USSR

KATOLA, V. M., and KOVALEVSKAYA, A. N., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 10, Oct 1970, p 142

Similar results were obtained in the second series of tests. The survival and death rates were identical in all groups of the experimental animals. The morphological, fermentative, and serological properties of Breslau Salmonella did not change.

Thus, exposure to a permanent magnetic field of 2,500 oe blocked the infection in mesenteric lymph nodes, resulting in a longer incubation period and a smaller proliferation of the Salmonella in the organs of the mice.

3/3

UNCLASSIFIED

TITLE--SPECTROPHOTOMETRIC STUDY OF THE INTERACTION OF SCANDIUM WITH BROMOCRESOL GREEN, BROMOCRESOL PURPLE, AND BROMOPHENOL BLUE -U-

AUTHOR-(02)-YEREMIN, YU.G., KATOCHKINA, V.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(1), 68-71

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, SCANDIUM, COMPLEX COMPOUND, CRESOL, PHENOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0495   STEP NO--UR/0075/70/025/001/0068/0071

CIRC ACCESSION NO--AT0113386
                    UNCLASSIFIED

CIRC ACCESSION NO--AT0113386
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BROMOCRESOL GREEN FORMS A COMPLEX
WITH SC AT PH 4.0-4.6 (MOLAR ABSORPTIVITY (E) 6 TIMES 10 PRIME3 AT 520
MMU), BROMOCRESOL PURPLE FORMS A COMPLEX AT PH 4.0-4.2(EPSILON 8.15
TIMES 10 PRIME3 AT 470 MMU), BROMOPHENOL BLUE FORMS A COMPLEX AT PH
4.0-4.2 (EPSILON 14 TIMES 10 PRIME3 AT 480 MMU). BEER'S LAW IS OBEYED
IN THE 1-33 MUG SC-ML RANGE FOR BROMOCRESOL GREEN, 1-35 MUG-ML FOR
BROMOCRESOL PURPLE AND 0.5-28 MUG-ML FOR BROMOPHENOL BLUE. ALL THE
ABOVE ELEMENTS ACT WITH SC IN A 1:1 MOLAR RATIO.   FACILITY:
KALININ POLYTECH. INST., KALININ, USSR.

UNCLASSIFIED

USSR   UDC 541.62+543.422+546.18

KATOLICHENKO, V. I., YEGOROV, Yu. P., BOROVIKOV, Yu. Ya., and GOLIK, G. A.,
Institute of Organic Chemistry, Academy of Sciences UkrSSR

"Study of the Conformation of Alkylphosphonic and Phosphoric Acid Esters"

Abstract: In a study conducted on dialkyl alkylphosphonates and trialkyl phos-
phates, the conformation was determined on the basis of dipole moments and the
ratio of conformation isomers on the basis of IR spectra.   It was established
that the simplest dialkyl alkylphosphonates were present in a liquid phase
(solutions or melt) in the form of an equilibrium mixture of trans-gauche and
gauche-gauche conformation isomers, while trialkyl phosphates were present in
the form of a mixture of trans-trans-gauche and gauche-gauche-gauche isomers.
The energy difference of the isomers in the equilibrium mixtures was less than
0.5 kcal/mole.   In the case of esters with long alkyl chains, more than two
conformation isomers were apparently present.

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YEGOROV, Yu. P., KATOLICHENKO, V. I., BOROVIKOV, Yu. Ya., FESHCHENKO, N. G., and SEMENIY, V. Ya., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR, Kiev

"Dipole Moments of Phosphorus Acids Derivatives"

Abstract: The dipole moments (μ) of trialkylphosphines, trialkylphosphine oxides, and esters of phosphorus acids were measured. The electron density and stereochemistry are examined. The precise value of μ for these molecules permitted a new value for the moments of the P-X bonds ($X=C_{sp}^{2+}$, C_{sp}^{3+}, O^-, Alk^+, $=O^-$, Cl^+, F^+) to be calculated. The data are given in two tables which show the interrelationships among the measured parameters and the literature values.

