Acc. Nr.: AW0104953

These unusual conditions have brought spacesuits into being. They protect man from unfavorable action by the space milieu, but they are not the best "special clothing" for hard work. In trying to carry out in space even an uncomplicated production operation--removing a camera from the surface of Voskhod-2--I used far more energy than would be needed on earth. The reason? I had to overcome the well-known rigidity of the spacesuit, which is under a curtain internal pressure. Thus, fatigue comes more quickly to a man in a spacesuit. Hence the necessity for alternating labor with relaxation. Working out a production regimen is a new problem facing science. The scientific organization of labor--in space--is not such a far-off matter. Everything will be as on earth--both safety equipment and labor protection. So that the difficult activity outside the earth will bring about the appearance of new and cosmicized fields of knowledge.

Today, one of the problems is comprehension and assessment by the cosmonaut in space of time and space and the formulation in this respect of special methodology. Without a knowledge of this, one can scarcely talk seriously even in passing about the productive activity of man in circumterrestrial space. Together with physician Vladimir Lebedev, I attempted to answer these questions in a book published by the Nauka publishing house.

REEL/FRAME
19871822

4/5

Acc. Nr.: AN0104953

But the most important thing, as always, is experience and the acquisition of skills. The group spacewalk by Yevgeniy Khrunov and Aleksey Yeliseyev and their fulfillment of a considerably greater volume of work--they were in open space for about an hour--considerably broadened our knowledge in this field.

All that I have told you is not in the remote future. Space, in time, will become filled with innumerable artificial "oases" in the form and likeness of our mother--the planet earth.

5/5

REEL/FRAME
19871823

Refractory Materials

USSR

UDC 666.764.2.004.12

ANDREYEVA, A. B., LEONOV, A. I., and KELER, E. K., Institute of
the Chemistry of Silicates imeni I. V. Grebenshchikov of the
Academy of Sciences USSR

"High-Refractory Materials on a Zirconium Dioxide Base Stabilized
by Yttrium and Aluminum Oxides"

Abstract: An account is given of investigation results of a re-
fractory material of zirconium dioxide stabilized by combined ad-
ditions of yttrium and aluminum oxides. Dilatometric analysis re-
sults of specimens with and without Al_2O_3 additions are discussed
by reference to linear thermal expansion curves of zirconium dio-
xide and its solid solutions. The synthesized material, containing
from 90 to 93 mol.% ZrO_2, from 3.5 to 5 mol.% Y_2O_3, and from
3.5 to 5 mol.% Al_2O_3, possessed a lower average thermal expansion
coefficient and a higher heat resistance in comparison with binary
solid solutions of $ZrO_2 - Y_2O_3$ and $ZrO_2 - CaO$ systems. Some phy-
sico-technological properties of the synthesized material were de-
termined. It possesses, like zirconium-yttrium solid solution,
ionic conductivity; its refractoriness is 2400-2450 °C. One figure,
seven bibliographic references.
1/1

Acc. Nr.: _Am 0046208_   Ref. Code: 2(Rop0G

Leonov, A. I.

High-Temperature Chemistry of Oxygen Compounds of Cerium (Vysokotemperaturnaya khimiya kislorodnykh soyedineniy tseriya) Leningrad, Nauka, 1970, 200 pp (SL:1868)

TABLE OF CONTENTS:

    The monograph represents the first attempt of a systematic presentation
of properties of cerium-oxygen compounds...

Reel/Frame
19781316

1/2   046   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--HIGH ELASTIC DEFORMATION OF POLYMERS IN THE VISCOUS STATE -U-

AUTHOR-(04)-VINOGRADOV, G.V., MALKIN, A.YA., LEONOV, A.I., SHUMSKIY, V.F.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(5), 1044-50

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ELASTIC DEFORMATION, BUTYL RUBBER, POLYISOBUTYLENE, VISCOUS
   FLOW, VISCOELASTICITY, ENTROPY, POLYMER RHEOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0730   STEP NO--UR/0459/70/012/005/1044/1050

CIRC ACCESSION NO--AP0136169
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0136169

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE HIGHLY ELASTIC DEFORMATIONS OF
  FLUID BUTYL RUBBER (I) AND POLYISOBUTYLENE (II) WERE STUDIED AS A
  FUNCTION OF TEMP.   THE CHANGES IN INTERNAL ENERGY AND ENTROPY OCCURRING
  DURING A TRANSITION FROM A STATE OF REST TO A STATE OF VISCOUS FLOW AT
  VARIOUS TEMPS. AND THE SHEAR RATES MAY BE EVALUATED BY CONSIDERING THE
  VISCOELASTIC FLOW OF POLYMERS AS HAVING DEFINITE THERMODYNAMIC AND
  RHEOL. PARAMETERS.   THE HIGHLY ELASTIC DEFORMATIONS OF FLUID I AND II
  WERE DISCUSSED.   FACILITY: INST. NEFTEKHIM. SHIN. IM. TOPCHIEVA,
  MOSCOW, USSR.

UNCLASSIFIED

USSR   UDC 621.396.96:621.391.1(088)

LEONOV, A. I., FOMICHEV, K. I.

"Monopulse Radar"

Monoimpul'snaya radiolokatsiya (cf. English above); Moscow, "Sov. Radio", 1970,
392 pp, ill. 1 r. 23 k. (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10A2 K)

Translation: The book deals with various problems of monopulse radar. Consideration
is given to principles of design and basic functional elements of monopulse direction
finding systems, and problems of precision and resolution are analyzed. Theoretical
problems of computer simulation of monopulse systems are outlined, and the interfer-
ence stability of monopulse direction finders is analyzed for various kinds of inter-
ference. Fields of application are described, and the basic tactical and technical
characteristics of some monopulse radar sets of non-Soviet design are presented.
The book is written for engineering and technical workers and upperclassmen in col-
leges and universities majoring in the field of radar technology. 166 illustrations,
ten tables, bibliography of 134 titles. Resumé.

1/1

USSR   UDC 616-005.1-036.11-085.835.35-07:616.127-008.9

LEONOV, A. N. and BARSUKOV, V. A., Department of Pathological Physiology,
Voronezh Medical Institute, and Laboratory of Chemical Physics, Voronezh
University

"Some Characteristics of Metabolism in the Myocardium After Acute Blood Loss
Under Conditions of Hyperbaric Oxygenation"

Abstract: Rats were bled for 30 minutes (2.8% of the body weight) and then
exposed to hyperbaric oxygen (2 atm) in a pressure chamber for 40 minutes.
The intensity of tissue respiration decreased sharply one hour after bleeding
(agonal stage). However, hyperbaric oxygenation not only prevented the de-
pression of tissue respiration in the agonal stage but restored the normal
level of oxygen consumption. The quantity of free sulfhydril groups in the
myocardium changed only in the agonal stage when they increased substantially.
But hyperbaric oxygenation prevented them from increasing, keeping them within
normal limits. The content of free radicals in the myocardium of the experi-
mental animals decreased, especially in the agonal stage. But hyperbaric
oxygenation restored them to the level found in intact animals. More than

1/2

USSR

LEONOV, A. N. et al, Kardiologiya, No 5, 1971, pp 140-142

two-thirds of the treated animals survived and were indistinguishable from the
controls with respect to motor activity. All the untreated animals died within
one hour of the start of bleeding.

USSR   UDC 616.005.1-092.9-06:616.155.194?-085.835.3-07:616.831-008.921.7

LEONOV, A. N. and YAKOVLEV, V. N. Department of Pathological Physiology, Voronezh State Medical Institute

"Some Peculiarities of Nitrogen Metabolism in the Central Nervous System After Acute Anemization and Hyperbaric Oxygen Therapy"

Abstract: Hyperbaric oxygenation (2 atm for 40 min) of anemized rats (amount of blood let = 2.8% of the animal's body weight) normalized the level of alanine, threonine, and other free amino acids in the cerebral hemispheres and brainstem that had been altered by anemization. It also prevented the buildup of ammonia in the anemized brain seen in untreated animals in the agonal stage. More than two-thirds of the animals that received hyperbaric oxygen survived with motor activity and coordination of movements unimpaired, whereas all the untreated animals died within one hour of exsanguination. Thus, oxygen under high pressure had a corrective effect on the metabolic mechanisms of neurodynamics in the central nervous system despite the acute deficiency of blood.

1/1

CHANGES OF TISSUE RESPIRATION, THE CONTENT OF SULFHYDRYL GROUPS AND FREE RADICALS IN THE BRAIN OF ANIMALS IN ANEMIZATION AND HYPERBARIC OXYGENATION

A. N. Leonov. A. A. Barsukov

The authors studied peculiarities of cellular respiration and of the content of SH-groups and free radicals in the great hemispheres of 350 nananaesthetized rats following acute massive blood letting (2.8% of body weight) and after hyperbaric oxygenation (2 atmospheres for 40 minutes). Adaptation mechanisms particularly providing a high level of cellular respiration in the CNS and redox systems (realized through reactive links — SH-groups and free radicals) lie at the basis of the therapeutic effect produced by hyperbaric oxygenation in posthemorrhagic anemization.

//1

REEL/FRAME
19820599

USSR   UDC 616.831-008.9-02:/616.831-005.4+615.835.3

LEONOV, A. N. and BARSUKOV, V. A., Voronezh Medical Institute

"Changes in Tissue Respiration and Content of Sulfhydryl Groups and Free Radicals in the Brains of Animals After Exsanguination and Hyperbaric Oxygenation"

Abstract: Exsanguination of rats (2.8% of body weight) intensified tissue respiration, increased the number of sulfhydryl groups, and decreased the content of free radicals in the animal's brains. Hyperbaric oxygenation (2 atm for 40 min) enabled about 70% of the exsanguinated rats to survive, whereas all the untreated animals died within an hour. The therapeutic effect of hyperbaric oxygenation is attributed to its ability to ensure a high level of tissue respiration in the central nervous system, reduce the number of sulfhydryl groups, and slightly increase the content of free radicals. These characteristics of CNS metabolism are a manifestation of intracellular compensation mechanisms.
1/1

Luminescence

USSR   UDC 661.143:546.48'221

LAPIN, A. P., LEONOV, B. A., and MOROZOV, O. A.

"Photosensitive Layers of Cadmium Sulfide With Longitudinal Photoconductivity, Produced by the Electrophoretic Method"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collection of Scientific Works of All-Union Scientific Research Institute for Phosphors and Ultrapure Substances), 1971, vyp. 6, pp 99-104 (English summary) (from RZh-Khimiya, No 16, 25 Aug 72, Abstract No 16L138 from summary)

Translation: An analysis is made of the existing methods of obtaining CdS photoresistors. To obtain layers with longitudinal photoconductivity, use of the phenomenon of electrophoresis is suggested. This method of layer deposition in an electrophoretic bath makes it possible to obtain CdS photoresistors with high photosensitivity and good reproducibility as far as electric and photoelectric properties are concerned.

1/1

USSR

YAKOBSON, A. M., LEONOV, B. I., KANTER, B. M., and KOPELICVICH, M. Kh.

