USSR

SHUMILOV, R. N.

UDC: 681.335.7

"An Integrating Amplifier for Playback of Binary Information From a Magnetic Surface"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 26, 1970, Soviet Patent No 279179, Class 42, filed 12 Jul 65, p 134

Abstract: This Author's Certificate introduces an integrating amplifier for playback of binary information from a magnetic surface. The unit contains a preamplifier, passive integrating circuit and output shaping amplifier connected in series. As a distinguishing feature of the patent, the accuracy of data reproduction in the form of unipolar pulses of the proper polarity is improved and drift is eliminated by incorporating into the integrating amplifier a diode key connected to the tie point between the integrating capacitor and the shaping amplifier input. The controlling inputs of the diode key are connected to a source of pulses of both polarities. The integrating amplifier also has an isolating capacitor or transformer connected to the tie point of the integrating capacitor. The input terminal of this isolating element is connected to the output of the preamplifier.

1/1

USSR

SHUMILOV, R. V., Graduate Student

UDC: 621.83.05

"Realization of the Logic Functions of Mechanical Devices"

Abstract: The author studies the classification of logic mechanisms and explains the execution of the logic operations "and", "or", and "no" by some mechanical units. The work of these units is described by the time-free functions of logic algebra. This article was presented for publication by Professor I.A. Artobolev-skiy of the Moscow Aviation Institute.

1/1

Inventions & Discoveries

"A Highly Sensitive Trap for Microbiological Studies of the Atmosphere"

Translation: The concentration of spores of phytopathogenic fungi at the onset of a disease is usually calculated in units per tens of cubic meters of air. It is necessary to be able to detect spores promptly among other particles suspended in the air.

Various types of gravity traps are now used for this purpose. Despite their extreme simplicity, they have a common disadvantage - low sensitivity (1). There are also the inertial types of traps (2). One of them, the L-1, is intended to trap spores (or other particles 5 μ m in diameter) and measure the concentration of the particles. Another trap, the L-2, makes it possible to determine the diurnal change in concentration of these particles in the air.

However, it is sometimes necessary (e.g., when forecasting plant diseases) not only to trap spores but to determine their viability. The gravity and inertial traps show only the total concentration of particles of a certain type. This drawback can be overcome by using a previously described method (3)

1/4

USSR

DUNSKIY, V. V., et al., Sel'skokhozyaystvennaya Biologiya, No 2, 1973, pp 290-291

whereby air is pumped directly through the fascicles of live plants. The spores present in the air are "filtered" by the plants and settle on them. After a brief exposure the plants are placed in a medium conducive to the growth of phytopathogenic organisms. The presence of infectious spores is determined from the symptoms of disease (spots, pustules, etc.) visible to the naked eye. However, this method, like the others, is not very sensitive because of the brevity of exposure caused, first, by the rapid drying of the leaves by the air passing through them and, second, by the fact that the flow rate of the air through the plants is limited by their mechanical strength.

We devised a method whereby the spores in the air can be concentrated and then allowed to settle in a special chamber on moist plant leaves, i.e., under conditions favorable for the growth of phytopathogenic organisms. The spores are concentrated in a cyclone dust separator. When using the cyclone, the volume of air from which the spores are removed can be increased hundreds and thousands of times without running the risk of the plants drying or suffering injury, and the plants in the chamber can be moistened from time to time.

Based on the suggested method, we designed and built a highly sensitive trap consisting of a cyclone separator capable or removing spores $10 \mu m$ or more in diameter from the air. The separator is connected by a pipe to a

2/4

- 32 -

USSR

DUNSKIY, V. V., et al., Sel'skokhozyaystvennaya Biologiya, No 2, 1973, pp 290-291

centrifugal fan (capacity 360 m^3/hour) powered by an electric motor (0.4 kv). Air enters through an inlet tube at about 20 m/sec. The suspended particles settle in a chamber under the outlet tube. Air free from spores is expelled through a ventilator. In a hermetically sealed metal chamber connected to the separator is a screen on which whole plants or leaves resting on water are set. Distilled water is poured into the space between the bottom of the chamber and the screen to help maintain high humidity in the chamber and supply a drum sprayer. The latter, driven by an electric motor (50 v, 3000 rpm), produces and maintains drops of moisture on the leaves in the chamber. Water is fed the drum sprayer by a centrifugal pump (capacity 200 ml/min) through a jet nozzle via a pipe line with a filter. The drum sprayer and pump operate intermittently with a timer in order to prevent the spores from being washed from the leaves in the presence of too much moisture.

A readily removable, transparent, hermetically sealing hatch in the front of the chamber permits the plants to be changed. Live spores settling downward from the outlet pipe of the separator strike the wet leaves where they germinate and form spots.

Trials of the new device along with the L-1 and L-2 traps to find spores of the causative agent of late blight of potato showed that the new device

3/4

USSR

DUNSKIY, V. V., et al., Sel'skokhozyaystvennaya Biologiya, No 2, 1973, pp 290-291

detected the presence of spores in the air in 15 of 18 cases. During the same period of time the L-1 and L-2 traps detected the presence of conidia in only 3 cases and it was impossible to tell whether the spores were live or dead.

The results of the trials justify our recommending the new device as a means of detecting promptly and judging the viability of phytopathogenic organisms in the air.

4/4

UDC: 621.791.753.93:669.295

USSR

SHUMILOV, V. F. (Engineer)

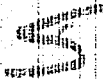"Manual Argon-Arc Welding of Titanium Alloys in Open Air"

Moscow, Svarochnoye proizvodstvo, No 12, Dec 71, p 46

Abstract: The study has been prompted by the increasing use of welded titanium alloy structures and the associated difficulties, especially with manual welding in open air, the cooling portion of the weld and the back of the weld. These and some other undesirable aspects have made the manual argon-arc welding process unsuitable for welding critical titanium parts. Proposed here is an auxiliary manual set for welding titanium alloys equipped with an additional process control system. The nonconsumable electrode welding method comprises a rotary welding machine, a high-voltage protection choke, a relay winding, a welding gun with an additional arc excitation button modified to protect the weld pool from atmospheric effects, stainless steel deflectors to protect the cooling portion of the weld and the back of weld. The gun is equipped with an adapter for an orifice with a 20-mm output diameter and a fine grid (200-500 holes per cm^2) to produce a filled laminated argon current. (3 illustrations).

1/1

AT9 031293

A69-32416

SOME PROBLEMS OF THE OPERATION OF FUEL CELL OXYGEN
ELECTRODES

IAA 8/69

0000

CA 7/69

AP9025131

18156f Cathodic reduction of oxygen on an oxidized nickel electrode in an alkaline solution. Samoilov, G. P.; Khrushcheva, E. L.; Shumilova, N. A.; Engels (Inst. Elektrokhim., Moscow, USSR). Elektrokhimiya 1969, 5(4), 470-3 (Russ). The kinetics of ionization of O_2 on the Ni rotating disk electrode in 0.1 N KOH was studied. The soln. was previously purified by the adsorption of impurities on Pt gauze and cathodic polarization in a H_2 atm. The polarization curves for the O_2 ionization were detd. for an electrode reduced at −0.2 v. (vs. normal H electrode) for 2 hrs. and oxidized at 0.5 and 0.7 v. for 50 sec. and 3 min., resp. The polarization curves were detd. for oxidn. at 0.7 v. at an electrode speed of 2130 rpm. Oxidn. of the electrode markedly decreased the O_2 redn. rate at all potentials used. The fraction of the O_2 which is oxidized through the stage of HO_2^- formation, increased with the degree of oxidn. of the electrode surface. The rate consts. k_1 and k_2 of the reactions: $O_2 \rightarrow OH^-$ and $O_2 \rightarrow HO_2^-$, resp., were calcd. and log K vs. potential curves were detd. The k_1 for a reduced electrode is 10-30-fold larger than that for an oxidized electrode, whereas k_2 is only 2-3-fold larger.   J. Pietkiewicz

1935   1318

27

96052d   Electrochemical behavior of hydrogen peroxide on a
nickel electrode in alkaline solution.   Samoilov, G. P.; Khrash-
cheva, E. I.; Shumilova, N. A.; Bagotskii, V. S. (Inst. Elektro-
khim., Moscow, USSR).   Elektrokhimiya 1969, 5(9), 1082-6
(Russ).   The decompn. rate of H_2O_2 was detd. electrochem. by
using a Ni disk electrode with a Pt-plated Pt ring.   The elec-
trolyte was a $0.1N$ KOH soln. with addn. of H_2O_2 with a concn. of
$(2-4.5) \times 10^{-4}$ mole/l.   At $0.8-0.1$ V no difference between the
cathodic and anodic currents on the ring was obsd.   The Ni
disk with a surface of 0.196 cm^2 was immersed into a soln. of
$0.1N$ KOH $+ 4.4 \times 10^{-4} M$ H_2O_2.   The duration of the expt.
was 48 hr.   The av. decompn. rate of H_2O_2 on the Ni disk was
4.4×10^{-11} mole/sec-cm^2.   The polarization curves of H_2O_2
redn. on a reduced Ni electrode show that at $0.1-0.2$ V the theo-
retical crit. current is approached.   Deviations from it increase
with the rate of rotation of the electrode.   Oxidn. of the elec-
trode slows down the redn. rate of H_2O_2.   At very pos. potentials
the oxidn. of the electrode slows down electroredn. and accelerates
electrooxidn.   Oxidn. of H_2O_2 takes place on phase oxides, its
redn. on sections of the surface that are not covered by O or only
by weakly bound O.   L. Holl

Psychology

UDC 616.89:621.72

USSR

VOLKOV, P. P., KOROLENKO, Ts. P., NIKIFOROV, V. V., and SHUMILOVA, V. K., Novo-sibirsk Medical Institute

"Data on the Investigation of Mental Illness by Biological Methods and Mathe-matical Simulation"

Abstract: The simulation method is a new approach for the solution of problems in psychiatry. Biological and mathematical models are used. The combined use of both types of models is particularly effective in various fields of medicine. Problems on the borderline of various disciplines, such as pathophysiology, path-omorphology, pharmacology, microbiology, toxicology, etc. complicate the study of pathogenic, exogenic psychoses under clinical conditions. Furthermore, the study is made difficult by the fact that the group of cases to be examined and analyzed should be of the same type, from the etiological as well as from the clinical point of view. In addition, a complete series of clinical studies may be limited or inapplicable.

Staphylococcus infection and intoxication were used as models for the study of

1/3

USSR

VOLKOV, P. P., et al, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, Vol 1, No 5, Apr 70, pp 112-118

general principles and of specific reactions of the central nervous system to injury.

Imizin and chlorazicin were used to produce intoxication psychoses, because they have a pronounced psychotropic effect. Clinical and experimental studies were used to explain several mechanisms of the therapeutic effect of these preparations. EEG studies indicated that therapeutic doses of these drugs produce slow bioelectrical activity. Toxic doses cause blocking of EEG responses to high-frequency stimulation. The blocking effect was similar to that evoked by central cholineblocking agents.

The data obtained indicate that the biological simulation method is extremely effective, and can be applied to the study of pathogenesis of exogenic psychoses and the mechanism of action of psychopharmacological drugs.

