space are noted. A more interesting feature of the adaptive recognition automaton of the perceptron type is its learning mechanism. Perceptron learning is considered in the form of a variational problem of the minimization of the functional of the

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USSR

LEBEDEV, V. I., Avtomat. upr. i vychisl. tekhn., No 10, Moscow, "Mashino-
stroyeniye," 1972, pp 141-164)

conventional risk bias by selecting extremals with a simultaneous change in the thresholds of the effectors and weights of the Δ -elements. The paper also discusses the reasons for the unsatisfactory fulfillment of individual stages in the solution of the recognition problem in a perceptron, and recommendations are made for their optimization. Familiar methods of the classical recognition theory can be used in designing and optimizing a perceptron. 15 ref. Authors abstract.

2/2

- 53 -

USSR

UID: 621.791.72:621.373.8

LEBEDEV, V. K., GRANITSA, V. T., and GRASHCHUK, V. P., Institute of Electric Welding
imeni Ye. O. Paton, Academy of Sciences, Ukrainian SSR

"The Effect of Radiation Pulse Shape on the Depth of the Zone of Fusion During
Laser Welding"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 73, pp 10-12

Abstract: The authors present the results from studying the nature of the relation
between depth in the fusion zone and radiation energy during the effect of various
pulses. The results show that the shape of a radiation pulse with exponentially
varying power with respect to time is most rational, since it ensures maximal
depth of fusion and minimal energy loss. Copper plate was used as the material
to be welded by the optical laser.

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- 55 -

USSR

UDC: 539.4

GUSHCHA, O. I., LEBEDEV, V. K., GUZ', A. N., MAKHORT, F. G., Kiev

"Some Results of the Application of the Ultrasonic Nondestructive Method of Measurement of Residual Stresses"

Kiev, Problemy Prochnosti, No 8, Aug 73, pp 71-73.

Abstract: A method of nondestructive measurement of biaxial residual stresses is described, based on the regularities of propagation of ultrasonic waves in solids. The results of its practical application to the analysis of stresses in specimens and structural elements in the laboratory, as well as measurement of residual stresses in existing structures at aluminum plants are presented.

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- 3 -

USSR

UDC 621.372.8.049.75-416 1

LISENKO, G. A., DRITOV, L. A., ZAYTSEV, P. P., LEBEDEV, V. K., POVIKOV, O. N.

"Unshielded Bound Four-Layer Microstrip Line of Superhigh Frequency Integrated Circuits"

Tr. Ul'yanovsk. politekhn. in-ta (Works of Ul'yanovsk Polytechnic Institute),
Vol 6, No 3, 1971, pp 193-199 (from RZh-Radiotekhnika, No 10, Oct 71, Abstract
No 10B119)

Translation: A study was made of an unshielded band line comprising an external shield and central conductors of rectangular cross section arranged in a five-layer semiconductor substrate. The second, third and fifth layers are insulating layers which prevent modulation of the semiconductor conductivity; the first layer is a plastic filler. The primary parameters of the line (linear capacitance, leakage conductance and inductance) were calculated. The calculation was performed for cophasal and antiphase waves. There is 1 illustration and a 12-entry bibliography.

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USSR

UDC 621.791.756.011:546.821

GUREVICH, S. M., BLASHCHUK, V. Ye., NOVOKOV, V. I., and LEBEDEV, V. K.,
Institute of Electric Welding imeni Ye. O. Paton

"Local Thermal Processing of Welded Vessels Made of AT3 Titanium Alloy"

Kiev, Avtomaticheskaya Svarka, No 2, Feb 71, pp 12-14

Abstract: A study was made of the possibilities for removing the residual stresses in the weld seams of AT3 vessels and in the area near the seams by local thermal processing. Because there were no available data on the residual stresses in the AT3 alloy, the nature and amount of these stresses in welded joints of thick sections of the metal had to be studied through experimentation, which was done on approximately square specimens of the alloy. Preliminary work, consisting of heating the specimen to 600-650°C for two hours, then cooling, was to determine the extent to which the residual stresses in the welded seam and its surroundings were removed and whether local heating could reduce the longitudinal residual stresses. The latter received special attention since cracks in titanium alloy welds are usually at right angles to the seam. The residual stresses were measured with DK-20 tensometers. It is concluded that local thermal treatment

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USSR

GUREVICH, S. M., et al, Avtomaticheskaya Svarka, Kiev, No 2, 1971, pp 12-14

is effective in reducing or eliminating residual longitudinal stresses, and such treatment is recommended for circular welds on vessels. A table of the stresses measured with and without local thermal processing is given.