"Comparative Experimental Estimate of Various Visual X-Ray Introscopic Systems Using Electronic Devices"

Abstract: The authors of this brief communication, members of the Scientific Research Institute of Introscopy, discuss the laboratory model of the RIUS UM-92 Introscope, and offer indices by which this instrument can be compared with the RTI, an x-ray television introscope with a monocrystalline screen, described in an earlier article by the first-named author in collaboration with A. M. Dzhgalyan (Zavodskaya laboratoriya, 1962, No. 5). The RIUS UM-92 described in the present article is also an x-ray introscope with a monocrystalline screen, and uses an electron-optical light amplifier of the UM-92 type. A simple diagram of the instrument given in this article shows that the radiation from an x-ray source is projected through the specimen under examination onto the monocrystalline screen, the x-rayed image being converted to a light image by the screen and then put through the light amplifier and a telescope to the observer's eye. A third instrument containing
1/2

UNCLASSIFIED   PROCESSING DATE--23OCT70

1/2   022
TITLE--ON SOME PROPERTIES OF CDSNP SUB2 IN STRONG ELECTRIC FIELD -U-

AUTHOR-(05)-GORYUNOVA, N.A., LEONOV, E.I., ORLOV, V.M., RODIONOV, A.F.,
  SOKOLOVA, V.I.
COUNTRY OF INFO--USSR

SOURCE--PHYS. LETTERS, NETHERLANDS, VOL. 31A, NO. 7, P. 393-4, 16 APRIL
  1970
DATE PUBLISHED-------7Q

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PHOSPHIDE, CADMIUM COMPOUND, TIN COMPOUND, HIGH FREQUENCY
  CURRENT, OSCILLATION, ELECTRIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0441   STEP NO--NE/0000/70/031/007/0393/0394

CIRC ACCESSION NO--AP0111634
                    UNCLASSIFIED

.UNCLASSIFIED   PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0111634
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HIGH FREQUENCY CURRENT
   OSCILLATIONS IN A NEW TERNARY SEMICONDUCTING COMPOUND HAVE BEEN
   PREDICTED THEORETICALLY AND OBSERVED EXPERIMENTALLY.   FACILITY:
   ACADEMY SCI. USSR, LENINGRAD.

USSR

UDC: 621.376.324+621.385.27.81

LEONOV, G. S., MANANOV, R. G., TARKHOV, Yu. K., SHIPULO, G. P.

"Effective Pumping of a Continuous Garnet Laser by a Water Cooled Metal Halide Lamp"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 112-115

Abstract: A design is proposed for a water-cooled metal halide flash tube. The spectral characteristics of lamps filled with Xe + Hg + NaI + RbI and with Xe + Hg + NaI + TlI are studied. Nd:YAG laser emission power is measured as a function of pumping for lamps with different fillers. It is shown that the differential efficiency of a laser when pumped by a tube with sodium and rubidium iodides added is 3.5 times as high as when a xenon tube is used, and 1.5 times as high as when a krypton tube is used for pumping. Four illustrations, bibliography of seven titles.

1/1

- 51 -

USSR   UDC 669.882/.884.053.28(088.8)

IZONOV, I. P., and DANILKIN, V. I., State Institute of Applied Chemistry

"Method of Producing Alkali Metals"

USSR Author's Certificate No 216951, filed 23 Apr 65, published 11 Mar 70
(from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G141 P)

Translation: A method is proposed for producing alkali metals by reducing
their chlorides in vacuum. To increase the metal yield and raise its purity,
the intermetallic compound $CaMg_2$ is used as the reducing agent.

1/1

LEONOV, L.   (Maj. Gen.)   Mil /

EQUIPMENT OBEYS THOSE WHO ARE TRAINED

UDC 539.373

USSR

LEONOV, M. YA., MOLOTNIKOV, V. YA., and RYCHKOV, B. A., Institute of Physics
and Mathematics, Academy of Sciences, Kirgizskaya SSR

"Development of the Concept of Slip in the Theory of Plasticity"

Frunze, Izvestiya Akademii Nauk Kirgizskoy SSR, No 2, 1973, pp 4-11

Abstract: The plastic deformation of a body, the volume of which does not
change in the process of this deformation, is determined via the intensity of
movements (local slips) of the linear distortions taking place along a set (fan)
of planes and directions of slip. A study is made of "semisimple" loading,
when the sign of the stresses changes only once. The deformation of plastic
materials which have a yield platform is described for the first time on the
basis of the slip concept. 3 figures. 12 references.

1/1

USSR

UDC 539.37

LEONOV, M. Ya., Academician of the Kirghiz Academy of Sciences

"Elements of the Analytical Theory of Plasticity"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 2, 1972, pp 303-306

Abstract: Polycrystalline materials whose elastic deformations are determined by Hooke's law are considered. By subtracting these from the observed deformations, the author obtained the nonelastic deformations; deviations from the latter are known as plastic deformations. Experiments with monocrystals have shown that local sliding occurs in planes with highest atomic density in the direction of maximum density under certain conditions. Adopting the axiom that elementary sliding in an ideally uniform model of a polycrystalline body varies its mechanical characteristics in virtually all directions, the author sets up a mathematical model of the plastic body and mathematically describes the initial stages of plastic deformation. In this description, only those materials in which normal stresses have no effect on plastic deformation are considered, and the effects of time and the consequences of slippage on the resistance to shear are neglected. The author is associated with the Institute of Physics and Mathematics at Frunze.

1/1

USSR

LEONOV, M. Ya., Academician of the Kirgiz Republic Academy of Sciences,
Institute of Physics and Mathematics, AS KirgSSR, Frunze

"Basic Postulates of the Theory of Plasticity"

Abstract: The author discusses small macrohomogeneous deformation of a
polycrystalline solid. Because of the elastic anisotropy of the crystal
grains, internal forces are characterized by a certain nonhomogeneity
which is accounted for by a change in the shear strength as a function of
the tensor of elastic macrodeformations (stresses). The analysis applies
only to materials in which the change in shear strength is independent of
the sequence of slips for small plastic deformations (postulate of anti-
isotropy). The problem of determining the components of plastic defor-
mation is reduced to solution of an integral equation. The author thanks
K. N. Rusinko for all-round assistance with the work. One figure, bibli-
ography of five titles.

1/1

USSR   UDC 539.37

LEONOV, M. Ya., Academician of the Kirghiz SSR, Institute of Physics and
Mathematics, Kirghiz SSR Academy of Sciences, Frunze

"Elements of the Theory of Elasticity"

Moscow, Doklady Akademii Nauk SSSR, Vol 199, No 2, 11 Jul 71, pp 293-295

Abstract: The author examines a solid state uniform model having continuously
distributed mobile defects of dislocation type. He assumes the components of
the deformation tensor to be small and their variation rates to be such that
the time influence can be ignored. He determines the plastic deformation by
the intensity of the dislocation shifts (local glide) which take place along
a number of planes and directions in the glide planes. He first discusses the
condition of weakening as a result of elastic deformations and cites the axiom:
For a proportional load beyond the elastic limit the bundle of glides includes
planes and directions of maximal tangential stress. His second axiom: With a
growth of any components of the tangential stresses the increase in resistance
to displacement as a result of elastic deformation will always be negative.
He gives mathematical proof of his position and then proceeds to briefly discuss
the stages of small plastic deformation. The article contains a bibliography
of 1 title.
1/1

UNCLASSIFIED   PROCESSING DATE--11SEP70

TITLE--FEATURE ARTICLE ON METEOR SYSTEM. THE METEOR SYSTEM -U-

AUTHOR--POPOV, YE.G., BELOUSOV, S.L., LEONOV, N.G., CHETVERNIKCV, I.A.,
   GRACHEV, YU.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SOTSIALISTICHESKAYA INDUSTRIYA, 1 FEBRUARY 1970, P 4

DATE PUBLISHED--01FEB70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--METEOROLOGIC SATELLITE, PHOTOGRAPH, METEOROLOGIC STATION,
   UNMANNED ORBITAL LABORATORY, SPACEBORNE EARTH PHOTOGRAPHY, WEATHER
   CHART, METEOROLOGIC DATA, COMPUTER APPLICATION/(U)METEOR METEOROLOGIC
   SATELLITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1743   STEP NO--UR/0533/70/000/000/0004/0004

CIRC ACCESSION NO--AN0104926
                    UNCLASSIFIED

CIRC ACCESSION NO--AN0104926
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. A SPACE METEOROLOGICAL STATION IN
    A CIRCUMTERRESTRIAL ORBIC CAN DAY AND NIGHT TRANSMIT WEATHER DATA MAKING
    IT POSSIBLE TO WARN THE COUNTRY OF IMPENDING DANGEROUS METEOROLOGICAL
    PHENOMENA. THE INFORMATION IS TRANSMITTED IN THE FORM OF PHOTOGRAPHS.
    THESE PHOTOGRAPHS CLEARLY PINPOINT THE LOCATION OF STORMS AND THEIR
    DIRECTION. THE HYDROMETEOROLOGICAL CENTER USSR IS EVEN NOW RECEIVING
    SUCH INFORMATION FROM A WHOLE SERIES OF METEOR SATELLITES. CREATED ON
    THE BASIS OF THE LATEST ADVANCES IN SOVIET SCIENCE, IT IS OF THE
    GREATEST SERVICE IN COMPILING BOTH LONG AND SHORT RANGE FORECASTS.
    HOWEVER, ALL THIS REQUIRES WELL TRAINED GROUND PERSONNEL, SINCE POOR
    INTERPRETATION OF THE PHOTOGRAPHS WOULD CANCEL OUT THIS NEW
    SOPHISTICATED SOURCE OF INFORMATION. A SPECIAL SECTION AT THE
    HYDROMETEOROLOGICAL CENTER HANDLES SUCH WORK: IT HAS THE RATHER ROMANTIC
    NAME OF SATELLITE VERTICAL. THE SECTION IS MANNED BY DEDICATED
    PIONEERS IN THIS NEW BRANCH OF METEOROLOGY. ALL SATELLITE DATA MUST BE
    CORRELATED WITH GROUND DATA FOR COMPILING MAPS OF CLOUD COVER
    DISTRIBUTION. THE COMPLEX TASK OF INTERPRETING PHOTOGRAPHS CANNOT YET
    BE AUTOMATED. HOWEVER, PROCESSING OF DATA ON RADIATION FLUXES IS
    COMPLETELY AUTOMATED. A SPECIAL PROGRAM DEVELOPED AT THE CENTER ENSURES
    THAT COMPUTERS CAN HANDLE THE VAST AMOUNT OF DATA ON RADIATION IN A VERY
    SHORT TIME. THE VOLUME OF RADIATION DATA RECEIVED FROM SATELLITES
    EXCEEDS THAT WHICH IS RECEIVED FROM GROUND STATIONS THROUGHOUT THE
    COUNTRY. SATELLITE DATA ARE SORTED BY COMPUTER BY TYPES: SOLAR
    RADIATION, LIGHT REFLECTED BY THE EARTH, RADIATION OF THE EARTH ITSELF,
    ENERGY OF ELECTROMAGNETIC WAVES.
                            UNCLASSIFIED

CIRC ACCESSION NO--AN0104926
ABSTRACT/EXTRACT--USING THESE DATA THE MACHINE CAN COMPUTE THE ALTITUDE OF
   THE UPPER CLOUD BOUNDARY, THE RADIATION TEMPERATURE OF SEAS, THE
   ATMOSPHERE AND DIFFERENT CONTINENTS. THE VOLUME OF DATA RECEIVED BY THE
   HYDROMETEOROLOGICAL CENTER IS CONSTANTLY INCREASING. HIGH SPEED, HIGH
   CAPACITY COMPUTERS ARE BEING BROUGHT IN TO HANDLE THE LOAD. IMPROVED
   FORECASTING ACCURACY WILL INEVITABLY RESULT. (A PHOTOGRAPH ACCOMPANYING
   THE TEXT SHOWS THE GENERATION OF A LOW PRESSURE SYSTEM OVER THE PACIFIC
   OCEAN TAKEN FROM AN ALTITUDE OF 650 KM BY THE "METEOR-2" WEATHER
   SATELLITE ON 15 JANUARY 1970 AT 0100 HOURS MOSCOW TIME).