The simulation method was applied also to differential analysis of schizophrenia, and to mathematical analysis of epilepsy (organic, genuine, alcoholic, and traumatic), as well as to emotion syndromes (apathy and depression).

2/3

- 78 -

USSR

All these problems lie on the boundary of three disciplines: pathological physiology, psychiatry, and cybernetics. In this area, the approaches have not been worked out. Untried paths will have to be taken, and great difficulties and errors must be expected. One thing is certain: the application of the principles, ideas, and methods of biology and mathematics to psychiatry has a promising future.

3/3

USSR

SHUMITSKAYA, N. M. and KOLPAKOV, Ye. V., Department of Comparative Pathology, Institute of Physiology imeni A. A. Bogomolets, Academy of Sciences UkSSR

UDC 612.26

"Comparison of Anaerobic Processes in the Tissues of Heterothermic and Homoio- thermic Animals After Prolonged Exposure to Hypoxia"

Abstract: Hematopoiesis and anaerobic and aerobic glycolysis were studied in the brains and skeletal muscles of heterothermic (susliks) and homoiothermic (Wistar rats) animals after exposure to hypoxia in a pressure chamber for 1 to 2 weeks at an "altitude" of 6,000 to 8,500 m. Lactic acid was determined by calorimetry. In the adapted rats and, to a lesser degree, susliks, differences were found in the content of preformed lactic acid in brain tissues compared with the controls and the hematopoietic reaction was more pronounced. There was also more intense activity of the anaerobic processes (anaerobic and aerobic glycolysis) in the brains of the experimental animals compared with the controls of their own species. The direct Pasteur effect was not impaired. The dif- ferences between the rodent species during the prolonged exposure to hypoxia are attributed to ecological factors.

1/1

- 72 -

UDC 612.26

USSR

SHUMITS'KA, N. M., and KOLPAKOV, E. V., Department of Comparative Pathology, Institute of Physiology imeni O. O. Bogomolets, Ukrainian SSR Academy of Sciences

"Comparative Study of Tissue Respiration of Heterothermal and Homoiothermal Animals in Hypoxia"

Kiev, Fiziologicheskiy Zhurnal, Vol 17, No 1, Jan/Feb 71, pp 62-67

Abstract: Susliks (Citellus suslica) and white rats were used in experiments to determine the possible role of tissue factors in the accommodation of the organism to hypoxic conditions. For comparative purposes intact rats were decapitated, and organs -- large hemispheres, liver, kidneys, myocardium, and others -- were excised, cut into uniform sections, and in a suspended form placed into a gas chamber containing 1.3-1.8% of oxygen. Simultaneously a group of experimental susliks and rats after preliminary hematological examination were placed in an altitude chamber under conditions simulating an altitude of 7.5-8.5 m

1/2

USSR

and kept there for a period of 180 hours. Within 16-18 hours
after the end of exposure of the animals to hypoxic conditions,
they were again subjected to a hematological examination and
sacrificed. At the same time the intensity of oxygen consumption
by tissue sections placed in the gas medium was determined.
Parallel studies established that in both cases increased oxygen
absorption by tissues, particularly tissues such as the cerebral
hemispheres and the myocardium which are particularly sensitive
to oxygen insufficiency, and intensified respiration play an
important role in the accommodation of the organism to hypoxia.
However, further research work, particularly with animals living
at high altitudes, is necessary in order to obtain further data.

SHUMKOV, A.D

Article by L. G. Lavrent'yeva, I. V. Ivonin, Yu. G. Katayev, L. M. Krasil' nikova, F. I. Turganbaev, Yu. M. Rumyantsev, A. D. Shumkov, N. F. Yakushieva, Tomsk, Novosibirsk: Nauchnyye III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 1911

Studies were made of the microstructure and the distribution of the admixture with respect to thickness of the substitutional layers of gallium arsenide with the (1.0?5; 1. 1) A orientation as a function of the crystallization temperature in the GaAs-HCl-H2 system. The crystalliza- tion temperature in the T range of 500-750° C; here, the thermodynamic supersaturation was within the T range of 500-750° C; here, the thermodynamic supersaturation was kept constant.

For the stationary section, the optimal temperature range (675-700° C) is observed at which the layers grow more perfect with respect to structure, with the greatest clarity. Irregular system of growth stages on the surface, and with maximum admixture concentration and maximum electron mobility. In the case of a reduction in the crystallization temperature from optimal, the grown layers are enriched more weakly, the growth rate drops, and the alloying level increases. The increase in temperature above optimal leads to local isolation of the second phase, inhibition of the growth stages in these section and des- truction of the regularity. Here, the growth rate decreases, and the alloying metal increases.

Thus, an analysis of the results shows that the clear correlation is observed between the investigated characteristics. One of the important re- gulators of capture of the admixture by the growing layer is the surface micro- structure and the mechanism of its growth.

- 203 -

USSR   UDC: 513.88

VOLODIN, A. A., SHMUL'YAN, Yu. L., Odessa Institute of Engineers of the
Marine Fleet

"Some Problems of Geometry in 'Equipped' Hilbert Spaces"

Abstract: The Galois connections between classes of lineals, closed with
respect to different norms, are studied in an equipped Hilbert space.
investigation is made of a class of lineals which are closed with respect
to different norms. Applications to the theory of representation of
closed operators with improper scale space are shown.

1/1

USSR   UDC 621.396.677.73

SHUMLYANSKIY, I. I.

"Calculating H-Horn Antennas of Curvilinear Configuration"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb.(Radic Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 14, pp 153-158 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B55)

Translation: A numerical calculation of an H-plane sectoral horn with a fundamental wave is presented. There are 2 illustrations, 1 table and a 2-entry bibliography.

1/1

TITLE--THE CHARACTERISTICS OF JAUNDICE CAUSED BY AMINAZINE CHLORPROMAZINE
-U-

AUTHOR-(04)-SINAYKO, G.A., PAKTORIS, YE.A., KUTCHAK, S.N., SHUMKINA, O.B.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 6, PP 45-52

DATE PUBLISHED------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--JAUNDICE, CHLORPROMAZINE

CENTRAL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1887   STEP NO--UR/0497/70/048/006/0042/0052

CIRC ACCESSION NO--AP0129244
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0129244
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AMINAZINE (CHLORPROMAZINE) INDUCED
JAUNDICE WAS STUDIED IN 31 CASES. THE PAPER GIVES A CHARACTERISTICS OF
ITS CLINICAL PICTURE, THE RESULTS OF BIOCHEMICAL AND MORPHOLOGICAL
(ILLUMINATION AND ELECTRON MICROSCOPY) INVESTIGATIONS. AMINAZINE
JAUNDICE DEVELOPS ACCORDING TO THE FORM OF INTRAHEPATIC CHOLESTASIS
ACCOMPANIED BY ITCHING, INCREASED ACTIVITY OF ALKALINE PHOSPHATASE AND
THE BLOOD SERUM CHOLESTEROL LEVEL. THE ACTIVITY OF FRUCTOSE MONO AND
FRUCTOSE DIPHOSPHATE ALDOLASES, ASPARTATE AND ALANINE AMINOTRANSFERASES
AUGMENT INSIGNIFICANTLY OR DO NOT CHANGE. PRECIPITATION TESTS, MERCURIC
CHLORIDE AND THYMOL, REMAIN NORMAL. THERE IS A MODERATE OR SIGNIFICANT
RISE OF THE LEUKOCYTE AND EOSINOPHIL COUNT AND ACCELERATION OF ESR.
UPON MORPHOLOGICAL STUDY THERE IS OBSERVED AN INTRAHEPATIC CHOLESTASIS
WITHOUT DISORDER OF THE LIVER STRUCTURE AND OBVIOUS CHANGES OF ITS
PARENCHYMA AND PORTAL FIELDS. AS A RULE, AMINAZINE INDUCED JAUNDICE
OCCURS ON THE 2ND-5TH WEEK FROM THE ADMINISTRATION OF THE PREPARATION
AND DOES NOT APPEAR IN PERSONS PROTRACTEDLY USING THE DRUG. CLINICAL
DATA, ALONG WITH THE RESULTS OF LABORATORY AND MORPHOLOGICAL
INVESTIGATIONS, MAY SERVE AS A RELIABLE BASIS FOR THE DIAGNOSIS OF
AMINAZINE JAUNDICE AND ITS DIFFERENTIATION FROM VIRAL HEPATITIS
(BOTKIN'S DISEASE).   FACILITY: KLINICHESKIY OTDEL INSTITUTA
VIRUSOLOGII IM IVANOVSKOGO AMN SSSR NA BAZE GORODSKOY KLINICHESKOY
INFEKTSIONNOY BOL'NITSY NO 82, MOSKVA.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--13NOV70

1/2   037
TITLE--PREPARATION OF AERATED CONCRETE FROM MINERAL RAW MATERIALS -U-

AUTHOR--SHUMKOV, A.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 267,412
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, N
DATE PUBLISHED--01APR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CONCRETE, PATENT, POROSITY, PRESSURE EFFECT, ALUMINUM POWDER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1414   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128813
                    UNCLASSIFIED

CIRC ACCESSION NO--AA0128813

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CELLULAR CONCRETE WAS OBTAINED
FROM MINERAL RAW MATERIAL BY THE CONTINUOUS PRESSURIZED MIXING OF THE
COMPONENTS DURING HEATING, FOLLOWED BY THE FILLING OF FORMS WITH THE
PREPD. MIXT. MIXING AND HEATING WERE CARRIED OUT BY SATD. WATER VAPOR
AT 1-3 ATM GAGE FOR 3-4 MIN TO INCREASE THE PRODUCTIVITY AND
PHYSICOMECH. PROPERTIES OF THE CONCRETE. PRODUCTS WITH HIGH GRADE
POROUS STRUCTURE AND REDUCED BULK D. WERE OBTAINED BY ADDING AL POWDER
0.15-0.25 MG-M PRIME3 CONCRETE TO THE MIXT.

UNCLASSIFIED

USSR

UDC 621.382.2

SHPIRT, V.A., SHUMKOV, N.V.

"Concerning The Transient Time Of A Limiter Diode"

Translation: An evaluation is conducted of the transient time of a limiter semi-conductor diode. The experimental determination of this magnitude was accomplished by measurement of the duration and amplitude of the microwave power leakage peak. Oscillograms of the pulses of the elapsed power show that in this case a peak in the conventional sense is absent because the beginning of the pulse is limited no less effectively than the entire pulse. 2 ill, 5 ref. Summary.

1/1

USSR   UDC 521.396.963.3:629.7.058.6

KRUKOVSKIY-SINEVICH, K. B., SHUMKOV, V. G.

"Correlation Function of Some Nonstationary Processes"

Sb. nauch. tr. Kiev. in-t inzh. grazhd. aviatsii (Collection of Scientific
Works of the Kiev Institute of Civil Aviation Engineering), 1971, vyp. 6, pp
30-33 (from RZh-Radiotekhnika, No 6, Jun 72, Abstract No 6G26)

Translation: An expression is obtained for the correlation function of noise
caused by reflection of a signal of arbitrary duration from small irregularly
arranged targets. The bibliography has 4 entries.