2/2

- 67 -

1/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ARGON ARC WELDING -U-
AUTHOR-(04)-LEBEDEV, V.K., PENTEGOV, I.V., STEMKOVSKIY, YE.P., SIDORENKO,
M.N.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 248115
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI BUL
DATE PUBLISHED--05JAN70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., MECH., IND., CIVIL AND
MARINE ENGR
TOPIC TAGS--INERT GAS ARC WELDING, WELDING EQUIPMENT, POWER SUPPLY,
THYRISTOR, ELECTRIC TRANSFORMER, ELECTRIC CAPACITOR, PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/1047 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0131601
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0131601

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. ARGON ARC WELDING WITH POWER TRANSFORMER, VARIABLE CHOKE AND A BATTERY OF CAPACITORS ALL IN SERIES WITH THE WELDING ARC, IMPROVES WELDING BY INTRODUCING A CONTROLLED D.C. CURRENT COMPONENT INTO THE WELDING CIRCUIT WITHOUT MAGNETIC BIAS OF THE POWER TRANSFORMER, AN EXTRA SECONDARY WINDING IS APPLIED TO THE TRANSFORMER. THIS WINDING FORMS, IN CONJUNCTION WITH THE SATURATION CHOKE AND THE RECTIFIER, A D.C. SOURCE WITH A SHARPLY DROPPING CHARACTERISTIC AND CONNECTED TO THE ARC GAP VIA AN L SHAPED FILTER. PARALLEL TO THE CAPACITOR BATTERY ARE PLACED A THYRISTOR AND A RESISTOR WHICH PROTECT THE CAPACITORS FROM OVERVOLTAGE WHEN THE ARC IS BROKEN, THE CONTROLLING ELECTRODE OF THE THYRISTOR IS CONNECTED TO ITS ANODE VIA A RESISTOR, A VOLTAGE STABILISER AND UNCONTROLLED DIODE, ALL IN SERIES.
FACILITY: INSTITUT ELEKTROSVARKI IM YE. O. PATONA.

UNCLASSIFIED

USSR

UDC 621.791.72:535.14:621.315.3

LEBEDEV, V. K., and GRANITSA, V. T.

"Laser Welding of Insulated Winding Wires"

Kiev, Avtomaticheskaya svarka, No 3, Mar 72, pp 70-71

Abstract: Described are experiments conducted at the Electric Welding Institute imeni Ye. O. Paton involving laser welding of cylindrical and flat terminals of insulated winding wires. The welding was done with a modernized UL-2 ruby-crystal unit by overlapping. A curve shows the dependence of the weld strength on radiation energy W . With increasing energy, the weld strength increases, attains its maximum, and then smoothly decreases. Based on both visual and metallographic examinations, the decrease in strength is attributed to vaporization caused by the increase in energy. Under optimum conditions the strength of welded joints comes to 70-90% of that of the wire. The study indicates the feasibility of laser-radiation welding for Viniflex-insulated winding wire. The new technique eliminates the time-consuming operations such as stripping, degreasing, fluxing, and tinning. (2 illustrations)

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USSR

UDC 539.3

GUZ', A. N., MAKHORT, P. G., GUSHCHA, O. I., LEBEDYV, V. K.,
Institute of Mechanics, Academy of Sciences, Ukrainian SSR,
Institute of Electric Welding, Academy of Sciences, Ukrainian
SSR (Kiev)

"On the Theory of Wave Propagation in an Elastic Isotropic Body
With Initial Deformations"

Kiev, Prikladnaya Mekhanika, Vol 6, No 12, Dec 1970, pp 42-49

Abstract: The influence of initial deformations upon the propa-
gation velocity of elastic waves in an isotropic body is studied
within the framework of the theory of finite initial deformations
and several variants of the theory of small initial deformations
in terms of Lagrange coordinates, with the use of Green's de-
formation tensor. Proof is given of the conditions that must be
satisfied by the form of the elastic potential in order to ex-
plain the experimentally obtained rules. Research results for
organic glass are presented. The values of second- and third-
order elastic constants for organic glass are computed. 2 figures,
1/1 15 bibliographic entries.