UNCLASSIFIED

AN0016972

URO533

TITLE--   AUTOMATA IN THE WEATHER SERVICE

NEWSPAPER-- SOTSIALISTICHESKAYA INDUSTRIYA, FEBRUARY 8, 1970, P 4

ABSTRACT--   THE ENTIRE PAGE IS DEVOTED TO THE SOVIET WEATHER SERVICE
AND THE "METEOR" SYSTEM. IT HAS BEEN PREPARED BY DOCTOR OF GEO-
GRAPHICAL SCIENCES YE. G. POPOV SMCLN CANDIDATES OF PHYSICAL-MATHE-
MATICAL SCIENCES S. L. BELOUSOV AND N. G. LEONOV SMCLN CHIEF OF THE
DEPARTMENT OF ANALYSIS AND SATELLITE DATA OF THE HYDROMETEOROLOGICAL
CENTER, U.S.S.R., I. A. CHETVERIKOV SMCLN AND CORRESPONDENT
YU. GRACHEV.

WHEN THE "METEOR" SYSTEM WAS SET UP IN THE SOVIET UNION, THE HYDRO-
METEOROLOGICAL CENTER ESTABLISHED A SPECIAL UNIT FOR THE ANALYSIS OF
METEOR DATA. THIS UNIT IS KNOWN AS "SPUTNIK VERTICAL".

THREE PHOTOGRAPHS ARE GIVEN SHOWING THE LAUNCH OF A WEATHER BALLOON
AT THE AEROLOGICAL STATION "VYSOKAYA" NEAR SVERDLOVSK, THE WEATHER
SATELLITE "METEOR", A PHOTOGRAPH OF A CYCLONE EYE MADE BY THE
"METEOR-2", AND A TWO-COORDINATE DEVICE PROGRAMMED TO DRAW WEATHER
MAPS.

19600100

LEONOV O.B.

AA0053084

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, 3-70

244004   CONSTANT PRESSURE REGULATOR. The con-
trol of constant oil pressure in the
forced lubrication system of an internal combustion
engine is achieved by coupling the thermostat 2 in
feed pipe 1 through rod 3 to box valve unit 6 and
coupling the shaft of the valve 9 to the metering
rod 12 of the oil supply pump 13. Thus the pres-
sure in pipe 5 regulates the output of the pump
to feed pipe 1 and controls the pressure to pipe
4 and to the crankshaft bearings.
15.2.68 as 1218062/24-6 O.B. LEONOV et al, N.E.
Bayman, Moscow, Technical College (1.10.69) Bul.
17/14.5.69. Class 46c, Int. Cl. F O1m.

½

19821982

AA0053084
Leonov, O.B.; Borovitskiy, V.I.; Arapov, V.V.; Manuylov, N.N.;
Patrakhal'tsev, N.N.; Soldatov, N.K.; Moskovskoye Vyssheye
Tekhnicheskoye Uchilishche im. N.E. Baumana
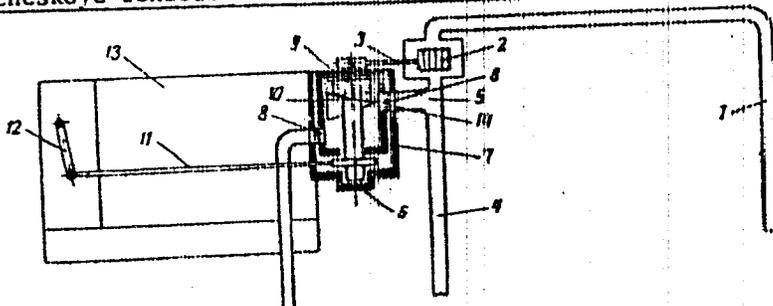
19821983

UDC 621.352.1.035.151(088.8)

USSR

PEVZNER, M. G., GRIGOR'YEV, V. V., LEONOV, O. V., KOCHERGINSKIY, M. D., CHUVPILO, A. V.

"[Small Battery]. Galvanic Battery"

USSR Author's Certificate No 276191, filed 16 Dec 66, published 29 Sep 70 (from RZh-Elektrotekhnika i Energetika, No 5, May 1971, Abstract No 5A251P)

Translation: In order to simplify the assembly and improve the voltage of a small battery one end of the case, for example, the bottom is made concave and is supported on the open surface of the electrode with the current tap of the outside element. There is 1 illustration.

1/1

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USSR

LEONOV, P. K., SERDYUK, G. I.

UDC 8.74

"Internal Structure of Operating Programs of the BASIC-6 System"

V sb. Teoriya yazykov i metody postroyeniya sistem programmir. (Language Theory and Methods of Constructing Programming Systems--collection of works), Kiev-Alushta, 1972, pp 244-256 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V467)

Translation: The internal structure of the operating programs in the BASIC-6 system is described. The compilation of the program from the BASIC-6 language will be carried out by a step-by-step transmitter, that is, the operating program is created during the construction process. On destroying any operator, a "gap" is formed in it requiring extension of the section of the operating program located below the "gap" in memory. In order to simplify the work with respect to memory allocation for all elements pertaining to the program, a quantized structure is proposed in the BASIC-6 system which is a special form of list organization of information. A study was made of two quantization procedures: constant quanta and variable-length quanta. It is noted that it is possible to execute such languages as IOSS and APL on the basis of the structure of the BASIC-6 system.

1/1

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USSR

LEONOV, R., Special correspondent, Pushchino, Moscow Oblast

"Working Bacteria"

Moscow, Leninskoye Znamya, 13 Aug 70, p 3

Abstract: At the Institute of Biochemistry and Physiology of Microorganisms, USSR Academy of Sciences, I was shown a unique instrument, the AIKUM, an auto- mated apparatus for continuous cultivation of microorganisms. The chaotic intertwining of rubber tubes, the ornate glass tubes and the flickering of different colored lamps on the panel only appear to be chaotic at first glance. Some magic was being wrought at this time in the apparatus, which occupies almost the entire width of the room: the minutest organisms were being born, were growing and multiplying under human control. This was the continuous process of cultivation of microbes, and not just any bacteria, but those that the scientists of the Moscow suburb needed to study. The bacterial "incubator" was constructed in accordance with the newest technology. Bacteria are continuously supplied with fresh nutrient medium, and the rate of its influx and chemical composition can be altered at will. Fresh "sterilized" air is delivered continuously to provide for normal respiration of bacterial cells. Extremely complex instruments monitor the condition of these unusual patients, their temperature, acidity, cell concentration and oxygen dissolved in the suspension.
1/4

USSR

LEONOV, R., Leninskoye Znamya, 13 Aug 70, p 3

The readings from all pickups are fed to a centralized control system. When needed, the system itself automatically sends questions to the pickups, and, having made a decision, develops the appropriate signals to control the unit. One of the "masters" of ANKUM, is Viktor Sterkin, Candidate of Engineering Sciences, on the staff of the Laboratory of Growth and Development of Micro-organisms. "The principle of our method," he states, "is exceptionally simple. In the cultivator where the cells grow, fresh nutrient medium is delivered at a specific rate, and simultaneously the same quantity of fluid with "mature" bacteria is removed. By creating specific and strict cultivation conditions, we can maintain our bacteria in the same physiological state for a long time. This enables us to obtain quantitative relationships between their growth, production of specific products, and cultivating conditions. Having learned these relationships, we can then control processes of bacterial biosynthesis. Obviously, our objective is to standardize cultivation conditions, which is necessary for stable continuous biosynthesis with maximum productivity. And then to develop cells with specific properties, with a specific chemical composition..." To demonstrate the operation of ANKUM, Viktor artificially slowed cell growth. The "alarm" signal was immediately flashed by the biomass concentration pickup. Immediately the centralized control system fed the command: "Reduce delivery of nutrient medium immediately!" Equilibrium was maintained and the bacteria continued to develop normally.
2/4

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USSR

LEONOV, R., Leninskoye Znamya, 13 Aug 70, p 3

"Viktor, what do you do with 'wild' bacteria, 'registering' on the internal surfaces of the apparatus?" "Obviously it is practically impossible to sterilize ANKUM in an autoclave. In our automation, sterilization is automatic, and, of course, there are no 'undesirable' bacteria in it." "Tell us a little about the latest research done on ANKUM" "Our main objective is to investigate the kinetics of growth of bacterial cultures under different conditions of continuous cultivation. Our high speed system of continuous control and recording enables us to study the dynamics of behavior of bacteria in a state of stable growth, as well as during periods of rather complex transitional processes induced by different factors. Analysis of bacterial behavior when moving from one state of 'balanced' growth to another yields an exceptional amount of information for construction of kinetic models of microorganism growth. A particularly important direction of research on ANKUM could be development of methods of obtaining continuous cultures of synchronously dividing cells. Considerable bioengineering information has already been accumulated, and it has enabled us to develop the blueprints for an improved unit, ANKUM-2. The new equipment will have great analytical capabilities." Dozens of professions are already involved with bacteria. They are used to obtain amino acids, certain vitamins, enzymes for light and food industries, antibiotics, protein preparations for animal husbandry. Synthetic foods are not a fantasy. There are already plants manufacturing artificial food, although they are not as yet working for the animal-breeding

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USSR

LEONOV, R., Leninskoye Znamya, 13 Aug 70, p 3

industry. The time is not distant when age-old problems of mankind will be easy to solve. Our descendants will not have to rely on natural resources, and they will begin to control life. Invisible workers, bacteria, will create fresh artificial nutrients, drugs and different substances at enormous plants, under human control. The multibillion army of microbes is an unused resource of our planet.

4/4

1/2   014   UNCLASSIFIED   PROCESSING DATE--22OCT70
TITLE--CHAIN METHOD FOR COMPILATION OF ALPHABETIC SUBJECT INDEXES -U-

AUTHOR--LEONOV, R.A.

COUNTRY OF INFO--USSR

SOURCE--NAUCHNO-TEKHNICHESKAYA INFORMATSIYA, 1970, SERIES 2, NR 1, PP
15-21
DATE PUBLISHED-------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--INDEX, DATA PROCESSING SYSTEM, BIBLIOGRAPHY, LIBRARY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/0120   STEP NO--UR/0447/70/000/001/0015/0021

CIRC ACCESSION NO--AP0122386
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0122386
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHAIN METHOD OF COMPILATION OF
ALPHABETIC SUBJECT INDEXES IS OUTLINED IN GENERAL TERMS, AND ITS
APPLICATIONS TO BIBLIOGRAPHIC AND LIBRARY TASKS ABROAD ARE REPORTED.
THE APPLICABILITY OF THE METHOD FOR INDEXING BOTH FACETED AND LINEAR
CLASSIFICATION SCHEDULES IS CONSIDERED. THE AUTHOR HOLDS THE CHAIN
METHOD TO BE BOTH APPLICABLE AND PROMISING IN COMPILING INDEXES OF
DIFFERENT TYPE AND PURPOSE ON THE BASIS OF UCD, LBC, AND OTHER
HIERARCHICAL SYSTEMS. PROPOSALS CONCERNING IMPROVEMENT OF THE METHOD
FOR USING IT IN COMPUTERIZED LIBRARIES AND BIBLIOGRAPHIES ARE SUBMITTED
FOR DISCUSSION.