1/1

USSR   UDC: 621.397:612.843.721

KIVRIN, V. I., NOVOZHILOV, D. N., SHUMLYAYEV, V. S.

"On Calculating the Optical System of a Stereo Television
Camera With Short Transmission Basis"

V sb. Materialy Nauch.-tekhn. konf. Leningr. elektrotekhn. in-t
svyazi. Vyp. 3 (Materials of the Scientific and Technical Con-
ference of Leningrad Electrical Engineering Institute of Com-
munications--collection of works), Leningrad, 1971, pp 102-105
(from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3G114)

Translation: Two types of attachments for a stereo television
camera with short transmission basis are considered. The ad-
vantages of constructing a stereo television camera with orthog-
onal arrangement of the transmitting tubes and semitransparent
mirror are demonstrated. Resumé.

1/1

USSR

SHUMLYAYEV, V. S., RESHETOV, L. A., Leningrad Electrical Engineering Institute of Communications

"A Scanning Method for Transmission and Playback of Stereo Television Images"

Translation: A scanning method is proposed for transmission and playback of stereo television images with frame-by-frame transmission and playback of a stereopair. To increase the depth of the reproduced image, orthogonal directions are used for scanning the left and right images of the stereopair in transmission and reception. Resumé.

1/1

- 109 -

USSR

UDC: 621.397

SHUMLYAYEV, V. S., MOROZOV, V. A., SUDRAVSKIY, D. D., and
SHABUNIN, A. I.

"Large-Screen Stereo Television"

Moscow, Tekhnika kino i televideniya, No 3, 1972, pp 65-66

Abstract: A description is given of experiments in stereoscopic
television on a large screen conducted by the Television Depart-
ment in the M. A. Bonch-Bruyevich Electrotechnical Institute of
Communications in Leningrad. The experimenters used the trans-
mitting part of a two-channel stereo television equipment, with
two television light-valve projectors used for image reproduc-
tion. At a light flux of up to 2000 lumens, the brightness of
the image is high enough for use of the polarization method of
separation of image pairs. Specifications of the system, which
conform to Government Standard GOST 7845-55, are given together
with its block diagram. The authors conclude that this system
may be used in various types of training situations, such as
operation of aircraft, for lectures in the VUZ schools, and in
applied science.

1/1

USSR

UDC 622.215.2

BARANAYEV, M. K., VITELIS, V. M., and SHUMOV, K. M. (Moscow)

"Influence of the Shell Upon the Initial Parameters of an Underwater Explosion of a Cylindrical Explosive Charge"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 1, 1973, pp 165-169

Abstract: An experimental determination is made of the initial parameters of shock waves in water during the explosion of cylindrical charges of trotyl in shells. It is shown that these parameters depend mainly upon the dynamic rigidity of the material and the relative weight of the shell. It is established that in the process of expansion of the charge shell during an explosion in a limited volume of water, a region of extremely rapid rarefication is formed, the boundary of which may be identified with the boundary between the detonation products and the water after destruction of the shell, which coincides in time with the arrival of the cavitation front. 3 figures. 3 tables. 8 references.

1/1

- 53 -

UDC 669.184.244.66

USSR

ZIN'KO, B. F., TRAVIN, O. V., SHUMOV, M. M., ISAYEV, V. A., and ZHUKAYEV, G. M.

"State of the Oxidation of Low-Carbon Converter Steel"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 100-104

Translation: In connection with the requirements for performance of more pre-cise deoxidation, the thermodynamic and kinetic factors determining the level of oxidation of metal in a converter are analyzed. On the basis of diffusion concepts, an equation is derived allowing the actual content of oxygen in the bath to be determined on the basis of known parameters: content of carbon in the metal, concentration of ferrous oxide in the slag,and metal temperature. 3 figures; 3 biblio. refs.

1/1

USSR

UDC 669.184.244.66

TRAVIN, O. V., ZIN'KO, B. F., SHUMOV, M. M., ISAYEV, V. A., ZHUKAYEV, G. M., and SOBKIN, S. I.

"Kinetic Specifics of the Process of Deoxidation During Production of Low-Carbon Rimming Steel"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 93-100

Translation: The mass transfer conditions between slag and metal in the process of deoxidation of low-carbon rimming steel in the ladle are studied. It is established that during the process of deoxidation the loss of manganese is determined by both the thermodynamic and the kinetic conditions. The influence of the pouring time, slag viscosity, moment of addition of deoxidizers and other kinetic parameters on manganese loss is determined. An equation is presented, allowing the manganese loss to be determined in advance on the basis of known parameters of the converter process, notch condition and other factors. 4 figures.

1/1

USSR   UDC 669.184.244.66

ZIN'KO, B. F., TRAVIN, O. V., SHUMOV, M. M., ISAYEV, V. A., and
ZHUKAYEV, G. M.

"State of the Oxidation of Low-Carbon Converter Steel"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of
Works], No 75, Metallurgiya Press, 1970, pp 100-104

Translation: In connection with the requirements for performance of more pre-
cise deoxidation, the thermodynamic and kinetic factors determining the level
of oxidation of metal in a converter are analyzed. On the basis of diffusion
concepts, an equation is derived allowing the actual content of oxygen in the
bath to be determined on the basis of known parameters: content of carbon in
the metal, concentration of ferrous oxide in the slag, and metal temperature.
3 figures; 3 biblio. refs.

1/1

USSR

UDC 669.184.244.66

TRAVIN, O. V., ZIN'KO, B. F., SHUMOV, M. M., ISAYEV, V. A.,
ZHUKAYEV, G. M., and SOBKIN, S. I.

"Kinetic Specifics of the Process of Deoxidation During Production of Low-Carbon Rimming Steel"

Translation: The mass transfer conditions between slag and metal in the process of deoxidation of low-carbon rimming steel in the ladle are studied. It is established that during the process of deoxidation the loss of manganese is determined by both the thermodynamic and the kinetic conditions. The influence of the pouring time, slag viscosity, moment of addition of deoxidizers, and other kinetic parameters on manganese loss is determined. An equation is presented, allowing the manganese loss to be determined in advance on the basis of known parameters of the converter process, notch condition   and other factors. 4 figures.
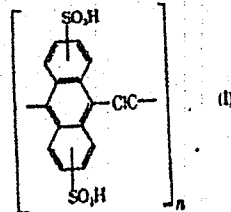
1/1

101323z Synthesis and properties of new aromatic poly-
mers. Paushkin, Ya. M.; Komissarov, V. I.; Lunin, A. F.; Alek-
sandrova, V. A.; Oganesov, S. S.; Meshcheryakov, S. V.; Maksi-
mov, V. N. (Inst. Neftekhim. Gazov. Prom. im. Gubkina, Mos-
cow, USSR). Vysokomol. Soedin., Ser. B 1970, 12(1), 53-6
(Russ). The heteropolycondensation of Na_2C_2 with o-, m-, and
p-$C_6H_4Cl_2$ and $C_6H_4Br_2$, 1,4-$C_{10}H_6Br_2$ and 1,5-$C_{10}H_6Br_2$, and
9,10-dibromoanthracene in $C_{16}H_{34}$ was studied under Ar at
200-87°. The most reactive monomers were the o-dibromo derivs.
The polymers were brown to black powders stable at up to 300-400°,
having an elec. cond. in the range of 10^{-7}-10^{-12} (ohm cm)$^{-1}$. The
polymers were readily nitrated, sulfonated, and aminated; e.g.,

sulfonation with fuming H_2SO_4 gave heat resistant (to 300°) cat-
ion exchange resins I of high exchange capacity.

CKJR

REEL/FRAME

19821144

UNCLASSIFIED   PROCESSING DATE--03JUL70

TITLE--PREPARATION OF ORGANOSILICON POLYMERS WITH TRIPLE BONDS IN THE
CHAIN -U-

AUTHOR--SHUMOV,.V.N., FALSHKIN, YE.M., LUNIN, A.F.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(2), 101-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOSILICON COMPOUND, POLYMER, POLYCONDENSATION,
ORGANOSODIUM COMPOUND, IR SPECTRUM, CHEMICAL BONDING, UNSATURATED
HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1980/0601   STEP NO--UR/0460/70/012/002/0101/0102

CIRC ACCESSION NO--AP0049834

90899p Preparation of organosilicon polymers with triple bonds in the chain. Shumov, V. N.; Paushkin, Ya. M.; Lunin, A. F. (USSR). Vysokomol. Soedin., Ser. B 1970, 12(2), 101-2 (Russ). The title polymers (I) were prepd. by polycondensation of Me_2SiCl_2 with NaC:CNa in hexadecane for 10 hr at 200-90° under Ar. The max. yield (52%) of I was obtained at 290°. I were brown powders, partially sol. in PhMe and $HCONMe_2$, and infusible ≤350°. I obtained at 290° contained C 58.25, H 8.36, and Si 24.48%. The triple bond was not obsd. in the ir spectrum due to symmetry and pseudosymmetry. The sp. resistance of I obtained at 200°, and 250° and 290° was 3 × 10^{10} and 1.6 × 10^{10} ohm cm, resp.   DBJR

LD

REEL/FRAME
19800601

7

TITLE--CURRENT OSCILLATIONS IN BETA CAROTENE FILMS -U-

AUTHOR-(03)-SHUMOV, YU.S., MIKHEYEVA, G.P., KOMISSAROV, G.G.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 70-2

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--SURFACE FILM, CURRENT DENSITY, VOLT AMPERE CHARACTERISTIC,
DIRECT CURRENT, LIGHT PULSE, IMPURITY LEVEL, OSCILLATION, PIGMENT,
BIOCHEMISTRY, HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1483   STEP NO--UR/0020/70/191/001/0070/0072

CIRC ACCESSION NO--AT0130412
                        UNCLASSIFIED

CIRC ACCESSION NO--AT0130412

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SURFACE TYPE CELLS WERE USED TO
FOLLOW CURRENT VARIATIONS IN AMORPHOUS FILMS OF CAROTENE AND ITS MIXTS.
WITH PROTOPORPHYRIN (I), USING A TYPICAL D. C. SOURCE WITH INTERMITTENT
EXPOSURE TO LIGHT. THE RESULTING CURRENT VOLTAGE (I-V) CURVES ARE
SHOWN. CURRENT OSCILLATIONS WERE OBSD. ONLY IN THE FILMS THAT HAD BEEN
FORMED BY FLOWING AND NOT IN THE FILMS FORMED BY EVAPN. CONDENSATION.
THE I-V CHARACTERISTICS OF THE FILMS SO PREPD. FROM THE MIXED PIGMENT
HAD OHMIC BEHAVIOR AT LOW FIELDS; AS THE FIELD WAS RAISED TO SATN. UNDER
BOTH DARK AND LIGHT CONDITIONS, THE CURRENT OSCILLATIONS BEGAN, AND THE
VALUE OF THRESHOLD P. D. IN LIGHT NECESSARY FOR SUCH OSCILLATIONS WAS
SMALLER THAN THAT IN THE DARK. AS THE CONCN. OF I INCREASED, THIS
THRESHOLD P. D. DECLINED. THUS, THE IMPURITY INCREASED THE POPULATION
OF MICROHETEROGENITIES IN THE VOL. OF THE PIGMENT AS WELL AS IN THE ZONE
OF CONTACT WITH THE ELECTRODES.   FACILITY: INST. KHIM. FIZ.,
MOSCOW, USSR.