AA0040710

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UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-20

235861 RESISTANCE BUTT WELDING of homogeneous material, which have a tendency to brittleness, involves using instead of a straight butt a saw-tooth shaped or undulating joint of the two facing plates. During the upsetting operation, the projections of one end match the depressions of the other end. The zig-zag line of fusion prevents the origin or cracks. 4.9.67. Is 1185267/25-27.
V.K.LEBEDEV et alia. E O. Paton Electrowelding Inst. (4.7.69.) Bul.6/24.1.69. Class 21h. Int.Cl. B23k.

LD

AUTHORS: Lebedev, V. K.; Yavorskiy, Yu. D.; Sakhatzkiy, G. P.; Yushchenko, K. A.; and Onishchenko, P. M.

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Institut Elektrosvarki imeni Ye. O. Patona

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19750347

USSR

UDC 539.4.011

KOTOV, P. I., LEBEDEV, V. M., and MERKULOV, V. N., Moscow
Aviation Technological Institute

"The Creep of VT-14 Titanium Alloy Under Low-Cycle Load Condi-
tions"

Kiev, Problemy Prochnosti, No 5, May 73, pp 54-57

Abstract: The accumulation process of creep strain and the failure conditions of VT-14 alloy were investigated at low-cycle load in the 2.5-50 cycles/hr frequency range at 400°C. The creep deformation of 1.0%, first resulting under stationary conditions, lowers the deformability of the alloy at subsequent cyclic load. With increasing average stress $\bar{\sigma}$, the time until failure decreases; the change of the durability value depends on $\alpha = \tau_c / \tau_s$, where τ_c and τ_s are the application times of cyclic and static loads. At different $\bar{\sigma}$ levels and by different α values, the creep can have an improving as well a damaging influence on the durability. With increasing deformation frequency, the effect of cyclicality substantially lowers the magnitude of ultimate creep deformation. Six figures, eight bibliographic references.

1/1

USSR

UDC: 620.172

MERKULOV, V. N., KOTOV, P. I., LEBEDEV, V. M., Moscow

"Short-term Creep of OT4 Alloy"

Kiev, Problemy Prochnosti, No 11, Nov 72, pp 57-59.

Abstract: This work studies the short-term creep of OT4 titanium sheet alloy as delivered by the manufacturer at temperatures of 400-500 and 600° and at rather high stresses, amounting to 55-100% of the tensile strength. In the 400-600°C temperature range, the short-term creep of OT4 alloy is accompanied by significant hardening. The temperature level at which hardening disappears with short term creep is about 640°C. In the 400-600° temperature level, the short term creep of OT4 alloy can be satisfactorily described by an equation based on the hypothesis of hardening when the hardening measure is the inclined creep deformation.

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- 100 -

USSR

UDC 534.64

LEBEDEV, V. M., ABDULRAGIMOV, R. G.

"Acoustics of an Opera and Ballet Theater in Baku"

V sb. Materialy Nauchn. konferentsiya molodykh nauchn. rabotn. III stroit. fiz. Gosstroya SSSR. Otd. inform.-izdat. i patentno-litsenz. raboty, 1970
(Materials of the Scientific Conference of Young Scientific Workers of the Scientific Research Institute of Structural Physics of Gosstroy USSR. Department of Information-Publishing and Patent-Licence Work, 1970 -- Collection of Works), Moscow, 1970, pp 76-79 (from REh-Fizika, No 12(II), Dec 70, Abstract No 12Zh854)

Translation: The hall has a volume of 9100 m³ and is designed for 1200 seats and has good acoustics. Measurements were made of the reverberation time in an empty and half-full hall and also with a closed fire curtain. The measurements were conducted in the frequency range 125 Hz - 8 kHz and showed that the hall has a high reverberation time (2.2 sec). The distribution of the stationary signal level over the hall was measured and the level of first reflections was calculated for certain points. A concentration of sound along the longitudinal axis of the hall was observed. I. L.

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difference between chambers A and B, and therefore
constant consumption, using the membrane and relief
valves. The difference is determined by the
relation of the weight of the sparging system to
the effective area of the membrane.