UNCLASSIFIED

LEONOV, S.A.

Health

THE BOUNDARY LINE BETWEEN HIGH AND LOW POPULATION GROWTH RATES IN ECONOMICALLY DEVELOPED COUNTRIES

[Article by S.A. Leonov, All-Union Scientific Research Institute of Social Hygiene and Public Health Organization imeni N.A. Semashko, Moscow, Russian Problems, Zdravookhraneniye, Russian No 6, 1979, submitted 28 June 1977]

- 65 -

USSR

LEONOV, S. N.

"Measurement of Fluid Flow by the Voluminal Statistical Quantization Method"

Translation: A vessel contains some quantity of fluid in which particles of a solid, luminescent substance are distributed in a statistically uniform manner. As the particles pass through a pipeline, together with the fluid, ultraviolet radiation is stimulated. The frequency of   tracking of the luminescence is proportional to the instantaneous flow of the emerging fluid.

Some theoretical questions concerning the automatic monitoring of flow from the parameter of a discrete random process are considered. The installation is described and the results of experimental studies are reported. Calculated relationships are given for evaluating the accuracy of measurement. Three illustrations, three bibliographic citations.

Abstract by the author.

1/1

UNCLASSIFIED

PROCESSING DATE--30OCT70

1/2   026
TITLE--DIURNAL RHYTHM OF THE EXCRETION OF URINE, POTASSIUM, AND SODIUM BY
HEALTHY CHILDREN -U-
AUTHOR-(02)-LEONOV, V.A., DENISEVICH, N.I.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. BIYAL. NAVUK 1970, (1),
104-9
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PEDIATRICS, URINE, POTASSIUM COMPOUND, SODIUM COMPOUND,
EXCRETION, DIURNAL VARIATION, DIET, BLOOD CHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0507   STEP NO--UR/0440/70/000/001/0104/0109

CIRC ACCESSION NO--AP0121181
UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121181
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. URINE VOL., K, AND NA EXCRETION OF
3-7 YEAR OLD CHILDREN SHOWED DIURNAL VARIATIONS. MAX. VALUES HERE
OBSERVED BETWEEN 12 AND 15 DAY HR (URINE), 9 AND 12 (K), 15 AND 18 (NA);
MIN VALUES BETWEEN 24 AND 3 (URINE, K), 24 AND 6 (NA). RATIO BETWEEN
MAX. AND MIN. VALUES WAS 7:1 (K), 3.4:1 (NA), 2.8:1 (URINE). DIURNAL
VARIATION OF K AND NA EXCRETION DID NOT DEPEND UPON FOOD INGESTION.
PLASMA AND RED CELLS CONTENT OF K AND NA SHOWED NO DIURNAL VARIATION.
     FACILITY: NAUCH.-ISSLED. INST. OKHR. MATERIN. DETSTVA, MINSK,
USSR.

UNCLASSIFIED

AA0040677 L   Leonov, V. D.   UR 0482

1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

241581 SHEET STEEL WELDING MACHINE with continuous weld deformation where to improve the weld quality of thin gauge sheet steel, a drum type welding machine was equipped with a semi-cylindrical trough 9 of a small diameter with a slot for the welding electrode 4. During welding, the steel sheets pass round the trough 9; the material expands under the heat and the edges of the sheets are bent downwards which ensures good contact of the welded seam with the backing support.

8.8.66 as 1096074/25-27. A.V.PETROV et alii.(8.9.69) Bul 14/18.6.69. Class 21h. Int.Cl.B 23k.

5/3

19750281

AA0040677
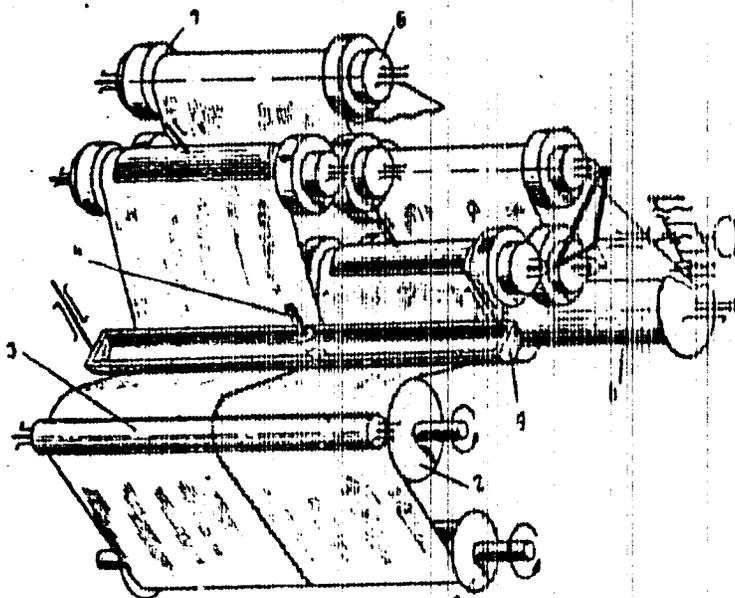
19750282

AA0040677

AUTHORS: Petrov, A. V.; Slavin, G. A.; Leonov, V. D.; Kuleshov,
M. P.; Zhukov, V. F.; Shorokhov, V. I.; and Mitrofanov,
B. D.

19750283

USSR

UDC 621.771-216.5 :621.
.7.011:539.4.014.1

ROZORENOV, V. A., Engineer, MOROZOV, Doctor of Technical Sciences,
LEONOV, V. F., Engineer, and SOFRONOV, Ye. I., Candidate of Tech-
nical Sciences

"Deformation and Stresses in Mounts of Roll Stands of Four-High
Rolling Mills"

Moscow, Vestnik Mashinostroyeniya, No 9, Sep 73, pp 16-21

Abstract: The strength conditions in the mount of a roll stand
of the four-high rolling mill 5000 of the All-Union Scientific
Research, Planning, and Design Institute of Metallurgical Machi-
nery were calculated. The deformations and stresses were deter-
mined, using Castigliano's theorem, for a simplified form of the
mount according to a presented schema. The applied calculation
method of the inflexibility and strength of closed type mounts
considers the clearance between the mount stands and the bea-
rings of supporting rolls and the variable stiffness of cross
ties. On a level with the calculations, including the fatigue
strength, the stressed condition of the mount was also investi-
gated by the polarization-optical method on a simplified model

1/2

USSR

BOZORENOV, V. A., et al., Vestnik Mashinostroyeniya, No 9, Sep 73, pp 16-21

of optically active ED6-M material. The results are discussed by
reference to optical stress-strain pictures (photoelastic method)
and the stress-strain diagram of contour stresses. Determined
values of the reserve strength factor and of the deformation and
rigidity of the mount are interpreted. Four figures, two tables,
twelve formulas, two bibliographic references.

USSR

GROSHEV, L. V., DEMIDOV, A. M., LEONOV, V. P., SOKOLOVSKIY, L. L., Institute of Atomic Energy imeni I. V. Kurchatov

"γ-Ray Spectrum From (n, γ)-Reactions in Sm^{150} and Sm^{151} Samples"

Abstract: The γ-spectra for the radiation capture of thermal neutrons by Sm^{150} nuclei and Sm^{151} radioactive nuclei were measured with a single-crystal $Ge(Li)$ gamma-spectrometer. It is noted that in elements with even Z, in the range of atomic weights from 90 to 200, isotopes with odd A as a rule have the greatest thermal neutron capture cross section. The cross section of some of these isotopes is so great that a purity of the sample greater than 99.99% is necessary to eliminate the considerable contribution from these. Since there is great difficulty in obtaining samples of such high purity in electromagnetic methods of isotope separation, this study used the method of burning out admixture isotopes having an anomalously high capture cross section for thermal neutrons to obtain isotopes of the required purity. The necessary Sm^{149} purity was obtained by burning out

1/2

USSR

GROSHEV, L. V., et al, Yadernaya fizika, Vol. 13, No. 4, Apr 71, pp 681-687

Sm^{149} in an integral neutron flux, $2.2 \cdot 10^{20}$ neutron/cm^2. The following neutron binding energies were obtained: 5596 ± 1 kev in Sm^{151} and 8158 ± 1 kev in Gd^{157}, the two isotopes which make the greatest contribution to the gamma-spectrum. Diagrams of the gamma-transitions for Sm^{151} and Sm^{152} are given. It is noted that gamma-quanta release of Sm^{151} nuclei is of interest, since the nucleus is on the boundary of the transition region from spherical to elongated nuclei. It is then possible to compare the gamma-spectra of Sm^{151} and Sm^{153}, which have a number of neutrons equal to 89 and 91 respectively. This problem will be considered in detail by the authors after measurements of the gamma spectrum of Sm^{155}.

2/2

USSR   UDC 539.3

LEONOV, V. I., KHAZANOV, Kh. S.

"Calculating Curved Circular Plates for Normal Concentrated Effects"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1972,
No. 63, pp 22-32 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V192)

Translation: The loading of circular panels cut from a cylindrical shell by
a normal concentrated force in the center and by a normal force applied
through a circular rigid inclusion is discussed. A fundamental solution in
a form proposed by the authors and a solution of the homogeneous equation for
a hollow cylindrical shell are used. Calculations are given for a wide range
of the parameters characterizing the geometry of the panel and the inclusion.
Authors' abstract.

1/1

USSR   UDC 539.3

LEONOV, V. I., KHAZANOV, Kh. S.

"Fundamental Solution of the Equation of a Hollow Cylindrical Shell in
Polar Coordinates"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1972,
No. 63, pp 16-21 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V147)

Translation: A fundamental solution of the equation for a hollow cylindrical
shell corresponding to the action of a normal concentrated force on the shell
is constructed in polar coordinates. The solution is contained in the form
of a trigonometric series in terms of the angular coordinate. The asymptotic
behavior of functions involved in the solution is investigated. Series for
the forces and displacements of the points of the middle surface of the shell
corresponding to the fundamental solution are given. 5 ref. Authors'
abstract.

1/1

USSR   •   UDC   621.371.029.5

LEONOV, V. I.

"Connection of Ultra-Long Wave Field Variations With Geophysical
Phenomena in Polar Areas"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.
Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio
Waves; Report Theses; Section 1 --collection of works) "Nauka,"
1972, pp 245-249 (from RZh--Radiotekhnika, No 10, 1972, Abstract
No 10A325)

Translation: A connection is established between short-period os-
cillations (SPO) of the phase of an ultra-long wave signal over
polar ranges and the statistical picture of daily variations in
delayed x-ray radiation, absorption, cosmic radio noise, polar
lights, and hydrogen emissions connected with proton currents.
The results obtained permit the assumption that nighttime sources
of SPO in ultra-long waves may be SPO of the proton currents.
Three illustrations, bibliography of 14.   A. L.

1/1

- 32 -

UDC 621.371.029.5

USSR

LEONOV, V. I., REMENETS, G. F., and SHIMKIN, O. Ya.