1/1

Luminescence

GURVICH, A. M., KATOMINA, R. V., and GAL'PERIN

"Kinetics of the Formation of Sulfide Crystal Phosphors"

Abstract: In the preparation of luminophores based on ZnS and CdS, annealing of the charge is continued for tens of minutes or even several hours. Determination of the intensity of luminescence of ZnS(Cl), ZnS(Ag), ZnS(Cu), and ZnS.CdS(Ag) in relation to the length of the time of annealing at 800 and 950° in the presence of NaCl and $MgCl_2$ + NaCl added as fluxes showed that the crystal phosphors formed within 1-2 min, while at 1100° formation of ZnS phosphors was completed in 30-40 sec. In this temperature range, which is optimal for the formation of sulfide phosphors, the effect of the rate of heat transfer was negligible and the limiting factor in the formation of the phosphors was diffusion of the activators rather than recrystallization. Recrystallization leading to an increased grain size reduced the losses of light in excitation of thick layers of a powdered crystal phosphor; it increases the intensity of luminescence induced by X-rays, while that of luminescence induced by ordinary light may

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USSR

GURVICH, A. M., et al., Zhurnal Fizicheskoy Khimii, Vol 44, No 2, Feb 70, pp 360-361

even decrease. In the industrial production of sulfide, phosphors under conditions in which temperatures in the optimum range are applied, the length of the time of annealing can be reduced considerably if the phosphor may be fine-grained. At the high temperatures in question, the charge should be added gradually (continually or in small portions) to reduce the length of the time of heating and other measures (e. g., addition of a flux to the charge) taken to prevent oxidation.

2/2

USSR

UDC: 532.526

YEGUPOV, B. M., KATORGIN, B. I., SOLONIN, V. I.

"Mixing of Dissimilar Jets and Accompanying Equal-Velocity Flow"

Translation: An experimental study is done on mixing of a jet escaping from a nozzle 20 mm in diameter with an accompanying flow of the same velocity. The outside diameter of the accompanying jet was 55 mm. The thickness of the nozzle edge was 0.25 and 2 mm. The initial boundary layers were transitional or well-developed turbulent layers, and they had a thickness of 0.5-3.5 mm. The nature of the density field was studied in the wake behind the edge at various distances from it. The ratio of the density of the accompanying flow to the density of the jet varied from 0.033 to 7.2. The relation between the coefficient of diffusion and conditions of jet escape is analyzed. The initial conditions of escape were varied by installing screens of various porosities at the tip of the nozzle to cover the jet and the accompanying flow. Experimental curves for the

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USSR

YEGUPOV, B. M. et al., Tr. Mosk. vyssh. tekhn. uch-shcha imeni N. E. Bau-
mana, 1971, No 144, pp 64-70

coefficient of diffusion of the material as a function of the longitudinal
coordinate are found for flow with initial boundary layers and for flow
with screens on the tip of the nozzle. L. N. Ukhanova.

USSR

UDC 629.7.064

BARMIN, I. V., KATORGIN, B. I., SOLONIN, V. I.

"Concentration Field of Mixed Gases in a Vortex Chamber"

Tr. Mosk. vyssh. tekhn. uch-shcha im. N. E. Baumana (Works of Moscow Higher Technical School imeni N. E. Bauman), 1971, No. 144, pp 77-80 (from RZh-Aviatsionnyye i raketnyye dvigateli, No 4, Apr 72, Abstract No 4.34.182)

Translation: An experimental study of concentration fields of mixed gases in a vortex chamber is described. Most of the experiments were conducted using helium and air as working bodies differing in density by a factor of ~ 7. The results of studies of the concentration fields for different flow regimes, different shapes of the output channels, and different ratios of the gas flows are given. The studies can be applied in solving such problems as stabilization of an electric arc in plasmatrons and plasma stabilization in a high-frequency discharge. 5 ill., 2 ref.

1/1

Instruments and Measurements

USSR

UDC 534.8

ZHELATELEVA, V., KATORGIN, V., NIKOLAYEV, V.

"Optical Device for Measurement of the Parameters of Ultrasonic and Optical Filtering of Radio Signals"

Uch. zap. Ul'yanovsk. gos. pred. in-t (Scientific Annals of Ul'yanovskiy State Pedagogical Institute), 1970, 24, Issue 3, Part 1, pp 274-280 (from RZh-Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3A405)

Translation: X-cut quartz plates 20 mm in diameter with fundamental frequencies of 1, 3, 5, 7, and 10 MHz were used as ultrasonic radiators. 5 illustrations, 6 references. N.B.

1/1

USSR

FOMENKOV, V. N., STREKALOVA, E. Ye., KATOSOVA, L. D., CHIRKOVA, Ye. M.,
SAL'NIKOVA, L. S., SILANT'YEVA, I. V., YEFIMENKO, L. P., KULAKOV, A. Ye.