1/2   014   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--INCREASE IN THE SENSITIVITY OF EXTRACTION AND FLUORIMETRIC ANALYSIS
BY SUBSTITUTION OF THE ORGANIC REAGENT. 2. DETERMINATION OF TANTALUM
AUTHOR-(03)-BLYUM, I.A., PRONKINA, T.G., SHUMOVA, T.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 511-14

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TANTALUM, METAL CHEMICAL ANALYSIS, DYE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0467   STEP NO--UR/0075/70/025/003/0511/0514

CIRC ACCESSION NO--AP0126219
                          UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126219
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HIGHLY SENSITIVE EXTN,
ABSORPTIOMETRIC AND EXTN FLUORIMETRIC METHODS FOR TA DETN. WITH BASIC
DYES COULD NCT BE UTILIZED IN THE ANAL. OF NATURAL SAMPLES DUE TO THE
CONTAMINATION OF THE ANALYZED SCLN. WITH B, WHICH IS PRESENT IN REAGENTS
AND GLASSWARE. THE EXTN. OF THE FLUOROBORATE OF THE DYE CREATES AN
ANAL. BACKGROUND, WHICH IS USUALLY EQUIV. TO GREATER THAN OR EQUAL TO
1-2 MUG TA SUB2 O SUB5. THE SUBSTITUTION OF BUTYLRHODAMINE S FOR THE
CATICN OF THE EXTC. BRILLIAN GREEN FLUOROTANTALATE ELIMINATES
PRACTICALLY THE INTERFERENCE OF B OWING TO THE HIGH SEPN. FACTOR FOR TA
AND B DURING THIS PROCEDURE.   THE METHOD INCLUDES THE EXTN. CONCN. OF
TA AS BRILLIAN GREEN FLUOROTANTALATE, THE REPLACEMENT OF THE ASSOC.
CATION BY BUTYLRHODAMINE S AND MEASURING THE FLUORESCENCE OF THE EXT. AT
560 NM. THE SENSITIVITY OF THE DETN. IS (1-2) TIMES 10 PRIME
NEGATIVE5PERCENT TA IN ROCKS AND (1-2) TIMES 10 PRIME NEGATIVE4PERCENT
TA IN TI, ZR, AND MINERALS.   FACILITY: INST. MINERAL., GEOCHEM.
CRYSTALLOCHEM. RARE ELEM., MOSCOW, USSR.

UNCLASSIFIED

TITLE--CALCULATION OF FREE ENERGY IN THE CASE OF THE THIRRING'S MODEL -U-

AUTHOR-(02)-BOGOLYUBOV, N.N., SHUMOVSKIY, A.S.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK MOSKOVSKOGO UNIV. FIZ. ASTRON. (USSR), NO. 2, P. 161-7
(1970)

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FREE ENERGY, SUPERCONDUCTOR, HAMILTONIAN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605029/C11 STEP NO--UR/0188/70/000/002/0161/0167

CIRC ACCESSION NO--AP0141709

UNCLASSIFIED

CIRC ACCESSION NO--AP0141709

PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS SHOWN THAT IN THE CASE OF THIRRING'S MODEL OF A SUPERCONDUCTIVE STATE, THE FREE ENERGIES ARE ASYMPTOTICALLY EQUAL WHEN ONE USES THE EXACT AND APPROXIMATED FORMS OF THE HAMILTONIAN.

UNCLASSIFIED

USSR

UDC $\sqrt{669.925}$ʲ$621.735\sqrt{}$ʲ620.171

MOSKVIN, N. I., ZHDANOV, V. D., and SHUMRATOVA, G. N.

"A New Material for the Construction of Separators Designed for Aggressive Media"

Moscow, Khimicheskoye i Neftyanoye Mashinostroyeniye, No 2, Feb 73, pp 20-21

Abstract: Data are reported on the mechanical and technological properties of large forging pieces made from titanium alloy AT-6, which were to be used in the production of the components of separator drums. The technology of hot treatment (tempering) of large ingots from AT-6 titanium alloy assures the required mechanical properties of the centrifugal separator components. In the range of tempering temperature -- 1150-850°C -- the technological characteristics of the ingots were found to be adequate. However, to prepare these components from titanium ingots, it was necessary to drop forge the ingots, which improved the reliability and was economically more advantageous.

1/1

- 36 -

USSR

GIPPIUS, YE. F., KOLESNIKOV, V. N., SHUMSKAYA, L. I.

"Studies of a Decaying Helium Plasma"

Minsk, Zhurnal Prikladnoy Spektroskopii, August 1970, pp 208-211

Abstract: The variation of the parameters of a strongly ionized helium plasma in the early stages of decay ($\sim 30 \mu sec$) was studied, and the dynamics of the population of excited levels of atoms and ions during this period were followed. Indications of the existence in the plasma of a nonmaxwellian group of fast electrons with densities as great as $10^{16} cm^{-3}$ were obtained. Additional (not recombination) maxima of the intensity of the continuum and lines, which were interpreted as the result of heating of the gas of the convergent shock wave, were discovered. The coefficient of recombination for doubly ionized helium was found to be 2 orders of magnitude less than the calculated one.

The article includes 3 illustrations and 3 references.

1/1

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"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 10, Apr 72, Author's Certificate No 332253, Division F, filed 9 Jan 69,
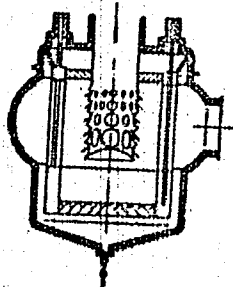published 14 Mar 72, pp 136-137

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 and 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

- 182 -

SHUMSKIY, M.G.

JPRS 59908
C-73

5

- 182 -

XII-13. STUDY OF PERFECTION OF THE STRUCTURE, UNIFORMITY AND COMPOSITION OF GaAs-GaP MICROCRYSTALLINE FILMS OBTAINED BY THE SANDWICH METHOD

[Article by M. G. Shumskiy, L. M. Zhukova, Ye. M. Rostova, V. I. Maslov, V. G. Fomin, Moscow; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh kristallov i plenok, Russian, 12-17 June 1972, p 177]

The x-ray double-crystal spectrometer methods, the method of electron diffraction patterns and the x-ray spectral microanalysis were used to study the perfection of the structure, the uniformity and composition of the epitaxial monocrystalline films of solid solution of the GaAs-GaP system. The films were grown by the sandwich method using H_2O and HCl vapor on GaAs substrates oriented with respect to the (100) and (111) planes as the carrier reagent. It is demonstrated that the homogeneity with respect to composition and the perfection of the film structure become worse with an increase in the GaP content, beginning especially sharply at 50 percent GaP; here, it is established that the violations of the periodicity of the structure in the given epitaxial films are basically related to the presence of the disoriented mosaic blocks.

The noncorrespondence of the composition of the film obtained and the initial charge were detected. This noncorrespondence decreases with use as the H_2O vapor carrier.

The presence of a negative deviation from the Wegard rule was established, which indicates compression of the lattice with the formation of the solid solution.

UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--HIGH ELASTICITY, NORMAL AND SHEAR STRESSES ON SHEAR DEFORMATION OF
    LOW MOLECULAR WEIGHT POLYISOBUTYLENE -U-
AUTHOR-(03)-VINOGRADOV, G.V., MALKIN, A.YA., SHUMSKIY, V.F.

COUNTRY OF INFO--USSR

SOURCE--RHEOL. ACTA 1970, 9(2), 155-63

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ELASTICITY, SHEAR STRESS, ELASTIC DEFORMATION, POLYISOBUTYLENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1642   STEP NO--GY/C000/70/009/002/0155/0163

CIRC ACCESSION NO--AP0125264
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0125264
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HIGH ELASTIC DEFORMATIONS AND
NORMAL AND SHEAR STRESSES WHICH DEVELOP DURING SHEAR FLOW OF LOW MOL.
WT. POLYISOBUTYLENE VISCOELASTIC LIQ. WERE DETD. AT 20-100DEGREES, 10
PRIME3-10 PRIME2 SEC PRIME NEGATIVE1 SHEAR RATE INTERVAL, AND 10 PRIME3
TO 10 PRIME6 DYNES-CM PRIME2 STRESS INTERVAL. THE ONLY CRITERION FOR
ATTAINMENT OF STEADY STATE FLOW CONDITION IS CONSTANCY OF NORMAL
STRESSES; ELASTIC DEFORMATION AT TRANSIENT DEFORMATION REGIMES IS NOT
PREDICTED BY KNOW THEORIES. NORMAL STRESSES ARE PROPORTIONAL TO THE
SQUARE OF THE SHEAR STRESSES IN BOTH LINEAR AND NONLINEAR REGIONS OVER A
WIDE RANGE OF SHEAR RATES. THE EFFECTS OF TEMP. ON THE NEWTONIAN
VISCOSITY, COEFF. OF NORMAL STRESSES, AND HIGHLY ELASTIC DEFORMATIONS
ARE DISCUSSED.   FACILITY: INST. PETROCHEM. SYN., MOSCOW, USSR.

UNCLASSIFIED

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, POLVISOBUTYLENE, 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

102351u Transformation of 1-butene and isobutylene during the hydrogenation of a thermal cracking fraction of C₄ hydrocarbons on an aluminum-cobalt-molybdenum catalyst. Shumovskii, V. G.; Dorogoshinskii, A. Z. (USSR). *Khim. Teknol. Topl. Masel* 1970, 15(2), 5-9 (Russ). A hydrocarbon fraction contg. 15-17% $CH_3:CHEt$ (I), 7.7-9.1% *trans*-2-butene, 6.5-7.0% *cis*-2-butene, 6.3-10.2% $Me_2C:CH_2$ (II), and 0.2-0.29% $CH_2:-CHCH:CH_2$ (III) was hydrogenated at vol. flow rates of 250-1500 hr⁻¹ at 200-300°/1.5-1.62 atm with H admitted at a rate of 5-80 ml/min on a 12.9% MoO_3, 4.4% CoO, and 82.5% Al_2O_3 catalyst of sp. gr. 0.66 g/cm³. Optimal temp., input rate, and H content for complete conversion of III and min. I and II conversion (15 and 0%, resp.) were 200°, 315 hr⁻¹, and 15%. Other temp., input rate, and H content levels (250, 465 hr⁻¹, and 2.5%, 250°, 750 hr⁻¹, and 5.0%, 250°, 1000 hr⁻¹, and 6.0%, 300°, 1000 hr⁻¹, and 1.0%, and 300°, 1500 hr⁻¹, and 3.0%) giving complete III conversion resulted in 28, 36, 31, 52, and 60% I conversion and 0.0, 4.0, 6.0, 1.0, and 6.0% II conversion, resp.