"Experimental Recording of Ultra-Long Wave TE Components in the Far Zone"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 231-234 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A323)

Translation: Using two mutually perpendicular magnetic frames, a determination was made of the relative contribution of H_α(TM) and H_θ(TE) fields for ultra-long waves. The recording of TM fields under nighttime and transition conditions in the far zone can be made by investigating the natural variations in the low ionosphere layers. One illustration, bibliography of one.   A. L.

1/1

Magnetohydrodynamics

USSR

UDC 533.95:538.4

LEONOV, V. I.

"Aeronomical Problems of tho Lower Ionosphere"

V sb. Probl. difraktsii i rasprostr. voln (Problems of Wave Diffraction
and Propagation -- Collection of Works), No. 11, Leningrad, Leningrad
University, 1972, pp 177-192 (from RZh-Fizika, No 11, Nov 72, Abstract
No 11G8)

Translation: A program for the computer solution of a system of equations
for the chemical kinetics of the lower ionosphere is described. A brief
survey of studies on the D region is given. The dissociation and ioniza-
tion coefficients are calculated considering a large number of aeronomical
microprocesses. The results are compared with experimental data. A theo-
retical electron profile obtained by using the calculated coefficients of
aeronomical processes of the lower ionosphere is given as an illustration
of the method. I. Inovenkov.

1/1

LEONOV V. I.

AA0101376

UR 0482

3

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

238304 FRICTIONAL MULTI-DISC PLANETARY TWO ROW
SPEED CHANGER containing sets of friction-
bevelled parts of discs 9 and 10 with internal
contact which differs, in order to provide greater
efficiency, simpler gear-ratio control and greater
range, in having the planet wheels in the form of
gears with the first row 3 on shafts 5 carrying
the small diameter discs and the second row 12
made hollow to contain the large diameter discs.
For control of the gear ratio the hollow planet
wheels 12 are set in a rotating ring 15 that is
coaxial with housing 6, so that the ratio can be
changed by turning ring 15 in relation to housing
6.   26.2.65. as 945823/25-28. N.A ASTROV et al.
Car and Engine Res. Inst. and Mitiabchi Machine
Blog Works. (3.7.69.) Bul.9/20.2.69. Class 47h.
Int.Cl. F06h.

19851213

1/3

18

AAU101370

19851214

2/3
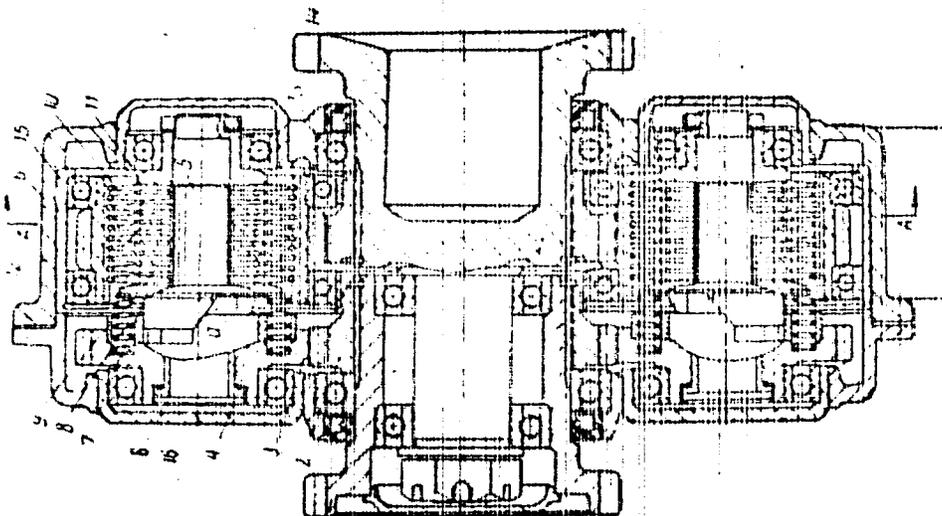
AA0101376

AUTHORS: Astrov, N. A.; Yerokin, V. V.; Klemin, A. N.; Leonov,
V. I.; Petrushov, V. A.; Speranskiy, N. G.; Strigin, I. A.

Tsentral'nyy Nauchno-Issledovatel'skiy Avtomobil'nyy i Avtomotornyy
Institut i Mytishchinskiy Mashinostroitel'nyy Zavod.

3/3

19851215

USSR   UDC: 621.528:621.59

GORIN, V. P., SHUMSKIY, K. P., LEONOV, V. V., IVANOV, A. Ye., ZAKHAROV,
V. S., SIVUSHCHKOV, B. P., KUPRIYANOV, V. I., RODIONOV, A. Kh., BARANOV,
V. S., SHTRAKHMAN, A. Ya.

"A Cold Trap"

Translation: This Author's Certificate introduces a cold trap for vacuum
pumps. The device contains a thermally insulated housing with fittings
for connecting it to the exhausting vacuum pump and to the space being
evacuated. Located in the housing are optically opaque cryogenic panels
cooled by a liquid coolant such as nitrogen. As a distinguishing feature
of the patent, the effectiveness of the trap is improved by making the
cooled panels in the form of a vertical annular louvred screen with cool-
ing tubes on the faces and collectors for the upper and lower shields
located in the cavities of the louvred screen. The screen end shields
taken together form a closed nonhermetic chamber which accommodates a dis-

1/2

USSR

GORIN, V. P. et al., USSR Author's Certificate No 332253

tributor pipe coaxial with the annular screen and passing through the
upper shield. The lower end of the distributor pipe is closed off, and
holes are made in the side wall which have a diameter increasing downward
along the flow of the gas-vapor mixture. The flow channels between the
louvres in the vertical screen increase in cross sectional area toward
the periphery, and the upper and lower shields are made with a greater
hydraulic drag than the vertical screen.

2/2
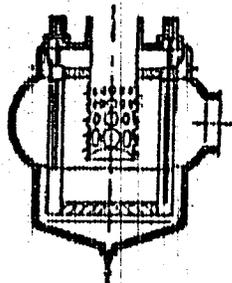
USSR

LEONOV, V. V.

"Method of Coverings in Searching for Global Maximum of Functions of Many Variables"

V sb. Issled. po Kibernetike (Studied on Cybernetics -- Collection of Works), Moscow, "Sov. Radio," 1970, pp 41-52 (from RZh-Matematika, No 9, Sep 70, Abstract No 9B569, by I. Shelikhova)

Translation: An iterative method of coverings is presented. This method enables one to find the global maximum of functions of many variables with any a priori given precision and for the case in which there are several local extrema. The general scheme of the method is described for the following problem A: In a closed, simply-connected region X of E_n the continuously differentiable function $(f(x)$ is given; from a given $\mathcal{E} > 0)$ it is required to find a point such that $x(\mathcal{E}) \in X \subseteq X$, for which the inequality $f(x(\mathcal{E})) \geq \hat{f}(X) - \mathcal{E}$, where $\hat{f}(P) = \sup_{x \in p} f(x)$. Convergence of the method of coverings is demonstrated and a computational algorithm is formulated for finding a global maximum based on this method. The method of coverings is compared with the S. A. Chaplygin method of solving the Cauchy problem for differential equations. Bibliography: eight entries.

1/1

- 109 -

UNCLASSIFIED

PROCESSING DATE—30OCT70

TITLE—SCATTERING OF LIGHT IN A MEDIUM WITH A MOVING BOUNDARY —U—

AUTHOR—LEONOV, Y.V.

COUNTRY OF INFO—USSR

SOURCE—ASTROFIZIKA, VOL. 6, FEB. 1970, P. 89-100

DATE PUBLISHED————FEB70

SUBJECT AREAS—PHYSICS

TOPIC TAGS—LIGHT SCATTERING, QUANTUM MECHANICS, LIGHT REFLECTION, PROBABILITY

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—2000/1227   STEP NO—UR/0388/70/006/000/0039/0100

CIRC ACCESSION NO—AP0124881

UNCLASSIFIED

CIRC ACCESSION NO--AP0124881
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF A PROBLEM
  CONCERNING THE SCATTERING OF LIGHT IN A ONE DIMENSIONAL SEMIINFINITE
  MEDIUM WITH A MOVING BOUNDARY. A DIFFERENTIAL EQUATION IS DERIVED FOR
  THE PROBABILITY OF QUANTUM ESCAPE FROM THE MEDIUM AT ARBITRARY VALUES OF
  (1) THE MEAN TIME, T1, REQUIRED BY THE QUANTUM DIRECTLY FOR THE
  ELEMENTARY ACT OF SCATTERING, AND (2) THE MEAN TIME INTERVAL, T2, SPENT
  BY THE QUANTUM BETWEEN SUCCESSIVE SCATTERING ACTS. EXPLICIT EXPRESSIONS
  ARE ALSO OBTAINED FOR THE ESCAPE PROBABILITY AND THE REFLECTION
  PROBABILITY IN THE CASE WHERE T2 IS GREATER THAN T1.   FACILITY:
  LENINGRADSKII GOSUDARSTVENNYI UNIVERSITET, LENINGRAD, USSR.

UNCLASSIFIED

UDC 621.396.6-181.5

USSR

GORYUNOVA, N. A., LEONOV, YE. I., ORLOV, V. M.

"Complex Semiconductors -- Prospective Materials in Microelectronics"

Mikroelektronika -- V sb. (Microelectronics -- Collection of Works), No 4, Moscow, Soviet Radio Press, 1971, pp 152-174 (from RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10V178)

Translation: A study was made of the combination of properties in various groups of binary and ternary semiconductor compounds and also solid solutions based on them. The most interesting properties of these groups of materials for microelectronics are presented. An effort has been made to analyze the prospects for application of new semiconductor materials in functional microelectronics and optoelectronics. There are 7 tables and a 30-entry bibliography.

1/1

USSR   UDC 621.382.2

KASTAL'SKIY, A. A., LEONOV, YE. I., SHUR, M. S., Physicotechnical Institute
imeni A. F. Ioffe, Academy of Sciences of the USSR, Leningrad

"Gunn Effect Devices with a Variable Energy Gap"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 8, Aug 70, pp 1609-1611

Abstract: The authors discuss the possibility of developing devices based on
the Gunn effect with an energy gap which varies lengthwise of the specimen.
Such devices would be more suitable and convenient for use in integrated cir-
cuits than would analogous devices which utilize a variable cross sectional
area or variable gradient of equilibrium carrier concentration. The energy
gap can be varied either by changing the chemical composition lengthwise from
the cathode to the anode according to a predetermined law, or by creating
variable pressure along the specimen by gluing it to a substrate with a
greater coefficient of thermal expansion while heat is applied and then cool-
ing the assembly. The use of Gunn effect devices with variable energy gap
would enable a considerable increase in the efficiency of Gunn generators.
In the flip-flop mode, Gunn effect diodes with a variable energy gap could
be used to produce pulses whose duration is determined by the bias voltage,
and such devices could also be used to measure the duration of input pulses.
1/1

1/2   024   UNCLASSIFIED   PROCESSING DATE--30OCT70

TITLE--CONCERNING THE CEREBRAL VASCULAR COMPLICATIONS IN AN ACUTE AND
   SUBACUTE PERIODS OF THE MYOCARDIAL INFARCTION -U-

AUTHOR-(02)-LEONOV, YE.P., SPEKTOROVA, S.YA.