25.5.65. as 1009210/16-16, ~~SECRET~~, V. 11, p. 41.
(19.3.68) Bal. 14/11.4.68. Class 42e, Int. Cl.
G 01f.

"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201720018-8

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AA9028462

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201720018-8"

1/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--HIGH TEMPERATURE X RAY STUDY OF THE PEROVSKITE MODIFICATION OF
CDTID SUB3 -U-
AUTHOR--(03)-LEBEDEV, V.M., VENEVTSEY, YU.N., ZHDANOV, G.S.
COUNTRY OF INFO--USSR
SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 377-9
DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, PHYSICS
TOPIC TAGS--CADMIUM COMPOUND, TITANATE, X RAY STUDY, MINERAL, CURIE POINT,
NIOBIUM OXIDE, HIGH TEMPERATURE EFFECT, ANTIFERROELECTRICITY

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0319 STEP NO--UR/0070/70/019/002/0377/0379
CIRC ACCESSION NO--AP0119306
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--23JUL79

CIRC ACCESSION NO--AP0119306

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A HIGH TEMP. (EQUAL TO 1200DEGREES) X RAY DIFFRACTION STUDY OF THE PHASE TRANSITION IN THE PEROVSKITE MODIFICATION OF CdTiO_3 SUB3 WAS MADE TO CLARIFY THE CONFLICTING LITERATURE DATA ON THE CURIE TEMP. AND THE TRANSITION FROM THE FERROELEC. TO THE ANTIFERROELEC. STATE. THE TEST SPECIMENS WERE PREPD. BY THE USUAL CERAMIC PROCEDURE BY FIRING TWICE (AT 1050DEGREES AND 1250DEGREES) A STOICHIOMETRIC MIXT. OF PURE CdCO_3 SUB3 AND TiO_2 SUB2 IN A CdO ATM. TO PREVENT DECOMP. OF THE CdTiO_3 SUB3 FORMED. WITHIN THE TEMP. RANGE STUDIED, THE SUBLATTICE OF CdTiO_3 SUB3 SUSTAINED MONOCLINIC DISTORTION. AT ROOM TEMP., THE LATTICE PARAMETERS COINCIDE WITH LITERATURE DATA. WITH INCREASING TEMP., PARAMETERS a EQUALS c , b , AND v PRIMEONETHIRD TEND TO INCREASE AND PARAMETERS β AND $\beta - \alpha$ DECREASE. THE RESULTS CONFIRMED AN EARLIER CONCLUSION THAT CdTiO_3 SUB3 HAS A CURIE TEMP. OF EQUIVALENT 960DEGREES AND THAT BELOW THIS TEMP. THE COMPD. IS ANTIFERROELEC. THE CHARACTER OF THE TRANSITION AT THE CURIE POINT IS SIMILAR TO THAT EARLIER REPORTED FOR NaNbO_3 . FACILITY: NAUCH. ISSLED. FIZ. KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECT OF THE PHOSPHORUS NUTRITION LEVEL ON THE ACTIVE PART OF THE
APPLE TREE ROOT SYSTEM -U-
AUTHOR--LEBEDEV, V.M.
COUNTRY OF INFO--USSR
SOURCE--AGROKHIMIYA 1970, (4), 32-7
DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AGRICULTURE CROP, HYDROPONICS, PHOSPHORUS COMPOUND, PLANT
PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/0466

STEP NO--UR/0485/70/000/004/0032/0037

CIRC ACCESSION NO--AP0134234

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0134234
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLE TREE SEEDLINGS WERE GROWN IN
WATER MEDIA CONTG. VARIOUS AMTS. OF P. P DEFICIENCY INTENSIFIED ROOT
SYSTEM ACTIVITY; THE ACTIVE SURFACE INCREASED IN SIZE, THE ACTIVE ROOTS
INCREASED IN DIAM., AND ROOT HAIRS INCREASED IN NO. WITH INCREASING
DOSE OF P, THE ROOTS BECAME LONGER BUT THEIR WT. DECREASED, AND
RESPIRATION BECAME MORE INTENSE. DEAD ROOTS ALMOST DISAPPEARED. THE
PRODUCTIVITY OF THE ROOT SYSTEM AND THE TOTAL WT. OF THE SEEDLINGS
INCREASED. FACILITY: PLODQOVSHCH. INST. IM. MICHURINA,
MICHURINSK, USSR.