Lucile S. Davison

REEL/FRAME
19831119

SPRS 59? 05
6-72

XVI-11. HETEROEPITAXY OF GERMANIUM ON GALLIUM ARSENIDE WITH VACUUM CONDENSA-
TION

[Article by A. L. Aseyev, O. I. Vasin, Yu. K. Golobkov, Ye. A. Krivorotov,
S. I. Stenin, V. N. Shumskiy, Novosibirsk; Novosibirsk, III Simpozium Po Pro-
tsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Kniga 1,
June 1972, p 230]

Germanium films on gallium arsenide substrates were manufactured by
condensation in a vacuum of 10^{-7}-10^{-8} torr. The deposition rate was 10-30 Å/min.
The substrate temperature varied in the range of 320-600° C and the substrate
orientation was (110). The surface structure of the film and the substrates
was estimated by the method of electron diffraction on reflection, and the de-
fectiveness of the germanium layers directly adjacent to the film-substrate
junction was studied by a transmission electron microscope.

With an increase in the substrate temperature (T_s), the structure is
transformed from polycrystalline (T_s = 320-460° C) to monocrystalline
(T_s > 460° C). The basic type of defect in the heteroepitaxial germanium films
was the packing defects located in the inclined {111} planes and the microtwins
both with inclined and normal twinning planes {111}. The most perfect hetero-
epitaxy was obtained in the temperature range of T_s = 540-560° C where the in-
dicated defects are absent. The electron diffraction and electrophysical method
demonstrated that up to a temperature of 600° C, no noticeable disassociation
of the gallium arsenide takes place. The variations in the defectiveness of
the boundary layers of Ge (intense twinning and the formation of packing defects
at T_s = 460-520 and 580-600° C) agree with the variation in the electrophysical
properties of the heterojunctions.

This mechanism of the formation of the structure of the heterojunctions
of germanium and gallium arsenide during vacuum deposition are analyzed in this
paper.

- 236 -

ZATOLOKA, V. V., ZUDOV, V. N., SHUMSKIY, V. V., Institute of Theoretical
and Applied Mechanics, Siberian Department of the Academy of Sciences of
the USSR, Novosibirsk

"Engineering Analysis of Flat Asymmetric Nozzles in the Case of Supersonic
Velocity at the Input"

Abstract: The authors discuss the design of asymmetric flat nozzles with
supersonic velocity at the intake as used in hypersonic ramjet engines.
Nozzles are considered which produce maximum thrust for a given length
when used in engines with fuel combustion in a supersonic flow.

1/1

- 17 -

USSR

KOVALENKO, V. M., KOSORYGIN, V. S., SHUMSKIY, V. V.

"Experimental Study of Bottom Pressure in Highly Elongated Circular Cylinders"

Abstract: An experimental study of bottom pressure was made on 3 models of solids of rotation of moderate and very great elongation. The models were a combination of a cylinder and an ogive with a needle. The cylindrical section had elongation λ_c = 10.3 (model 1) and 32.8 (models 2 and 3). Model 3 differed from model 2 by the presence of an inverted tail cone. The experiments were performed in a supersonic wind tunnel with dimensions of the operating section of 0.6 x 0.6 m^2 at M = 3 and 4 and Re_{1M} = 36·10^6 and 54·10^6 respectively. Experimental values of the bottom drag and the relation between the bottom pressure and dimensionless thickness of the boundary layer are plotted. An increase in elongation of the cylindrical section λ_c from 10.3 to λ_c = 32.8 leads to a decrease in the bottom drag for M = 3 and 4 of 12 and 6% respectively, that is, with an increase in the M number of the oncoming flow the effect of the elongation becomes less significant. This result agrees qualitatively with the physical concepts of the nature of bottom pressure and it is confirmed by

1/2

USSR

KOVALENKO, V. M., et al., Izvestiya sibirskogo otdeleniya Akademii Nauk SSSR, Seriya tekhnicheskikh nauk, No 8 (203), vyp. 2, Jun 1972, pp 67-70

the graphs showing the effect of the dimensionless thickness of the boundary layer on the bottom pressure for different M numbers. The presence of the tail cone (model 3) decreases the absolute value of the bottom pressure co-efficient by approximately 5%.

2/2

USSR

UDC: 531.38

ISBULOV, A. G., KOVALENKO, V. M., KOSORYGIN, V. S., CHERNOV, A. T.,
and SHUMSKIY, V. V.

"Aerodynamic Characteristics of Long Bodies of Revolution in the
0.2-5.0 Mach Number Range"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR—
Seriya Tekhnicheskikh Nauk, No 3, 1972, pp 16-22

Abstract: The authors assert that they know of no earlier work in
the experimental confirmation of results derived from the aerody-
namic theory of long bodies of revolution. The fundamental point
of interest in the experiments described in this paper is the ef-
fect of the body's extended length on the nature of the variation
in the lift force factor and on the magnitude of the pressure cen-
ter coefficient. In general, the method of the experiments was to
use models of moderate length and extrapolate the results to much
longer bodies. Eight such models were used, varying in the shape
of the nose part and in the length of the cylindrical shaft.
Drawings and sketches of the nose portions are shown, and
a table of test results for Mach numbers of 0.2-5.0 is reproduced.
Novosibirsk, the authors conclude with the note that the question

1/2

UDC: 531.38

ISHTULOV, A. G., et al, Izvestiya Sibirskogo Otdeleniya Akademii
auk SSSR--Seriya Tekhnicheskikh Nauk, No 3, 1972, pp 16-22

of the existence of eddies for small attack angles of such bodies
requires further research.

2/2

USSR

UDC: 621.178.169

RAZIKOV, M. I., SHUMYAKOV, V. I., YUZHANINOV, L. N., Ural "Order of the Red Banner of Labor" Polytechnical Institute imeni S. M. Kirov

"A Method of Testing Materials for Cavitation Stability"

Translation: This Author's Certificate introduces a method of testing materials for cavitation stability in which a working section is formed in a fluid jet of continuous cross section, and the jet is periodically intersected by the study specimen, whose test surface is kept parallel to the fluid jet. As a distinguishing feature of the patent, in order to simulate the actual process of microimpact action accompanying cavitation and to intensify the process of specimen testing, a hollow is formed throughout the entire length of the working section of the jet, and the specimen approaches the jet from the side with the hollow.

1/1

- 122 -

USSR   UDC 547.7'26'118.07

SHUMYATSKAYA, T. N., TYRKINA, T. S., SVETSOVA-SHILOVSKAYA, K. D., and
MEL'NIKOV, N. N.

"A Method of Making 0,0-Dialkyl S-1-one-2-Substituted Ethyl dithiophosphates"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
1970, No 35, Soviet Patent No 287014, class 12, filed 25 Jun 69, published
19 Nov 70, pp 39-40

Translation: This Author's Certificate introduces: 1. A method of making
0,0-dialkyl S-1-one-2-substituted ethyl dithiophosphates. As a distinguishing
feature of the patent, 0,0-dialkyl S-1-one-2-chloroethyl dithiophosphate is
treated with the corresponding heterocyclic compound in the presence of an
organic base in an organic solvent with subsequent isolation of the product
by conventional methods. 2. A modification of this method is distinguished
by the fact that the process is carried out at 30-40°C.

1/1

USSR   UDC 632.95

SHAPOVALOVA, G. K., ROMANOVA, V. V., MARCHENKO, L. F., GUNAR, M.I.
SHUMYATSKAYA, T. N., MIKHALYUTINA, YE. B., SHVETSOVA-SHILOVSKAYA,
K. D., and MEL'NIKOV, N. N.

"Insecticide"

USSR Authors' Certificate No 244800, filed 9 Feb 68, published 15
Jan 70, (from RZh-Khimiya, No 20 (II), 25 Oct 70, Abstract No
20 N547P by S. LYUBARSKAYA)

Translation: The authors suggest as insecticides compounds of the
formula $(RO)(R'O)P(X)(OR'')$ (I; R and R' = Me, Et; R" = acetyl-,
halogen- or alkyl-substituted phenyl or naphthyl; X = 0 or S),
which are obtained by the interaction of dialkyl chlorophosphates
or thiophosphates with the corresponding phenols or naphthols or
pnenolates in MeCN with K_2CO_3 at 75-80° or in an inert solvent at
90-110°. The following are obtained: I (R = R', R" = substituted
phenyl; given are R, substituents in the phenyl ring, X, boiling
point in °C/mm, d_4^{20}, n^{20}_D): Me, 2-Ac, S, 120-6/0.14, 1.2465,
1.5372; Et, 2-Ac, S, 110-4/0.09, 1.1911, 1.5271; Et, 3-Ac, S,
120-4/0.1, 1.1378, 1.5260; Me, 4-Ac, 0, 124-30/0.08, 1.2539, 1.5070;
Et; 4-Ac, 0, 130-3/0.1, 1.1846, 1.4970; Me, 4-Ac, S, 120-3/0.08,
1.2648, 1.5445; Et, 4-Ac, S, 127-30/0.08, 1.1822, 1.5230; Me,
1.4

USSR

SHAPOVALOVA, G. K., et al., USSR Authors' Certificate No 244800

2-Ac-4-Cl, S, 136-43/0.15, 1.3519, 1.5510; Et, 2-Ac-4-Cl, S,
126-30/0.13, 1.2531, 1.5295; Et, 2-Ac-%-Cl, S, 125-7/0.1, 1.2542,
1.5325; Me, 2-Ac-6-Cl, 0.127-9/0.11, 1.3555, 1.5113; Me, 4-Ac-2Cl.,
0.152-3/0.15, 1.3556, 1.5218; Et, 4-Ac-2-Cl, 0, 159-61/0.12, 1.2699,
1.5094; Me, 4-Ac-2-Cl, S, 135-43/0.18, 1.3463, 1.5538; Me, 2-Ac-4-Me,
S, 133-8/0.15, 1.2340, 1.5405; Me, 2-Ac-5-Me, S, 132-8/0.17,
1.1864, 1.5388; Me, 4-Ac-2-Me, S, 153-6/0.18, 1.2400, 1.5465;
Et, 4-Ac-3-Me, 0, 150-1/0.2, 1.1740, 1.5015; Me, 4-Ac-3-Me, S,
155-61/0.22, 1.2404, 1.5442; Et, 4-Ac-3-Me, S, 152-4/0.2, 1.1656,
1.5290; Me, 2-Ac-4-Me2, S, 130-2/0.05, 1.1927, 1.5380; Et, 2-Ac-4,
5-Me2, S, 135-40/0.05, 1.1312, 1.5200; Et, 2-EtCO, 0, 130-2/0.1,
1.2565, 1.4930; Me, 4-EtCO, 0, 149-52/0.08, 1.2273, 1.5070; Me,
4-EtCO, S, 142-7/0.1, 1.2264, 1.5420; I (R = Me, R' = Et, X = S;
R" = substituted phenyl; given here are substituents in the phenyl
nucleus, boiling point in $^{\circ}C/mm$, d_4^{20}, $n^{20}D$): 4-Ac, 121-4/0.1,
1.2338, 1.5368; 2-Ac, 120-4/0.18, 1.2245, 1.5318; 4-Ac-2,5-Me2,
156-8/0.05, 1.1896, 1.5375; 4-EtCO, 148-52/0.1, 1.195, 1.5321;
I (R" = 2-acetylnaphthyl; given here are R, R', X, boiling point
in oC/mm, d_4^{20}, $n^{20}D$): Me, Me, 0, 156-7/0.18, 1.3548, 1.5630;
Et, Et, 0, 155-60/0.1, 1.2177, 1.5465; Me, Et, S, 170-3/0.2,

2/3

USSR

SHAPOVALOVA, G. K., et al., USSR Authors' Certificate No 244800

1.2396, 1.5850; Et, Et, S, 159-62/0.14, 1.2003, 1.5740. I's are approximately as active as chlorophos against Musca domestica, Calandra orycae and Porthetria dispar and have low toxicity for warm-blooded animals.