COUNTRY OF INFO--USSR

SOURCE--ZDRAVOOKHRANENIYE BELORUSSII, 1970, NR 4, PP 49-51

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BRAIN, BLOOD VESSEL, MYOCARDIUM, NEUROLOGY, BLOOD CIRCULATION,
   REFLEX, BLOOD COAGULATION, GERONTOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0132   STEP NO--UR/0477/70/000/004/0049,0051

CIRC ACCESSION NO--AP0129368
                    UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129388
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 45 PATIENTS WITH MYOCARDIAL
INFARCTION HAVE BEEN INVESTIGATED. THE NEUROLOGIC SYMPTOMATICS HAS NOT
BEEN FOUND IN 29 OF THEM, IN 9 PATIENTS IT AHS BEEN VAGUELY EXPRESSED, 9
HAVE HAD SEVERE DISTURBANCES OF THE CEREBRAL BLOOD CIRCULATION. MORE
FREQUENTLY SUCH COMPLICATIONS HAVE OCCURRED IN OLDER AGE GROUPS AND IN
CASES OF TRANSMURAL MYOCARDIAL INFARCTIONS AND APPARENTLY THEY HAVE BEEN
CAUSED BY MORE MARKED ALTERATIONS OF THE BRAIN VESSELS, BY DISTURBANCES
IN THE COAGULATION AND ANTICOAGULATION BLOOD SYSTEM AND ALSO BY ADDING
THE PATHOLOGICAL REFLEX MECHANISMS. FACILITY: OKRUZHNOY
VOYENNYY GOSPITAL'.

UNCLASSIFIED

UDC 599.32:619

USSR

LEONOV, Yu. A., KHARITONOVA, N. N., and SAPEGINA, V. F., Biological Institute Siberian Department Academy of Sciences USSR, Novosibirsk

"The Red Cheeked Suslik and Its Significance in the Epizootiology of Omsk Hemorrhagic Fever"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk, SSSR, Seriya Biolog-icheskikh Nauk, Vol 10, No 2, Aug 70, pp 126-129

Abstract: A study was made of the habitat and distribution of the red-cheeked suslik in Western Siberia and its role in the epizootiology of Omsk (epidemic) hemorrhagic fever. Studies begun in 1966 established a high population density of these rodents in Karasukskiy Rayon of Novosibirskaya Oblast, where the oblast borders on Kazakhstan and Altay Kray, an area long known as a natural focus of epidemic hemorrhagic fever. The suslik usually nests in virgin steppe lands, near watersheds, and on the periphery of birch-aspen groves. Serologi-cal studies of susliks captured in this area showed the presence of antibodies to the virus of Omsk hemorrhagic fever, which indicates the circulation of the virus in the rodent population. The communicable character of the disease is

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LEONOV, Yu. A., et al., Izvestiya Sibirskogo Otdeleniya Akademii Nauk, SSSR, Seriya Biologicheskikh Nauk, Vol 10, No 2, Aug 70, pp 126-129

established. Ectoparasites (mainly Gamasidae) which live on susliks and infest suslik nests in mass numbers were gahtered on the assumption that some species of these parasites may serve as carriers of the virus of Omsk hemorrhagic fever. The investigations have as yet failed to establish a definite connection between the epizootoliogy of the disease and the presence of the suslik and its ecto-parasities. Nevertheless, the large concentration of red-cheeked suslik in the area, the considerable immunity of these rodents to the virus of Omsk hemorrhagic fever, and the abundance of ectoparasites which may be assumed to be virus carriers indicate that the suslik may play an important role in the epizootiology of this disease.

2/2

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USSR

VERTIN, A. A., PETRUSHIN, A. A., SUSLOV, N. N., SHESTOPALOV, V. P.,
KOLOSOV, S. S., LEONOV, Yu. I., and LITVINENKO, L. N.

"Automation of Experimental Research in the Millimeter and Sub-
millimeter Wavelength Ranges"

Translation: The proposed research method is based on the visuali-
zation of the field distribution in open structures (resonators,
for example) by introducing into their space a test body which,
entering a region of greater or lesser intensity in its motion
along a specified trajectory, varies to some extent the parameters
of the structures. The trajectory of the test body is traced by a
beam on the screen of a cathode-ray tube. The brightness of the
beam is proportional to the signal taken from the open structure.
A. K.

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LEONOV, Yu. P.

Inst. Problem Control

JPRS - 53401
11 June 1971

UDC 517.91

METHOD OF LEAST SQUARES IN PROBLEMS OF IDENTIFICATION OF DYNAMIC SYSTEMS

[Article by Yu. P. Leonov, Institute of Problem Control; Moscow, Sbikek Trudoval Post Nayk Resmia, Vol 192, No 1, 1971, submitted September 1970, pp 64-67]

The solutions of a special class of integral Fredholm equations of the first kind are examined in this article. These equations are obtained in the solution of the problem of identification [1] of a dynamic system by the method of least squares.

Two cases are examined:

a) some point of aberration in the system is accessible to observation;

b) only the steady motion of a system is accessible to observation.

If some point of aberration of a system is accessible to observation, then evaluation of its weight function is more accurate in relation to the evaluation obtained during observation of its steady motion.

It is shown that in both cases there is a solution of the problem in factor-space with an energetic norm [2]. The solution may be ambiguous; all solutions, however, are equivalent from the point of view of the minimum mean square error. The approximate solution of the problem is determined in energetic factor-space, and this is the alternate solution of the problem of identification as an incorrect problem [3].

a) Some aberration of the system by input signal x(t) is accessible to observation. A linear system with constant parameters is described by matrix weight function w(τ). The system is excited by signal x(t) in the interval (0, T). At the output of the system is signal w(t), which is a distorted version of the true output signal y(t). In the given case the aberration of the system occurs at the moment of application of the signal x(t) for t = 0. It is assumed that the system has a finite memory, and consequently signal y(t) is represented in the form

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Acc. Nr: Abstracting Service: Ref. Code:
AP0046636   CHEMICAL ABST.   4-70   4/R 01-31

82486m Effect of fluoride mineralizers on the sintering of alumina. Pirogov, A. A.; Mirnk'yan, N. M.; Usanova, N.; Primachenko, V. V. (Ukr. Nauch.-Issled. Inst. Ogneupor., Kharkov, USSR). *Ogneupory* 1970, 35(1), 37-40 (Russ). The inhibiting effect of AlF_3 and CaF_2 on the sintering of Al_2O_3 was examd. Com. alumina contg. 99.42-99.49% Al_2O_3 was ground dry so as to obtain a grain size 5-10 μ, bulk d. 0.85 g/cm³, and sp. surface 11,671 cm²/g. After the addn. of 1% AlF_3 or CaF_2 of the grain size <0.2 mm and mixing, cubes (2 cm³) were prepd. and sintered at 1200-1700° for 4 hr. The fluoride mineralizers lowered the compressive strength and shrinkage of the samples. AlF_3 resulted in a stronger inhibiting effect on the sintering of Al_2O_3 at 1200-1550° than CaF_2.   W. J. Skorski

116119m Temperature-independent paramagnetism in nickel-ocene. Zvarykina, A. V.; Karimov, Yu. S.; Leonova, E. V.; Lyubovskii, R. B. (Inst. Khim. Fiz., Moscow, USSR). Fiz. Tverd. Tela 1970, 12(2), 490-502 (Russ). The magnetic susceptibilities of nickelocene and 2 of its derivs. are independent of temp. at 0.1–10°K and at higher temps. obeys the Curie law. At low temps., anisotropy of susceptibility was obsd. Magnetic properties of nickelocene are explained by intramol. interaction of 2 unpaired electrons, the spin Hamiltonian of which is $DS_z^2 + g\beta(H_zS_z + H_xS_x + H_yS_y)$. The effective spin, $S = 1$ and $D/k = 43°K$.
                                            A. Libackyj

USSR

UDC 612.66-053.6[621.941:858.336.1

KOSILOV, S. A., LEONOVA, L. A., and FILINA, N. S., Institute of Physiology of Children and Adolescents, Academy of Pedagogical Sciences USSR, Moscow

"Experience in Using the Results of Physiological Examinations to Predict the Occupational Fitness of Adolescents as Metal Turners"

Moscow, Gigiyena i Sanitariya, No 4, 1973, pp 27-29

Abstract: The authors found 28 key physiological functions to be involved in the various operations performed by metal turners, e.g., muscular strength, precision of kinesthesia, speed of reaction to white and red light, etc., and tested them in 100 15- and 16-year-old youngsters attending a vocational school before they acquired any specific skills and abilities. The results of the tests were compared with evaluations of the skills of the same persons made at the end of the training period by master workers. The test results coincided with the evaluations in about 90% of the cases. The authors caution that the physiological tests are not completely predictive of ultimate success, which also involves such factors as interest in the work, sense of discipline, social considerations, personality, etc.

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1/2   016   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--PREPARATION OF OPAQUE ANODIC OXIDE FILMS ON ALUMINUM ALLOYS -U-

AUTHOR-(03)-LEONOVA, L.A., ARYAMOVA, I.I., IZMAYLOV, A.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1), 65-8

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ANODIC COATING, ANODIZED ALUMINUM, ELECTROLYTIC OXIDATION,
   CITRIC ACID, BORIC ACID, OXALATE/(U)D16T ALUMINUM ALLOY, (U)AMTS AM
   ALUMINUM ALLOY, (U)AMG6M ALUMINUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1793   STEP NO--UR/0153/70/013/001/0065/0068

CIRC ACCESSION NO--AT0115622
                          UNCLASSIFIED

CIRC ACCESSION NG--AT0115622
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. GOOD QUALITY OPAQUE FILMS ARE
ELECTROLYTICALLY FORMED ON AL ALLOYS D16 T, D16 AM, AMTS AM, AND AMG
FROM AN ELECTROLYTE CONTG. OXALIC ACID 40-60, CITRIC ACID 10-30, H SUB
BO SUB3 3-10 G-L. AT 10-40DEGREES AND C.D. EQUALS 1-4 A-DM PRIMER AT
50-90 V BY USING A STAINLESS STEEL CATHODE. IN 1 HR AT 2.5 A-DM PRIMER
THE MAX. FILM THICKNESS OF 22-8 MMU IS OBTAINED AT 20-30DEGREES. IF
ELECTROLYSIS IS CONTINUED FOR 150 MIN AT 25DEGREES, THE FILM THICKNESS
ON D16 AMD ALLOY INCREASES TO 45 MMU, BUT DOES NOT INCREASE WITH LONGER
ELECTROLYSIS. AT 10 MIN THE CURRENT YIELD IS 43.5PERCENT, BUT OVER A 4
HR PERIOD, IT IS ONLY 14.5PERCENT. OVER THE RANGE 1-4 A-DM PRIMER, THE
FILM DEPOSITED IN 1 HR INCREASES LINEARLY 9.5-37.7 MMU IN THICKNESS.
THE COLOR AND TONE OF THE FILM DEPENDS ON THE ALLOY SUBSTRATE AND TIME.
LIGHTER, BRIGHTER FILMS ARE OBTAINED AT 25-35DEGREES THAN AT
10-15DEGREES.