UNCLASSIFIED

Beryllium

USSR

UDC: 620.193.01 9

VOL'FSON, A. I., MARKOVA, N. Ye., CHERNYSHEV, V. V., LEBEDEV, V. N., BABAKIN, V. V.

"Some Electrophysical Characteristics of Anodic Films on Beryllium"

Moscow, Zashchita Metallov, Vol 9, No 3, May/June 73, pp 346-347

Abstract: The electrophysical properties of anodic oxide on beryllium were studied by measuring breakdown voltage and capacitance. Beryllium specimens in the form of discs had threaded holes in the lateral surface for screwing in V95 aluminum alloy conductive rods insulated by a mixture of wax and rosin. Before anodizing, the specimens were degreased and then oxidized in a 20% aqueous solution of CrO_3 . Current density was 20 A/cm^2 , and temperature was 20°C . The resultant films had a thick porous outer layer and a thin barrier on the metal side. Film capacitance was measured in the same solution. A Teflon ring was pressed against the porous surface layer and filled with mercury. High surface tension kept the mercury from filling the pores in the film. In the resultant capacitor, the air in the pores and the film oxide served as the dielectric. The capacitance was determined by the total thickness of the oxide film. The results of these

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USSR

VOL'FSON, A. I. et al., Zashchita Metallov, Vol 9, No 3, May/June 73, pp 346-347

measurements show that film thickness remains essentially constant with time. Measurements of the critical breakdown voltage of the film confirmed the capacitance measurements. Thick films formed over a 3-4 hour period can withstand voltages up to 1000 V.

2/2

USSR

UDC 621.357.8:669.725(088.8)

VOL'FSON, A. I., UMOV, V. S., POLONSKIY, E. L., MARKOVA, N. Ye.,
CHERNYSHOV, V. V., LEBEDEV, V. N.

"Method of Anodization of Beryllium and Its Alloys"

USSR Author's Certificate No 305210, Filed 5/02/70, Published 15/07/71,
(Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No
2 L241 P from the Resume).

Translation: A method of anodization of beryllium and its alloys in an
electrolyte containing H_3BO_3 , differing in that in order to increase the
corrosion resistance of the film, ethylene glycol and ammonia are intro-
duced to the electrolyte in the following relationship (g/l): ethylene
glycol 50-150, H_3BO_3 30-160, 25% ammonia solution, ml 40-100, and the pro-
cess is conducted at 10-40°, D_c 0.2-2 a/dm².

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Acc. Nr:

AP0100228

Abstracting Service:

CHEMICAL ABST.

Ref. Code:

1570 4/R 0062

111543k Synthesis of fluoroalkenyl-*o*-carboranes. Zacherkin, L. I.; Lebedev, V. N. (Inst. Elementorg. Soedin., Moscow, USSR). *Izv. Akad. Nauk SSSR, Ser. Khim.* 1970, (1), 149-2 (Russ). Reaction of BuLi with 1-methyl-*o*-carborane gave the 2-Li deriv. (I), which in Et₂O-C₆H₆ added over 8-10 hr to a soln. of a fluoro olefin in Et₂O at -30 to -70°, finally in an autoclave 6-10 hr at room temp., gave the following 1-methyl-2-fluoroalkyl-*o*-carboranes: *o*-MeC₁₀H₁₂CCF:CFX (X shown): Cl, b.p. 67-72°; CF₃, b.p. 42-50°; and *o*-MeC₁₀H₁₀C, m. 167-70°; also prepd. were *o*-MeC₁₀H₁₂CCF:CXCF₂C₁₀H₁₀CMe-*o*; F, m. 150-2°; and CF₃, m. 200-2°. I in Et₂O-C₆H₆ treated autoclave with 32 g CF₂:CFCl 8 hr at room temp. gave 2 isomers, b.p. 68-70°, and b.p. 70-2°, each of which contained trans isomers of 1-methyl-2-difluorochlorovinyl-*o*-carboranes in about 30-70 ratio according to NMR and chromatographic data. The NMR spectra of the products were reported in detail. Reaction with C₂F₄ gave only the trans isomer, while perfluoropropylene gave only the product of double substitution regardless of reactant proportion used. Yields were 25-43%.