3/3

- 90 -

USSR   UDC 721.375.8

TUREVSKIY, V. M., SHUMYATSKIY, P. S.

"A Quantum Paramagnetic Amplifier for the Decimeter Band"

Moscow, Pribory i Tekhnika Eksperimenta, No 4, Jul/Aug 71, pp 144-146

Abstract: The paper describes a quantum paramagnetic amplifier for the 30 cm
band. The reflection-type amplifier is based on a three-cavity scheme with
series-connected cavities. The active medium is ruby. The gain is 13 dB
with a passband of 13 MHz. A two-stage quantum paramagnetic amplifier with
a gain of 23 dB and a passband of 14 MHz having an effective noise tempera-
ture of 5.7 $\pm$ 0.4°K is constructed on the basis of the given design. A
curve is presented for the gain of the amplifier as a function of power.
The device is designed for continuous operation for 18 hours.

1/1

1/2   014   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--APPROXIMATE METHOD FOR EVALUATING THE SELECTIVITY OF GAS AND VAPOR
   ADSORPTION -U-
AUTHOR-(02)-KELTSEV, N.V., SHUMYATSKIY, YU.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(5), 1327-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GAS ADSORPTION, HYDROCARBON, VAPOR STATE, HYDROCARBON
   SEPARATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0757   STEP NO--UR/0076/70/044/005/1327/1328

CIRC ACCESSION NO--AP0136194
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0136194   UNCLASSIFIED   PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. ON THE BASIS OF ANAL. OF EXPTL.
DATA ON ADSORPTION EQUIL. OF SOME HYDROCARBON VAPOR MIXTS., THE COEFFS.
OF SEPN. WERE DETD. FOR 14 BINARY SYSTEMS OF HYDROCARBON VAPORS. USING
THE METHOD OF LEAST SQUARES, THE DEPENDENCE OF THE COEFF. OF SEPN. ON
THE PROPERTIES OF HYDROCARBON VAPOR MIXT. WAS FOUND AS FOLLOWS: LOG K
SUBP EQUALS MINUS 0.23 PLUS 4.76 (1 MINUS PHI), WHERE K SUBP IS THE
COEFF. OF SEPN. AND PHI IS THE RATIO OF AFFINITY COEFFS. OF ADSORBATES.
THE VALUES OF K SUBP THUS CALCD. CORRESPOND TO A HIGH DEGREE OF FILLING
OF THE ADSORPTION SPACE (GREATER THAN 30PERCENT). THE DIFFERENCES
BETWEEN THE EXPTL. AND CALCD. VALUES OF K SUBP DID NOT EXCEED PLUS OR
MINUS 30PERCENT.   FACILITY: MOSK. KHIM.-TEKHNOL. INST. IM.
MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

POSTNIKOV, V. S., MILOSHENKO, V. YE., ZOLOTUKHIN, I. V., SHUNIN, G. YE., and
SHUKHALOV, YE. I., Voronezh Polytechnic Institute

"Effect of Imperfections on Internal Friction of Superconductors During n-s
Transition"

Abstract: The article reports on further studies of the low-frequency inter-
nal friction of superconductors by the method of flexural vibrations. Pre-
vious articles by the authors reported that the internal friction peak Q^{-1} is
detected during the n-s transition and its value does not vary appreciably
with a change in the number of impurities in polycrystalline niobium. The
present article studies the effect of extended structural imperfections on
this peak in polycrystalline and single-crystal specimens of niobium. The
Q^{-1} peak of a 99.8 percent deformed polycrystalline specimen has a width that
considerably exceeds the width of the peak in a single crystal with a deforma-
tion of several percent. No peak is observed experimentally in a single-
crystal specimen annealed at 950° C for an hour. No Q^{-1} peak is observed in

1/2

USSR

POSTNIKOV, V. S., et al., Fizika Tverdogo Tela, Vol 14, No 11, Nov 72, pp 3447-3448

perfect single crystals, but it is observed in polycrystalline specimens (deformed and annealed) and single crystals with slight deformation, reaching a width of several tenths of a degree. Conclusion: Extended structural im- perfections are responsible for such a substantial expansion of the tempera- ture range; theoretical works have failed to consider the effect of these on the character of fluctuations.

2/2

UDC 669.7/.6.4(088.8)

USSR

MIKEL'SON, A. E., and SHUNKIN, V. N., Institute of Physics, Academy of Sciences of the Latvian SSR, All-Union Institute of Light Alloys

"Electromagnetic Device for the Refining and Degassing of Molten Metals and Alloys"

USSR Author's Certificate No 263834, filed 7 Feb 68, published 10 Jun 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G86)

Translation: An electromagnetic device is proposed for the refining and degassing of molten metals and alloys. The device consists of a crucible, placed between blocks for ferromagnetic materials, and a cooling inductor. To increase the quality of refining, the device is equipped with an additional cooling inductor which is positioned coaxially to the first one and is connected to the source of alternating current, whose frequency is lower than that of the current source of the first inductor.

1/1

TITLE—THE COAGULATION PROPERTIES OF THE BLOOD IN THE PLEURAL CAVITY —U—

PROCESSING DATE—30OCT70

AUTHOR-(04)-NIKITIN, YU.P., SHUNKOVA, YE.I., SEVERNIY, V.YA.,
SYSOYEVVGRUBYEV, A.N.

CCUNTRY OF INFO—USSR

SOURCE—KHIRURGIYA, 1970, NR 6, PP 76-80

DATE PUBLISHED————70

SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—BLOOD COAGULATION, LUNG, SURGERY, FIBRINOLYSIS, THROMBOCYTE,
ERYTHROCYTE

CCNTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—3002/1784   STEP NO—UR/0531/70/000/006/0076/0080

CIRC ACCESSION NO—AP0129152
                    UNCLASSIFIED

CIRC ACCESSICN NO--AP0129152   UNCLASSIFIED   PROCESSING DATE--30OCT70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. INVESTIGATION OF THE BLOOD
RECOVERED FROM THE PLEURAL CAVITY SOON AFTER A THORACIC OPERATION WAS
CARRIED OUT. THERE WERE REVALED A FIBRINOGENEMIA, A HIGH FIBRINOLYTIC
ACTIVITY, AND AUGMENTED TOTAL COAGULATION AND ANTIHEPARIN ACTIVITY.
THERE WERE FOUND NO ANTITHROMBINS IN THIS BLOOD. THE REFERRED TO
ALTERATIONS ARE EXPLAINED BY THE EFFECT OF ACTIVATOR OF PLASMINOGEN
PRODUCING MESOTHELIUM, AND BY DESTRUCTION PRODUCTS OF THROMBOCYTES AND
ERYTHROCYTES.   FACILITY: NOVOKUZNETSKIY INSTITUT
USOVERSHENSTVOVANIYA VRACHEY, 1-YA GORODSKAYA KLINICHESKAYA BOL'NITSA.

UNCLASSIFIED

USSR

SHUMSKOY, N. N., Ch. Editor

"Meter Wave Ionospheric Scatter Radio Links" (Radiolinii ionosfernogo rasseyaniya metrovykh voln)

Moscow, 1973, Izd. "Svyaz'", 193 pages

The results of Soviet research on the conditions for propagation and the quality of radiotelegraph communications based on the scattering of meter waves in the lower parts of the ionosphere are set forth in this book. The generalized results of studies of the regularities governing "system loss" are given, and the interference level caused by cosmic radio sources is discussed. The results of studies on fading and signal distortion are reported. An engineering method of making energy calculations for ionospheric scatter radio links is proposed. A short description of the technical equipment is given.

TABLE OF CONTENTS

USSR

SHUMSKOY, N. N., Izd. "Svyaz'", 1973, 193 pages

2/2

JPRS: 58874
27 Apr. 73

UDC: 617.55-036.11-08.368.11]:31

COMPOSITION OF PATIENTS WITH ACUTE SURGICAL PATHOLOGY OF ABDOMINAL ORGANS HOSPITALIZED IN KIEV

[Article by Professor P. L. Shupik, I. N. Dotryuk, Candidate of Medical Sciences, Chair of Social Hygiene and Public Health Organization (headed by Professor P. L. Shupik), Kiev Institute for Advanced Training of Physicians; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 3, 1972, submitted 6 September 1972, pp 24-26]

The study was conducted in nine surgical hospitals of united rayon facilities in Kiev. The composition of those hospitalized with acute surgical pathology of abdominal organs was studied by the solid method. The hospital chart served as our basis (form No 3).

We analyzed 14,130 case histories and worked out the structure of morbidity (see Table). Patients in the 20-49 year age group constituted 40.26 percent; 35.02 percent were children 0-14 years of age including 10.76 percent preschool children, 13.04 percent patients were adolescents and young people 15-19 years of age. 9 percent were patients 50-69 years of age and 2.27 percent were 70 or more years old. The charts did not indicate the age of 0.43 percent of the patients.

Students made up 34.66 percent of the patients (school children, students of tekhnikums and vocational schools). 27.47 percent were blue collar workers, 20.03 percent were white collar workers, 5.23 percent were pensioners. And 1.87 percent were housewives. There were 56.05 percent women and 43.94 percent men among the patients.

Patients were admitted within the first 6 hours of onset of illness in 23.37 percent of the cases, between the 6th and 24th hours in 36.53 percent. Late hospitalization (more than 24 hours after onset of illness) was established in 22.27 percent of the cases. In 17.55 percent of the cases it was not possible to determine the time of hospitalization. We found that 21.4 percent of the patients with acute appendicitis were admitted late, and this applied to 25.02 percent of those with intestinal obstruction and 17.28 percent with strangulated hernia.

- 21 -

"APPROVED FOR RELEASE: 09/17/2001   CIA-RDP86-00513R002203010015-7"

Structure of morbidity of patients admitted to surgical hospitals with
emergency indications (% of total)

Diagnose	Absolute number of patients	Percentage
Acute appendicitis	10,941	77.64
Exacerbation of chronic appendicitis	1,376	9.74
Gastric ulcer (hemorrhage)	52	0.37
Duodenal ulcer (hemorrhage)	363	2.57
Gastric ulcer (perforation)	122	0.87
Duodenal ulcer (perforation)	40	0.29
Exacerbation of gastric ulcer	52	0.37
Exacerbation of duodenal ulcer	160	1.23
Gastrointestinal bleeding of ulcerative etiology	125	0.89
Intestinal obstruction	237	1.68
Strangulated hernia	642	4.55
totals	14,130	100.00

As we know, coincidence of diagnoses may serve as a criterion of quality of diagnostics and, to some extent, it depends upon the competence of the physicians. With a mean coincidence of diagnoses constituting 85.27 percent, we detected rather frequent inaccuracies in identifying pathology depending on who made the diagnosis. The poorest diagnostic quality was noted in the group of patients who sought care in a polyclinic. Those who were admitted to the hospital by referral of an emergency station physician showed an 86.52 percent coincidence of diagnoses; this applied to 89.57 percent of those who were referred by the physicians of medical and sanitary units, and 83.37 percent of those who were admitted by referral from polyclinic physicians. The same relationship persisted when we compared different nosological groups, although the degree of difference was not the same. Thus, in patients with acute appendicitis hospitalized by referral from emergency station physicians the share of coinciding diagnoses constituted 94.65 percent, for patients referred by polyclinic physicians it was 91.39 percent. In the case of intestinal obstruction the indices were 73.03 and 61.64 percent respectively.