UNCLASSIFIED

1/2   015   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--IMPEDANCE OF THE CHLORINE ELECTRODE IN FUSED SALTS -U-

AUTHOR-(03)-LEUNOVA, L.S., UKSHE, YE.A., BUKUN, N.G.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(2), 249-52

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORINE, ELECTRODE, GRAPHITE ELECTRODE, ELECTROLYTIC
   OXIDATION, FUSED SALT, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0461   STEP NO--UR/0364/70/006/002/0249/0252

CIRC ACCESSION NO--AP0107067
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0107067
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF THE ELECTROCHEM.
OXION. ON GRAPHITE ELECTRODES OF CL DISSOLVED IN MOLTEN SALTS WAS
INVESTIGATED.   THE IMPEDANCE OF A GRAPHITE ELECTRODE IN CL SATD. MELTS
OF NACL, KCL, RBCL, AND CSCL AND IN AN EQUIMOLAR NACL-KCL MIXT. WAS
MEASURED AT TEMPS. FROM THE SALT M.P. TO 900DEGREES. FREQUENCIES OF 500
HZ TO 50-90 KHZ WERE USED. EXPTL. RESULTS AND CALCD. DATA WERE IN GOOD
AGREEMENT. THE CONCENTRATIONAL IMPEDANCE DEPENDS EXCLUSIVELY ON THE
DISSOLVED MOL. CL DIFFUSION.   THE RESULTS OBTAINED DO NOT CONTRADICT,
IN PRINCIPLE, THE CONCEPT RELATIVE TO THE INHIBITION OF ADSORBED CL ATOM
RECOMBINATION; HOWEVER, THEY CANNOT PROVIDE POS. EVIDENCE OF SUCH A
COURSE OF THE PROCESS MECHANISM.   FACILITY: INST. NOVYKH KHIM.
PROBL., MOSCOW, USSR.

UNCLASSIFIED

USSR   UDC 621.396.6.019.3

LEONOVA, M. M., SOROKIN, S. A.

"Some Problems of Statistical Testing of Radio Devices"

Metody razrab. radioelektron. apparatury. No 1 (Methods of Developing Radio-
electronic Equipment. No 1), Moscow, 1970, pp 174-178 (from RZh-Radiotekhnika,
No 8, Aug 70, Abstract No 8A186)

Translation: This article contains a theoretical analysis of errors in deter-
mining the numerical distribution characteristics of the output parameters by
the Monte Carlo method with limited statistical data. It is demonstrated that
when estimating the apriori probability of fail-free operation of a radio
equipment and also during statistical testing of large systems it is possible
to take the logarithmically normal distribution as the distribution law. The
block diagram of the program of statistical tests of radio devices permitting
investigation of the output parameter distribution laws is presented. There
is one illustration and a two-entry bibliography.

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TITLE--REACTION OF TETRAKIS, PYRIDINE, COMPLEXES OF PALLADIUM, II, AND
  RHODIUM, III WITH NITRIC ACID -U-

AUTHOR-(02)-NAZAROVA, L.A., LEONOVA, T.N.

CCUNTRY OF INFC--USSR

SGURCE--ZH. NECRG. KHIM. 1970, 15(4), 1151-2

DATE PUBLISHEC--------70

SUBJECT AREAS--CHEMISTRY

TCPIC TAGS--CHEMICAL REDUCTION, PYRIDINE, NITRIC ACID, CHLORIDE, PLATINUM,
  ORGANIC CCMPLEX COMPOUND, PALLADIUM COMPOUND, RHODIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/2030   STEP NO--UR/0078/70/015/004/1151/1152

CIRC ACCESSICN NO--AP0132287
                      UNCLASSIFIED

CIRC ACCESSION NO--AP0132287
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTION OF K SUB2 (PDCL SUB4)
   WITH PYRIDINE GAVE (PD(PY) SUB4)CL SUB2 WHICH IN THE PRESENCE OF CONCD.
   HNO SUB3 GAVE A YELLOW PPT. OF TRANS-(PD(PY) SUB2 CL SUB2). REACTION OF
   (RH(PY) SUB4 CL SUB2)CL.6H SUB2 O WITH CONCD. HNO SUB3 AT ELEVATED TEMP.
   GAVE SHINY YELLOW CRYST. (RH(PY) SUB4 CL SUB2)NO SUB3 .1H SUB2 O.
   APPARENTLY THE INVESTIGATED CUMPLEXES DO NOT BEHAVE LIKE ANALOGOUS
   PT(II) TETRAMINES WHICH ON REACTION WITH HNO SUB3 GIVE PRODUCTS CONTG.
   INCREASED CONCN. OF N.

UNCLASSIFIED

UDC: 535.31;555.8

USSR

LEONOVA, V. B.

"Distribution of Illumination in Images of Amateur Cameras"

Tr. Mosk. Vyssh. Tekhn. Uch-Shcha Im N. E. Baumana [Works of Moscow Higher Technical School Imini N. E. Bauman], No. 135, 1970, pp 68-74, (Translated from Referativnyy Zhurnal Fizika, No. 8, 1970, Abstract #8D1159, by A. D. G.).

Translation: The results of calculations of the diffraction distribution of illumination at various points on images produced by the YUF-28 and "Biryuza" lenses (2.8/28, 18 x 24 mm format) are presented. The calculations were performed both for axial and for nonaxial image points. In order to study the influence of chromatic aberrations, calculations were performed for the main wave length and for additional wave lengths: $\lambda_c = 656.28$ mμ, $\lambda_h = 404.66$ mμ.

UDC 542.943:547.257.3

USSR

NESMEYANOV, A. N., LEONOVA, Ye. V., KOCHETKOVA, N. S., RUKHLYADA, N. N.,
and BYCHKOV, N. V., Institute of Metal Organic Compounds, Academy of
Sciences USSR

"Oxidation of 1,1'-Diethylcobalticinium Hexafluorophosphate"

Abstract: In presence of excess $KMnO_4$ in acid medium the hexafluorophosphate
of 1,1'-diethylcobalticinium (I) is converted to the salt of 1,1'-diacetyl-
and 1,1'-dicarboxycobalticinium. Other oxidation agents such as MnO_2 and
CrO_3 in acidic medium fail to react with (I).

UNCLASSIFIED   PROCESSING DATE--16OCT70

1/2   027
TITLE--CONCERNING THE DIFFERENTIAL DIAGNOSIS OF PROGRESSIVE
   LEUKOENCEPHALITIS AND GLIOMA OF THE BRAIN -U-
AUTHOR-(05)-LEUNOVICH, A.L., SKLYUT, I.A., KARDASH, I.I., KASTRITSKAYA,
   Z.M., KRASILNIKOVA, N.YA.
COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,
   VOL 70, NR 5, PP 673-679
DATE PUBLISHED------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TUMOR, BRAIN, LESION, DIAGNOSTIC MEDICINE,
   ELECTROENCEPHALOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0232   STEP NO--UR/0246/70/070/005/0673/0679

CIRC ACCESSION NO--AP0117484
                      UNCLASSIFIED

2/2   027
CIRC ACCESSION NO--AP0117484
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS CONVENED A CLINICO
LABORATORIAL ANALYSIS OF 44 CASE HISTORIES OF PATIENTS WITH PROGRESSIVE
LEUKOENCEPHALITIS AND NEUROECTODERMAL BRAIN TUMORS. SPECIAL ATTENTION
IS BEING GIVEN TO PSEUDOTUMOROUS SYMPTOMS IN DIFFERENT FORMS OF
PROGRESSIVE LEUKOENCEPHALITIS (SCHILDERS, SCHOLZ, VAN BOGARTS DISEASE).
FOR DIFFERENTIAL PURPOSES THE AUTHORS UTILIZED OTONEUROLOGICAL AND X RAY
CONTRAST METHODS, AS WELL AS EEG DATA. THE PEG OF PATIENTS WITH
PROGRESSIVE LEUKOENCEPHALITIS DISPLAYED AN OPEN INTRAHYDROCEPHALIA
WITHOUT A DISPLACEMENT OF THE VENTRICULAR SYSTEM. THE EEG CHANGES WERE
IN THE FORM OF A DIFFUSE DISORGANIZATION OF THE RHYTHMS WITH A LOW
AMPLITUDE ACTIVITY OR HIGH VOLTAGE PAROXYSMS OF ACUTE AND SLOW WAVES.
THE OTONEUROLOGICAL CLINICAL PICTURE IN PROGRESSIVE LEUKOENCEPHALITIS IN
COMPARISON TO TUMORS WAS CHARACTERIZED BY MULTIPLE FOCI, SUB AND
SUPRATENTORIAL SYMPTOMATOLOGY. THIS INDICATES NOT ONLY TO A LESION OF
THE HEMISPHERES, BUT OF THE STEM STRUCTURES AS WELL.   FACILITY:
KAFEDRA NERVNYKH BOLEZNEY BELORUSSKOGO INSTITUTA SOVERSHENSTVOVANIYA
VRACHEY AND N-I INSTITUT NERVOLOGII, NEYROKHIRURGII I FIZIOTERAPII,
MINSK.

UDC 546.821'17+946/46'21

USSR

KHRUSTALEV, B. N., IKONOVICH, B. I., GUREVICH, YU. G., and NEVRAYEV, YU. P.

"Interactions in the Titanium Nitride-Magnesium Oxide System"

Abstract: The solid-phase interaction in the system TiN-MgO is studied. The end product of this interaction is α-Ti$_2$O$_3$; the interaction occurs with the formation of an intermediate product, a TiO-MgO solid solution, which decomposes into α-Ti$_2$O$_3$. The coefficients of diffusion of titanium through the phases α-Ti$_2$O$_3$ and MgO are determined.

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UDO 621.378.325

USSR

LEONTOVICH, A.M., MOZHAROVSKIY, A.M.

"Self-Quenching Of Free Oscillation In A Ruby Laser At Low Temperature"

Kvantovaya elektronika (Quantum Electronics),Moscow, No 6(12), 1972, pp 62-73

Abstract: Duration of generation and the energy output of free oscillations in a ruby laser at low temperature are investigated. The experiments were conducted with two standard specimens of ruby with a rough-transparent lateral surface with plane-parallel ends without reflective coatings. The specimens were 120 mm long and 12 mm in diameter. Pumping was accomplished in a two-elliptical narrow illuminator by two pulse xenon IFP-2000 lamps with power supply from a bank of capacitors with a capacitance of 1200 mkf. The pumping energy changed in the limits from 0.9 (threshold) to 4.5 kilojoule. The ruby was located in a glass tube through which gaseous nitrogen was blown which was previously passed through a coil immersed in liquid nitrogen. The temperature of the crystal reached minus 180° C. It is determined that duration of generation is decreased with an increase of the pumping energy. In the process, saturation of the output radiation energy also takes place. It is shown that the condition of generation in a resonator with a low figure of merit is determined by the time of

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USSR

LEONTOVICH, A. M., et al., Kvantovaya elektronika, No 6(12), pp 69-73

equalization of the transverse distribution of inverse population in the proc's
of generation, which leads to an additional decrease of the figure of merit.
Formulas are obtained which determine the duration of generation and the output
radiation energy. The authors thank Prof. M.D. Galanin for discussion of the
work and V.N. Smorchkov for assistance in the work. 3 ill. 9 ref. Received by
editors, 3 Dec 1971.