G. M. Kosolapoff

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 REEL/FRAME
 19841618

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1/2 007 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--INEXHAUSTIBLE RESOURCES IN SCIENTIFIC ORGANIZATION OF LABOR -U-
AUTHOR--LEBEDEV, V.N. L
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, VESTNIK SVYAZI, RUSSIAN, NO 2, FEBRUARY 1970, P 2
DATE PUBLISHED----FEB 70
SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES
TOPIC TAGS--LABOR POLICY, LABOR EMPLOYMENT, COMMUNICATION PERSONNEL, BONUS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1472 STEP NO--UR/0111/70/000/002/0002/000?
CIRC ACCESSION NO--AP0107906
ZZZZZZZZZZZZ UNCLASSIFIED

2/2 007
CIRC ACCESSION NO--AP0107906

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. IMPROVEMENT OF THE ORGANIZATION OF LABOR AT THE ENTERPRISES WITHIN THE SYSTEM OF THE MINISTRY OF COMMUNICATIONS USSR, IN WHICH A MILLION AND A HALF ARMY OF COMMUNICATIONS WORKERS IS WORKING IS ONE OF THE MAIN SOURCES OF GROWTH OF THE LABOR PRODUCTIVITY, OF IMPROVEMENT OF THE QUALITY IN PROVIDING THE POPULATION AND NATIONAL ECONOMY WITH COMMUNICATIONS FACILITIES, OF IMPROVEMENT IN WORKING CONDITIONS INCLUDING A REDUCTION OF THE WORK ON A SHIFT BASIS. TSNIIS (CENTRAL SCIENTIFIC RESEARCH INSTITUTE OF COMMUNICATIONS) AND NIIR (SCIENTIFIC RESEARCH INSTITUTE OF RADIO) HAVE ALREADY COMPLETED THE BRANCH OF ACTIVITY RECOMMENDATIONS ON THE SCIENTIFIC ORGANIZATION OF LABOR. THEIR PUBLICATION WILL START IN THE SECOND QUARTER OF 1970 WITH A SERIES OF BROCHURES ON VARIOUS DIRECTIONS OF THE SCIENTIFIC ORGANIZATION OF LABOR. THEY WILL REFLECT SUCH PROBLEMS AS EVALUATION OF THE LEVEL OF SCIENTIFIC ORGANIZATION OF LABOR AT THE COMMUNICATIONS ENTERPRISES; DETERMINATION OF ECONOMIC EFFECTIVENESS OF THE MEASURES; IMPROVEMENT IN THE ORGANIZATION OF THE WORK STATIONS; LABOR STANDARDIZATION; PSYCHOPHYSIOLOGICAL PRINCIPLES OF LABOR AND IMPROVEMENT OF WORKING CONDITIONS; IMPROVEMENT OF THE BONUS SYSTEM AND A NUMBER OF OTHER PROBLEMS. THE MINISTRY OF COMMUNICATIONS USSR DEVOTES CONTINUOUS ATTENTION TO THE IMPROVEMENT OF THE STANDARDS FOR THE SIZE OF THE STAFF OF THE COMMUNICATIONS ENTERPRISES NOW IN EFFECT, AND TO THE DEVELOPMENT OF NEW STANDARDS.

AM0037796

NUCLEAR SCI. ABST. /-70

WR0000

1682 (CERN-Trans-69-13) BIOLOGICAL SHIELDING AND
 TECHNIQUE OF RAPID EJECTION AT 70 GeV. Uritvich, G. I.;
Gelovachik, V. T.; Krupnyi, G. I.; Lebedev, M. N.; Fil'kov, V. V.;
Bushuev, N. I. (Gosudarstvennyy Komitet po Ispol'zovaniyu
Atomnoi Energii SSSR, Serpukhov, Institut Fiziki Vysokikh En-
ergii). Translated by A. Gelovachik (CERN, Geneva, Switzer-
land), from report IFVE-OR2-69-6. 44p. (In French). (Rep.

The biological shielding for a proton fast-injection system was
 calculated for an ejected proton beam with energy of 70 and 80
 GeV and intensity of 10^{12} protons/cycle for a repetition rate of
 8 cycles/min and proton efficiency of 100%. The shielding against
 the nuclear activity, the μ mesons, and residual activity of the
 target station were calculated. The arrangement of the biological
 shielding of the target station was discussed. (J.S.R.)