Surgical activity is high in the hospitals of Kiev, but late surgical interventions were noted. Among the patients treated in the nine surgical hospitals 66.68 percent were operated within the 1st 3 hours after surgical 11.67 percent underwent surgery 6 or more hours after being admitted, at a late time; 8.75 percent of the patients were discharged without surgical intervention. Of those operated for perforated gastric ulcer, 7.37 percent underwent surgery 6 or more hours after admittance. Within the same time 24 percent of the patients with intestinal obstruction and 23.72 percent of those with strangulated hernia had undergone surgery.

USSR

SOLOGUB, YE. I., SHATS, M. KH., and SHUPOV, L. P.

UDC 519.24

"Approximation of the Distribution Laws of the Pearson and Gram-Charlier Curves on an Electronic Computer"

Sb. nauch. tr. N.-i. i proyektn. in-t po obogashch. i aglomer. rud chern. met. (Collection of Scientific Works of the Scientific Research and Design Institute on Concentration and Agglomeration of Ferrous Metallic Ores), No 12, 1971, pp 4-32 (from Referativ- nyy Zhurnal -- Matematika, No 9, Sep 71, Abstract No 9V114, by K. Latyshev)

Translation: Formulas and graphs are presented for establishing the type of distribution curve based on sampling data. The study employs concepts which have already become "classic" and are presented in many handbooks and reference works.

1/1

USSR

SHUPOV, L. P., and SHVARTSER, V. YA.

"Predicting Steady Random Processes"

Translation: Two groups of prediction methods as applied to small computers are considered: extrapolational (the Braun method, the method of a sliding mean feedback, and method of statistical prediction) and methods employing Markov chains. A comparison is made between the effectiveness of predicting with extrapolational methods, considered one with the other, and with a method based on Markov chains. The comparison was made on two problems that are typical for the ore-mining industry.

1/1

USSR   UDC: 519.24

SOLOGUB, Ye. I., SHATS, M. Kh., SHUPOV, L. P.

"Computer Approximation of Distribution Laws by Pearson and Gram-Charlier Curves"

Sb. nauchn. tr. N.-i. i proyektn. in-t po obogashch. i aglomer. rud chern. met. (Collected Scientific Works of the Scientific Research and Design Institute on Enrichment and Agglomeration of Ferrous Metal Ores), 1971, vyp. 12, pp 4-32 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V114)

Translation: Formulas and graphs are presented for determining the type of distribution curve on the basis of sample data. The paper expounds ideas which have already become "classical" and are set forth in many texts and handbookks. K. Latyshev.

1/1

USSR

SMIRNOVA, N. B., SMIRNOV, B. G., MIKHAYLOV, S. M., SHUPPE, G. N., and
GRISHKOV, G. N.

UDC 669-172:541.12.03

"Thermoelectronic Emission of Faces of a Single Crystal of MR-27 Alloy"

Translation: The thermoelectronic parameters of the (110), (100), and (111)
faces of a single crystal of MR-27 alloy (Mo + 27% Re) are measured at
various stages of heat treatment; values are produced for work function ϕ
and Richardson constant A_{eff}. 1 Table; 4 Figures; 5 Bibliographic References.

1/1

TITLE--THERMOEMISSION PROPERTIES OF 100 FACES OF SINGLE CRYSTALS OF
   IRIDIUM, OSMIUM, AND RHENIUM SOLID SOLUTIONS IN TUNGSTEN -U-
AUTHOR-(04)-SMIRNOVA, N.B., SMIRNOV, B.G., MIKHAYLOV, S.M., SHUPPE, G.N.

CCUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1277-9

DATE PUBLISHEC--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--METAL SINGLE CRYSTAL, IRIDIUM ALLOY, OSMIUM ALLOY, RHENIUM
   ALLOY, TUNGSTEN ALLOY, SOLID SOLUTION, WORK FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0486   STEP NO--UR/0181/70/012/004/1277/1279

CIRC ACCESSICN NO--AP0126238
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0126238

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMAL EMISSION FROM THE
(100) FACES OF SINGLE CRYSTAL SOLID SOLNS. IN W OF THE FOLLOWING METALS
WAS STUDIED: RE (1 ATOM PERCENT), OS AND IR (2 ATOM PERCENT). HEATING
OF W-IR2 CRYSTAL AT HIGH TEMPS. (2050-2000DEGREESK), OR 20-30 HR LEADS TO
THE APPEARANCE OF THE RICHARDSON CURVES OF 2 SECTIONS THAT ARE SHARPLY
DIFFERENT IN SLOPE. AT 1800-2030DEGREESK, PHI SUBR EQUALS 4.54 EV, A
SUB4 EQUALS 6 A-CM PRIME2 DEGREE PRIME2, AND AT 2030-2000DEGREESK PHI
SUB4 EQUALS 5.28 EV, A SUB4 EQUALS 250 A-CM PRIME2 DEG PRIME2. THE LOW
TEMP. PHI SUBR IS PROBABLY THAT OF THE SECTIONS OF W SURFACE OCCUPIED BY
W ATOM. IF THE CRYSTAL IS HEATED AT 1900DEGREESK FOR 15 HR THE
RICHARDSON CURVE CHANGES INTO A STRAIGHT LINE WITH PHI SUB4 EQUALS 5.30
EV AND A SUBR EQUALS 420 A-CM PRIME2 DEGREE PRIME2. TEMP. DEPENDENCE OF
THE WORK FUNCTION FOR W-OSL ALLOY AT 1700-2380DEGREESK INDICATES 2
SECTIONS: FOR 1700-2030DEGREESK PHI SUBR EQUALS 4.57 EV, A SUBR EQUALS
10 A-CM PRIME2 DEGREE PRIME2, FOR 2080-3000DEGREESK, PHI SUBR EQUALS 5.12
EV, A SUBR EQUALS 190 A-CM PRIME2 DEGREE PRIME2. THE VALUE OF 4.57 EV
CHARACTERIZES THE SECTIONS OF (100) FACE PACKED WITH W ATOMS.
FACILITY: TASHKENT. GOS. UNIV. IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

USSR

TSKHAKAYA, K. G. and SHUPYATSKIY, A. B.

UDC 621.396.96:621.371

"Polarization Characteristics of a Signal from Meteorological Formations at Various Dispersion Angles"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 366-372 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 1069)

Translation: The possibilities of using the polarization characteristics of a radar signal for detecting heavy particles in the atmosphere and investigating their spectral distribution are considered. It is shown that the principal characteristic of the signal permitting a judgment of the dimensions of particles is the depolarization coefficient. Two illustrations, bibliography of three. N. S.

1/1

- 63 -

USSR

UDC 621.371.176

SHUR, A. A., Active Member of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"On One Phenomenon of Long-Range Tropospheric Propagation of Ultrashort Waves"

Moscow, Elektronika, Vol 26, No 7, Jul 71, pp 95-97

Abstract: This article describes a previously unknown effect of long-range tropospheric propagation of ultrashort waves. It is shown that the amplitude of seasonal and diurnal variations in signal level depends on the directional properties of the antennas used. This makes it possible to define a number of engineering characteristics more precisely, and of course gives additional information on the physics of wave propagation. The effect is described and a physical explanation is given on the basis of an actual example.

1/1

Electromagnetic Wave Propagation

USSR

KALININ, A. I., SHUR, A. A., Active Members of the Scientific and Technical
Society of Radio Engineering, Electronics and Communications

UDC 621.371.24

"Experimental Investigation of Superlong-Range Tropospheric Propagation of
Decimeter Radiowaves"

Moscow, Radiotekhnika, No 4, 1970, pp 54-56

Abstract: Tropospheric Propagation of ultrashort wave distances greater than 500
km is called superlong-range propagation. This article contains the results of
an experimental study of propagation of decimeter radiowaves over a route approx-
imately 1,000 km long at a frequency of 800-850 megahertz. These results are of
interest both for the development of tropospheric radio relay systems with long
spacing and for estimating the interstation interference between various radio
systems.

The equipment used for the experiment is described briefly including the
operating principle of the AFC [Automatic Frequency Control] used. Analysis of
the measurements shows that the distribution curves for the depths of the slow
fading both in summer and in winter are satisfactorily approximated by a loga-
rithmic normal law; the standard deviation σ (the difference between levels
corresponding to 50 percent and 16 percent of the time) are practically identical
in summer and winter and are approximately equal to 2.5 decibels; in the summer
1/2

USSR

USSR

KALININ, A. I., SHUR, A. A., Radiotekhnika, No 4, 1970, pp 54-56

the signal levels are approximately 1.5 decibels higher than in the winter; during the worst time of the year the median value of the signal power at the receiver input turned out to be $P_{2m} \approx -173$ decibel-watts.

The signal levels averaged every 5 minutes are highly stable during the day. On the investigated route, in contrast to routes 600-700 km long, no level "spikes" caused by reflection of waves from aircraft were observed. In the summer the average signal level sometimes exceeded the noise level of the receiver by 15-17 decibels. During these periods, fast fadings were recorded. Processing of the sessions for 5 minutes and for 1 minute showed that the depth of the fast fadings is distributed in the first approximation by the Rayleigh law. The average "period" of the fast fadings determined at the median level varies within the limits from 0.1 to 6 seconds. Periods lasting 0.2-1 second are encountered most frequently.

2/2

USSR

SHUR, A. A.

UDC 621.371.029.64

"Results of Investigating the Far Propagation of Centimeter Waves Along Littoral Ranges"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 2 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 2--collection of works) "Nauka," 1972 pp 33-36 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A354)

Translation: Results are given of an investigation into seasonal and daily variations of the propagation conditions for radio waves at a frequency of 4.7 GHz over littoral ranges with an equivalent length of 200 km in the Baltic area. One illustration, two tables, bibliography of two. A. L.

1/1

USSR

SHUR, D. M. (Moscow)

"A Statistical Criterion of the Danger of Fracture of Materials in a Complex Stressed State"

Abstract: In the article is proposed a statistical hypothesis of strength, based upon a "quasi-homogeneous" model of a real solid, this solid being regarded as an aggregate of a rather large number of physical points, at each of which the mechanical strength with respect to various directions is a random value, distributed according to a law that is identical for all the physical points of the solid. On the basis of the proposed hypothesis is obtained a statistical criterion of the equal dangers of homogeneous stressed states, and calculation formulas of equivalency are derived for various materials; these formulas are in satisfactory agreement with the experimental data. It is shown that this new criterion of the danger of fracture makes it possible, in addition

1/2

USSR

SHUR, D. M., Mashinovedeniye, No 1, 1971, pp 51-58

to the qualitative conclusions common to all statistical theories,
to obtain some new results and, in particular, to evaluate the
danger of fracture not only on the basis of the absolute dimen-
sions of solid bodies, but also on the basis of the type of
stressed state. 5 figures, 2 tables, 17 bibliographic entries.