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AN 0032608

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USSR

TOO FEW CADRES, POOR PLANNING STUNT PSYCHOLOGY

Moscow PRAVDA 25 Feb 70 p 3 L

[Article by A. Leontyev, member of the USSR Academy of Pedagogic Sciences and professor of Moscow University: Penetrating All Spheres of Life]

Here is a very simple illustration. Over the past 30 years, the number of instruments in an airplane has increased 10-fold and the time for carrying out each operation to control the plane has been reduced 6-7 times. It is understandable that under these conditions any fault in the design of signal or control instruments impairs the perception and attention to them and and the speed for making decisions with possible grave consequences. In control of large and super-large systems (a unified energy system, a unified communications system, a unified system of air traffic and so forth) the cost of every mistake committed by a man because of disagreement between technical decisions and the peculiarities of the human psychology is generally expressed in astronomical figures. The gains--in the case of a correct decision-- are also astronomical.

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19700910

AN0032608

Now one has no need in general to prove to anyone the importance of psychological science. Scientific organization of labor is now impossible without recommendations from specialists in the psychology of labor. The quest for optimum methods to fulfill labor operations, revealing factors which increase working capability, study of the mobilization and stimulation of labor, the compatability of people occupied in labor, questions of professional selection and professional orientation, establishing psychological reasons for traumatism—this is far from a full list of the themes that are part of the scope of psychological science. It is unnecessary to prove how important it is to solve these problems today under conditions of the economic reform.

Intensive development of research in the border areas which connect psychology with the biological sciences, technology, and mathematics has equipped it with accurate objective methods and has enriched it with a cybernetic and mathematical approach to the study of psychological processes. The work of a number of our psychologists has been awarded Lenin, state and Lomonosov prizes.

In many departments, laboratories and groups are being created which work out applied problems of psychology. Work in this field has noticeably intensified in nonpsychological type scientific research institutions too; in philosophical, medical, and engineering scientific research institutions and also in social science institutions—of philosophy, law, concrete sociological research and pedagogics.

19700911

AN0032608

Until comparatively recently psychology referred to pedagogical sciences and was departmentally subordinate to the Ministry of Education. This was a serious obstacle to its comprehensive development and gave rise to curiosities such as, for example, awarding the degree doctor of pedagogical sciences for research into... the behavior of bees!

However, as PRAVDA has already noted, development of these faculties and departments is not sufficiently provided for. They are experiencing an acute shortage of premises, scientific and pedagogic cadres, and equipment. Therefore their "production capacity" is extremely small. Even the psychology faculty at Moscow University, the biggest in the country, which has at its disposal first-class professorial and teaching personnel, still does not have the strength to accept into its day department more than 50-60 students. Accordingly the output of specialist psychologists with university education continues to remain at the level of approximately 180 persons per year throughout the country. Of course, this will be no means suffice.

A serious shortcoming is that demands for psychologists of different types are not studied by anyone--either departments, or the Gosplan. In fact they remain relatively hidden.

I shall cite a simple example. It is perfectly obvious that industrial enterprises, control staffs engaged in scientific labor organization must have at least one specialist on the psychology of labor. If one conditionally accepts that at least 1,000 major enterprises have a particular need for psychologists, this means that with the present output of specialists we shall be able to guarantee them only... after the year 2000.

3/4   197700942

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I have already spoken of the unevenness of the development of certain branches and directions of psychological science. Even more serious is the comparative slackening of attention toward general theoretical and methodological questions. At the moment, when an accelerated development is taking place in research of an applied nature and research in border areas, into which are drawn a considerable number of workers who possess no serious scientific and psychological training, it is particularly important to maintain the superiority of our psychology, which is developed on the basis of scientific Marxist-Leninist methodology. Indeed it owes its successes to this, and we are legitimately proud.

Until comparatively recently psychology referred to pedagogical sciences and was departmentally subordinate to the Ministry of Education. This was a serious obstacle to its comprehensive development and gave rise to curiosities such as, for example, awarding the degree doctor of pedagogical sciences for research into... the behavior of bees!

Now the situation has been rectified. Obviously the time has come for a second step: psychology must occupy an equal position in our main scientific headquarters-- the USSR Academy of Sciences. One can no longer fail to notice that today psychology is a broad science which unites 10 specialized disciplines and is closely linked with solution of any current tasks of communist building.

The USSR Academy of Sciences must become the center of psychological sciences also. This will benefit both psychology and a number of social, natural, and technical sciences whose lengthy isolation from psychology has caused and continues to cause a great deal of harm.

4/4   19700913

USSR

LEONT'YEV, A. A., Doctor of Philological Sciences (Editor)

Rechevoye vozdeystviye-Problemy prikladnoy psikholingvistiki (The Speech Effect-Problems of Applied Psycholinguistics), Moscow, "Nauka," 1972, 144 pp

1/2

USSR

LEONT'YEV, A. A., Rechevoye vozdeystviye-Problemy prikladnoy psikholing-
vistiki, Moscow, "Nauka," 1972, 144 pp

2/2

USSR

UDC: 8.74

LEONT'YEV, A. G., MOROZOV, A. M., FUKS, B. K.

"A Random Sequence Generator, and a Check on its Quality"

V sb. Peredacha diskretn. soobshch. po kanalam s gruppiruyushchimlsya oshib-
kami (Transmission of Discrete Messages Over Channels With Grouped Errors--
collection of works), Moscow, "Nauka", 1972, pp 126-134 (from RZh-Kibernetika,
No 6, Jun 72, Abstract No 6V497)

Translation: An explanation is given of a block diagram for a random se-
quence generator. The complete schematic of the device is given and the
interaction between subassemblies is explained. Feedback is introduced to
improve accuracy. Algorithms are presented for checking the random sequence
generator, and a comparative analysis of the algorithms is given. Authors'
abstract.

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USSR

UDC: 8.74

MOROZOV, A. M., LEONT'YEV, A. G.

"On the Problem of Physical Generation of Random Binary Sequences for Simulation of Errors in Communications Channels"

V sb. Peredacha diskretn. soobshch. po kanalam s gruppiruyushchimisya oshibkami (Transmission of Discrete Messages Over Channels With Grouped Errors-- collection of works), Moscow, "Nauka", 1972, pp 116-126 (from Rzh-Kibernetika, No 6, Jun 72, Abstract No 6V500)

Translation: Methods of physical generation of random numbers are classified along with continuous realizations with a given distribution law. Principal attention is given to obtaining equally distributed random numbers. It is shown that registration of a periodically changing state at random times gives the least deviation from a given distribution law. Formulas are presented for calculating errors. A method of generating binary random sequences is recommended. Authors' abstract.

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- 44 -

Abstract: This analog-type memory device using a selsyn pickup has the distinguishing feature of having the program carrier fixed to the selsyn shaft, with the perforator and counting element on the opposite side of the carrier disc. The effect of this arrangement is to simplify the device.

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UDC 536.3.001.5

USSR

LEONT'YEV, A. I., RUBTSOV, N. A., PAVLYUCHENKO, A. M.

"Experimental Study of the Temperature Distribution in a Laminar Thermal Sublayer and in the Turbulent Core of a Boundary Layer in a Thermal Radia- tion Field"

V sb. Teplo- i massoperenos (Heat and Mass Transfer — Collection of Works), Vol. 1, Minsk, 1972, pp 355-362 (from RZh-Teploenergetika, No 7, Jul 72, Abstract No 11G155)

Translation: The effect of interaction of a gasdynamic field (both tempera- ture and velocity) with the thermal radiation field was determined experi- mentally on the basis of finding in pure form the degree of deformation of the temperature field caused by this interaction. The experiments were conducted in a subsonic wind tunnel of the closed type. CO_2 was used as the absorbing gas. The measurement section consisted of a plane plate in a gas flow coming from a nozzle and forming a turbulent jet at the wall. The thermal radiation source was in the form of a SiC rod. Temperature in the boundary layer was measured with a resistance microthermometer with a tungsten gold-plated grid of diameter 20 μ. The experiments measured the velocity and temperature at

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LEONT'YEV, A. I., et al, Teplo- i massoperenos, Vol. 1, Minsk, 1972,
pp 355-362

the edge of the nozzle (with a Prandtl tube and a screened thermocouple),
the temperature of the plate and the thermal heat source (by thermocouples
and optical pyrometer), the electrical load conducted to the plates, the
temperature of the insulation under the plates and in the surrounding air
(to calculate thermal losses). The measurements show that the linear
dependence of the dimensionless temperature on the coordinates in the
laminar sublayer that was obtained in air becomes considerably nonlinear
in CO_2 in the presence of the radiation field. The maximum difference in
the temperature profiles in the neighborhood of the walls in the CO_2 measure-
ments and in air was 40-80. Consequently, the additive method in calculating
thermal flows by convection and radiation to the wall (from the wall) without
considering the interaction of the gasdynamic field and the thermal radiation
field is unsuitable. These results are supported by an analysis of an
approximation model corresponding to heat transfer considering radiation in
a laminar thermal sublayer. 4 ill., 5 ref. E. G. Namsarayev.

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"Determination of Relative Heat and Mass Transfer Coefficients and Critical
Parameters of Turbulent Boundary Layer Separation with Nonuniform Injection
under Nonisothermal Conditions"

Abstract: Simple approximating formulas are presented for calculating the
relative heat and mass transfer coefficients and critical parameters of bound-
ary layer separation in the presence of a nonuniform injection, chemical
reactions, dissociation etc. under strong nonisothermal conditions. A com-
parison of the results obtained on a computer with those obtained by formulas
shows a rather good agreement. These formulas can be extended to the case
when the Reynolds numbers are finite. 3 figures, 3 references.

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TITLE--INTERACTION BETWEEN A GRAPHITE SURFACE AND A TURBULENT GAS FLOW
UNDER CONDITIONS OF SUBSTANTIAL NONISOTHERMALITY AND IN THE PRESENCE OF
AUTHOR-(04)-VOTCHKOV, E.P., ZAULICHNYY, YE.G., LEONTKEV, A.I., SINAYKO,
YE.I.

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ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THEORETICAL AND EXPERIMENTAL STUDY
OF THE NONISOTHERMAL BURN UP RATES OF GRAPHITE SURFACES IN AN AIR FLOW
WITH OR WITHOUT INJECTING A NEUTRAL GAS INTO THE BOUNDARY LAYER AS A
SHIELD FROM BURNING. THE EXPERIMENTS WERE CARRIED OUT AT TEMPERATURES
FROM 1500 TO 1800DEGREESC AT REYNOLDS NUMBERS FROM 40K TO 4M IN A
GRAPHITE CHANNEL. THE CHANNEL WALLS WERE 5-10 MM THICK, THE DENSITY OF
THE GRAPHITE SPECIMENS WAS 1076-1925 KG-CU M, AND NITROGEN OR ARGON WERE
INJECTED THROUGH SLOTS FOR SHIELDING. THE GRAPHITE BURN UP RATES WERE
ESTIMATED BY MEASURING THE CHANNEL DIAMETER AFTER EXPERIMENTS.
EQUATIONS ARE PROPOSED FOR ESTIMATING THE EFFECTIVENESS OF THIS
SHIELDING TECHNIQUE. THE THEORETICAL AND EXPERIMENTAL RESULTS ARE
COMPARED.   FACILITY: AKADEMIIA NAUK SSSR,
NAUCHNO-ISSLEDOVATEL'SKII INSTITUT VYSOKIKH TEMPERATUR, MOSCOW, USSR.