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19 dy

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CARDIOLOGICAL DEBUTS OF LEUKEMIA -U-
AUTHOR-(02)-LEBEDEVA, YU.L., LEBEDEV, V.N.
COUNTRY OF INFO--USSR
SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 96-98
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--LEUKEMIA, CARDIOLOGY, TUMOR, DIAGNOSTIC MEDICINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0468 STEP NO--UR70504/7070427/0057009670098
CIRC ACCESSION NO--AP0121142
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121142

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CARDIOLOGICAL SYMPTOMATICS IN LEUKEMIA AND NONLEUKEMIC RETICULOSIS (MALIGNANT LYMPHOMAS) USUALLY MANIFEST THEMSELVES AT THE AGE WITH THE DIAGNOSIS HAVING BEEN STAGED LONG BEFORE. CARDIOLOGICAL DEBUTS OF LEUKEMIA OCCUR VERY RARELY. DURING LONG TERM DISPANSARIZATION THE AUTHOR RECORDED 4 CASES OF CARDIOLOGICAL MASKS OF 450 PATIENTS WITH MALIGNANT TUMOURS OF THE HEMATOPOIETIC SYSTEM (2 WITH ACUTE LEUKEMIA AND 2 WITH RETICULO(LIMPHOSARCOMA)). THE MAIN MECHANISMS GOVERNING CARDIOLOGICAL DEBUTS WERE DIRECT PRESSURE AND REFLEX ACTION OF HYPERPLASTIC LYMPH NODES OF THE MEDIASTINUM, TOXICO ALLERGIC CHANGES AND LEUKEMIC INFILTRATION. FACILITY: GEMATOLOGICHESKOYE OTD. SOCHINSKOGO ONKOLOGICHESKOGO DISPANSERA.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--REACTIONS OF LITHIUM M,CARBORANES WITH FLUORO OLEFINS -U-
AUTHOR--(02)-ZAKHARKIN, L.I., LEBEDEV, V.N.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 587-0
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--LITHIUM COMPOUND, CARBORANE, ALKENE, FLUORINATED ORGANIC
COMPOUND, ORGANOLITHIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/1776 STEP NO--UK/0002/70/0007/15/0587/0588
CIRC ACCESSION NO--AP0121573
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123573

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BULI AND 1, METHYL, M CARBORANE GAVE THE 2, LI DERIV., WHICH IN ET SUB20, C SUB6 H SUB4 UNDER N WAS TREATED AT MINUS 180 DEGREES WITH C SUB2 F SUB4 IN AN AUTOCLAVE, THEN HEATED 2 HR AT 100 DEGREES TO YIELD A MIXT. OF 20 PERCENT 1, METHYL, M, CARBORANE AND 80 PERCENT 1, METHYL, 2, TRIFLUOROVINYL, M, CARBORANE, B SUB15 14 DEGREES; SIMILARLY WERE PREPD. 73 PERCENT M, MEGB SUB10 H SUB10 CCF: CFCL, B SUB15 135 DEGREES; AND 50 PERCENT M, MEGB SUB10 H SUB10 CCF: CFCF SUB3, B SUB15 90-1 DEGREES.

FACILITY: INST. ELEMENTORG, SUCDIN., MOSCOW, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--VACUUM CASTING OF MOLTEN METAL -U-
AUTHOR-(02)-LEBEDEV, V.N., RUBENCHIK, YU.I. L
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 262, 922
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRATSY, TOVARNYE, ZNAKI 1970,
DATE PUBLISHED--04FEB70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--VACUUM CASTING, LIQUID METAL, METALLURGIC PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1046 STEP NO--UR/0482770/000/000/0000/0000
CIRC ACCESSION NO--AA0130081
UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0130081
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, TO DECREASE THE H CONTENT IN THE
METAL DURING VACUUM CASTING, FERROCERIUM (MISCH METAL) WAS ADDED.
FACILITY: BARRIKADY DRILLING EQUIPMENT PLANT.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--2000V7C
TITLE--REACTION OF LITHIUM CARBORANES WITH HEXAFLUOROBENZENE --U--
AUTHOR--(02)--ZAKHARKIN, L.I., LEBEDEV, V.N.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKADEM. NAUK SSSR, SER. KHIM. 1970, (4), 457-8.
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CARBORANE, ORGANOLITHIUM COMPOUND, FLUORINATED ORGANIC
COMPOUND, BENZENE DERIVATIVE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FILE/FNAME--3006/1304 STEP NO--08/0062770/1306/004/0957/0958
CIRC ACCESSION NO--AP0134476
UNCLASSIFIED