2/2

- 82 -

USSR

SHUR, G. N.

"Aircraft Studies of Turbulence in the Troposphere and Stratosphere When the Sky is Clear"

Translation: The paper presents fundamental principles of methods of measurements of wind pulsations on airplanes. Experimental data are presented on the spectral density of vertical and horizontal fluctuations in the wind above hills to an altitude of about 18 km. According to measurements near Sukhumi the rates of dissipation of kinetic energy of turbulence ε in the upper troposphere and lower stratosphere amount to a few units with the exception of the 12-15 km layer where ε is an order of magnitude lower. At the same time, in the region of scales of the order of 20 km the average rate of energy transfer with respect to the spectrum over plains regions is ~70 $cm^2 \cdot s^{-3}$, and in mountain regions -- 5-8$\cdot 10^2$ $cm^2 \cdot s^{-3}$. There are misprints. Bibliography of 6 titles. S. M. Shmeter.

1/1

1/2   018

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--DEPENDENCE OF THE TEMPERATURE QUENCHING OF THE LUMINESCENCE OF PHOTOEMULSION LAYERS ON EXCITATION DENSITY, AND ITS CONNECTION WITH THE PHOTOSENSITIVITY

AUTHOR-(04)-BELOUS, V.M., KARTUZHANSKIY, A.L., MATVIENKO, V.I., SHUR, L.I.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(2), 311-16

DATE PUBLISHED-------70

SUBJECT AREAS--METHODS AND EQUIPMENT

TOPIC TAGS--LUMINESCENCE QUENCHING, SILVER COMPOUND, NUCLEAR EMULSION, ELECTRON CAPTURE, PHOTOSENSITIVITY, LOW TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1469

STEP NO--UR/0051/70/028/002/0311/0316

CIRC ACCESSION NO--AP0118458

UNCLASSIFIED

CIRC ACCESSION NO--AP0118458 UNCLASSIFIED PROCESSING DATE--16OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TEMP. QUENCHING OF THE GREEN
LUMINESCENCE OF A NO. OF NUCLEAR EMULSIONS WAS STUDIED. WITH DECREASING
EXCITATION D., THE QUENCHING REGION IS SHIFTED TO LOWER TEMPS. AT A
FIXED TEMP., AN INVERSE PROPORTIONALITY BETWEEN THE LUMINESCENCE
INTENSITY AND IONIC COND. OF THE EMULSION MICROCRYSTALS EXISTS. THE
ACTIVATION ENERGY FOR THE LUMINESCENCE QUENCHING IS 0.12 PLUS OR MINUS
0.02 EV. THE IONIC MECHANISM OF LUMINESCENCE QUENCHING OF THE AG(BR,
I) PHOTOEMULSION MICROCRYSTALS WAS CONFIRMED. THE CAPTURE CENTERS
FORMED IN THE PRESENCE OF L,PHENYL,5,MERCAPTOTETRAZOLE (I), ARE NOT
VACANCIES; THEY ARE PROBABLY CONNECTED WITH A I-AG PRIME POSITIVE
COMPLEX AND WORK AS ELECTRON TRAPS. TEMP. DEPENDENCE OF THE SENSITIVITY
OF THE SAME PHOTOEMULSIONS TO THE ALPHA AND BETA PARTICLES WAS MEASURED.
AT SMALLER THAN 77DEGREESK, A PECULAIR INVERSION TAKES PLACE; THE
SENSITIVITY TO THE WEAKLY IONIZING PARTICLES IS GREATER THAN THE
SENSITIVITY TO THE STRONGLY IONIZING PARTICLES WHILE AT NORMAL TEMPS.
THIS RELATIONSHIP IS JUST THE OPPOSITE. IN THE PRESENCE OF I, ADDNL.
SHALLOW LEVELS OF THE ELECTRON CAPTURE OCCUR. DURING A SUBSEQUENT
HEATING OF THE EMULSION BEFORE DEVELOPING, ELECTRONS CAN FREE THEMSELVES
THERMALLY FROM THESE LEVELS AND CAN PASS NOT ONLY TO THE RADIATION
RECOMBINATION LEVELS BUT ALSO TO DEEPER LEVELS WHICH DET. THE
PHOTOGRAPHIC SENSITIVITY.

UNCLASSIFIED

USSR

SHUR, M. G.

"Functions, Harmonic for a Markov Process"

Mat. zametki [Mathematical Notes], 1973, 13, No 4, pp 587-596 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1972, Abstract No 8 V67 by the author)

Translation: This article is a direct continuation of an earlier article (RZHMat, 1970, 8V71) containing explanations of the symbols and terminology which we use. According to the primary result of this work, under broad conditions, any evenly limited sequency of functions, harmonic relative to a markov process, contains a subsequence which converges everywhere in the phase space of the process to a certain function which is harmonic relative to it. Can a sequency converging to the limiting function evenly in each compact of the phase space be extracted from the initial sequence? In full agreement with the classical theorem of Harnack and the similar theorem of Mokobodskiy relating to the contemporary potential theory, an affirmative answer is given to this question under certain assumptions (theorem 1). Based on this fact, for nonnegative functions which are harmonics relative to a broad class of continuous processes, we produce an analogue to the classical Harnack inequality (theorem 2). These statements

1/2

USSR

SHUR, M. G., Mat. zametki, 1973, 13, No 4, pp 587-596

are produced from the result of the work of the author mentioned earlier
by means of a certain modification of the methods of contemporary poten-
tial theory. Theorem 3 is somewhat special; it presents conditions such
that local harmony of a function indicates it harmony for a markov process.

2/2

- 14 -

USSR

SHUR, M. G.

"On Functionals of Conjugate Markov Processes"

Translation: Let the uniform Markov processes $X = (x_t, \zeta, \mathcal{M}_t, \mathcal{P}_x)$ and $\hat{X} = (\hat{x}_t, \zeta, \hat{\mathcal{M}}_t, \hat{\mathcal{P}}_x)$ be given in the measurable space $(E, \mathcal{B})$. We assume henceforth that these processes are conjugate to each other relative to some σ-finite measure m assigned for $\mathcal{B}$, i. e. we assume that at any $t \geq 0$ for all $\mathcal{B}$-measurable functions $f, g \geq 0$ the equality

$$\int g \cdot T_t f \, dm = \int f \cdot \hat{T}_t g \, dm$$

is satisfied, where T_t and $\hat{T}_t$ are subgroups of operators defined by the transfer functions X and $\hat{X}$. Let us examine the almost compressing, almost multiplicative, almost homogeneous, continuous on the right functionals $x_s^t (0 < s < t < \zeta)$ and $\hat{a}_s^t (0 < s < t < \hat{\zeta})$ with values from $[0,1]$ of X and $\hat{X}$ respec-

1/2

USSR

tively. These functionals are called conjugate if the subprocesses of processes X and $\bar{X}$ which correspond to the functionals are conjugate relative to m.

At present an intensive study is being done on pairs of functionals which are conjugate to each other. This paper gives conditions which enable going from one of the conjugate functionals to the other with the aid of the operation of time rotation. This simplifies the study of relations between dual functionals.

USSR

UDC   519.2

SHUR, M. G., Moscow Institute of Electronic Machine Building

"Concerning Functions Which are Harmonic for a Markov Process"

Moscow, Matematicheskiye Zametki, Vol 13, No 4, Apr 73, pp 587-596

Abstract: The article is a direct continuation of the author's previous paper (M. G. Shur, "Properties of Compactness of a Family of Functions Which are Harmonic Relative to a Markov Process", Matem. zametki, Vol 7, No 1, 1970, pp 109-115) and uses the same notation. Now the author investigates the properties of compactness of a family of functions which are harmonic for a Markov process and derives a Harnack inequality. It is shown that under extensive conditions, localized harmonicity of the function implies general harmonicity.

1/1

24

USSR

IBRAGIMOVA, N. I., and SHUR, M. S., Chair of Nervous Diseases, Tashkent
Medical Institute

"Clinical Picture of the Neuromuscular Form of the Hypothalamic Syndrome of
Influenza Etiology"

Abstract: Patient K., 31, an accountant, was hospitalized in April 1969
because of extreme weakness, inability to walk, and loss of 22 kg, which began
after he recovered from severe influenza in January 1969. Clinical tests
revealed muscular atrophy and atonia, acrocyanosis, sinus bradycardia, small
increase in intracranial pressure, intensified outline of cerebral blood
vessels, moderate EEG changes suggesting pathology in central portions of
the brain, decreased excitability of skeletal muscles, reduced muscle re-
flexes, absence of tendon reflexes, polydipsia, overhydration and edema,
subfebrile temperature, protracted glucose tolerance curve, and disturbed
protein metabolism. The diagnosis of the neuromuscular form of diencephalic
pathology of influenza etiology was established, and the patient was treated
with anti-infection, anti-inflammatory, and antidiuretic drugs, as well as
vitamins and other stimulants. He improved rapidly, gained weight, in 10
1/2

USSR

IBRAGIMOVA, N. I., and SHUR, M. S., Meditsinskiy Zhurnal Uzbekistana, No 10, 1971, pp 15-17

days was able to walk independently, and all pathological symptoms gradually disappeared. He was discharged in June 1969. A follow-up examination 2 months later revealed complete recovery of muscle mass and strength, and he resumed his previous work.

2/2

USSR

UDC 621.382.2

GEL'MONT, B. L., SHUR, M. S., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences of the USSR, Leningrad

"Motion of a Current String in a Magnetic Field Under Gunn Effect Conditions"

Abstract: It is shown that the nature of the current stringing instability in heavily doped Gunn diodes located in an external transverse magnetic field should change from absolute to convective. The motion of the string is perpendicular to the magnetic field. What happens to the string after this depends on the relationship between the rate of surface recombination and the drift velocity of the string. If the drift velocity is greater than the rate of recombination, the accumulation of carriers at one of the walls due to drift in the magnetic field will exceed the decrease due to recombination. In this case the string will arise in direct proximity to the wall, or will remain near the wall after drifting if the magnetic field is actuated after formation of the string. If the drift velocity is less than the rate of recombination, the reuniting of the carriers near the wall will exceed the accumulation due to drift. If the surface recombination is fairly high,

1/2

USSR

GEL'MONT, B. L., et al., _Fizika i Tekhnika Poluprovednikov_, Vol 4, No 9, Sep 70, pp 1795-1797

this may lead to disappearance of the string close to the wall. A new string will then arise in the center of the specimen and the cycle will be repeated. This causes oscillation of the voltage in the external circuit. String oscillations take place at a frequency considerably lower than the frequency of Gunn oscillations. The voltage oscillations in the external circuit may be used to modulate the Gunn oscillations.

2/2