272 Q18

UNCLASSIFIED

PROCESSING DATE--20NOV79

CIRC ACCESSION NO--AP0134470

ABSTRACT/EXTRACT--(U) OF-C- ABSTRACT. REACTION OF C,NOB SUB10 H SUB10
 CL1 WITH C SUB6 F SUB6 GIVE CO-SPECTRUM 1,4,0,ROH SUB10 H SUB10 CC SUB6
 F SUB6 CL SUB10 H SUB10 G,C (ONLY ISOMER) IN A REACTION RUN IN ST SUB2
 G 2 DAYS AT ROOM TEMP.; R EQUALS ME, M. 315DEGREES; AND R EQUALS PH, M.
 247DEGREES. EVIDENTLY THE INITIALLY FORMED C,ROH SUB10 H SUB10 CC SUB6
 F SUB6 HAS ITS P,F ATOM SO ACTIVATED BY THE SUBSTITUENT GROUP THAT THIS
 REACTS MORE RAPIDLY THAN DOES C SUB6 F SUB6 ITSELF. THIS WAS THE RESULT
 EVEN WITH A 2 FOLD EXCESS OF C SUB6 F SUB6 IN THE REACTION MIXT.
 FACILITY: INST. ELEMENTORG. SORDIN., MOSCOW, USSR.

1/2 023 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--GLUCOCORTICOID FUNCTION OF THE ADRENAL CORTEX IN PREMATURE CHILDREN
SUFFERING FROM SEPSIS -U-
AUTHOR-(03)-GERASKINA, V.P., LEBEDEV, V.P., BOTVINYEV, O.B.
COUNTRY OF INFO--USSR
SOURCE--VOP OKHR MATERIN DET 15(1): 23-27, 1970
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ADRENAL CORTEX, POISON EFFECT, BLOOD PLASMA, HYDROCORTISONE,
CORTICOSTEROID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3009/0168 STEP NO--UR/0608/70/015/001/0023/0027
CIRC ACCESSION NO--AP0139031
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139031

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FLUOROMETRIC METHOD OF TOTAL DETERMINATION OF 11-OCS (11-OXYCORTICOSTEROIDS) IN THE BLOOD PLASMA AND THE METHOD OF SEPARATE DETERMINATION OF HYDROCORTISONE AND CORTICOSTERONE BY COLUMN CHROMATOGRAPHY ON SILICA GEL WAS USED. IN SEPSIS OF PREMATURE CHILDREN THERE WAS A SINGLE TYPE OF REACTION EXHAUSTION OF ADRENAL CORTEX, CHARACTERIZED BY A LOW PRODUCTION OF HYDROCORTISONE AND CORTICOSTERONE. RESTORATION OF THE ADRENAL CORTEX FUNCTION WAS EXPRESSED IN INCREASED GLUCOCORTICOSTEROID PRODUCTION. SEVERE SEPSIS WAS ACCOMPANIED BY COMPLETE EXHAUSTION OF THE CORTEX AND A MARKED REDUCTION OF THE 11-OCS LEVEL. FACILITY) DEP. HOSP. PEDIAT., N. I. PIROGOV 2ND MOSCOW MED. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CLINICO FUNCTIONAL AND MORPHOLOGICAL CHARACTERISTICS OF FUNCTIONAL
DISORDERS OF THE STOMACH IN YOUNG PERSONS -U-
AUTHOR--LEBEDEV, V.P.
COUNTRY OF INFO--USSR
SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 31-33
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--STOMACH, DIGESTIVE SYSTEM DISEASE, MORPHOLOGY, HISTOCHEMISTRY,
SECRETION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1636 STEP NO--UR/0504/70/042/005/0031/0033
CIRC ACCESSION NO--AP0123474

UNCLASSIFIED