"Experimental Data on Adaptation and Its Limits in the Action of Poisons
Having a Mutagenic and Embryotropic Action"

Sb. Farmakol, Khimioterapevt. sredstva. Toksikol. Probl. toksikol.
(Pharmacology of Chemically Therapeutic Substances. Toxicology. Problems
in Toxicology--Collected Works), T. 5 (Itogi nauki i tekhn. VINITI AN
SSSR - Results in Science and Technology of the All-Union Institute of
Scientific and Technical Information, Academy of Sciences, USSR), 1973,
pp 128-145) (from Referativnyy Zhurnal, 30F, Biologicheskaya Khimiya,
No 18, 25 September 1973, abstract No 1754)

Translation: The dependence of the development of a cytogenetic and embryo-
tropic effect on long-term exposure was studied in an example of the action
of different groups of chemicals: chlorine releasing substances, phenoxy-
acetic acid esters, triazines, carbamates, expoxy compounds, imines, and
others. The possibility of adaptation of animals to some substances that
cause pathological changes in offspring was demonstrated.
1/1

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USSR   UDC 517.925.14

KATRANOV, A. G., Leningrad Electrical Engineering Institute imeni V. I.
Ul'yanov-Lenin

"On the Question of the Asymptotic Behavior of Oscillating Solutions of a
Second-Order Nonlinear Differential Equation"

Minsk, Differentsial'nyye Uravneniya, Vol 8, No 5, May 72, pp 785-789

Abstract: The article considers the equation

$$\ddot{x} + f(t,\, x)\, g(\dot{x}) = 0, \qquad\qquad (1)$$

where the functions $f(t,\, x)$ and $g(y)$ are defined in the region $D \subset R^3$,

$$D = \{(t,\, x,\, y)\colon \ 0 \leqslant t < +\infty, \ -\infty < x,\, y < +\infty\},$$

are continuous, and

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$$\operatorname{sgn} f(t,\ x) = \operatorname{sgn} x, \quad \frac{\partial}{\partial t}(|f(t,\ x)|) > 0, \quad g(y) > 0. \qquad (2)$$

A nontrivial solution $x(t)$ of equation (1) is said to be oscillating if it is defined in a certain interval $[t_0,\ +\infty) \subseteq [0,\ +\infty)$ and there exists a sequence of numbers $\{t_k\}_{k=1}^{\infty}$ $(t_0 \leqslant t_1,\ < t_2 < \dots < t_k < \dots \to \infty)$ such that $x(t_k) = 0$, $x(t) \neq 0$ given $t \in (t_k,\ t_{k+1})$ $(k = 1,\ 2,\ 3,\ \dots)$. The sequence $\{t_k\}_{k=1}^{\infty}$ is said to be the sequence of zeros of the solution $x(t)$. It is clear that on the interval $(t_k,\ t_{k+1})$ $(k = 1,\ 2,\ 3,\ \dots)$ there is the unique point τ_k, at which $x(t)$ reaches max or min $(x(\tau_k) = 0)$ and that

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KATRANOV, A. G., Differentsialnyye Uravneniya, Vol 8, No 5, May 72, pp 785-789

$\dot{x}(t)$ has extremums at the points t_k (and only at them). $x_k = |x(\tau_k)|$, $y_k = |\dot{x}(t_k)|$, $\Delta_k = t_{k+1} - t_k$. The article derives certain asymptotic relations between the quantities x_k, y_k, and Δ_k for oscillating solutions of equation (1) which possess the property

$$\lim_{k \to \infty} x_k = 0.$$

(It is assumed that such solutions exist.) In most of the assertions of the article the functions $f(t, x)$ and $g(y)$ are subject to the following conditions (except for (2)):

a) there exist the nondecreasing function $a(t) \in C([0, +\infty))$ and

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KATRANOV, A. G., Differentsial'nyye Uravneniya, Vol 8, No 5, May 72, pp 785-786

the rational number n $= \frac{2m+1}{2\ell+1} \geqslant 1$ (m and ℓ are integers) such that

$$\lim_{\substack{\ell \to +\infty \\ x \to 0}} \frac{f(\ell, x)}{a(\ell) x^n} = 1;$$

b) there exist positive numbers g_1 and g_2 such that

$$g_1 < g(y) < g_2.$$

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USSR

UDC 531.1.04

KATRICH, N. P., KALASHNIKOV, L. N., and KOSIK, N. A.

"Gas Desorption in Irradiation of Metals and Metal-Metallic Film Systems With H^{+} Ions"

Moscow, Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 28-32

Abstract: The article describes results of a study of gas desorption from titanium and stainless steel and the following systems: titanium-nickel film, titanium-platinum film, stainless steel-platinum film, stainless steel-nickel film, stainless steel-stainless steel (film), with the gas desorption resulting from the bombardment of the metals and metal-metallic film systems with fast H^{+} ions. Data are also given on a study of the dependence of the hydrogen ion trapping coefficient on the energy of the bombarded particles for titanium, nickel, and titanium coated with a nickel film of varying thickness. A vacuum was created in the measurement chamber by a system of helium and hydrogen condensation pumps.

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KATRICH, N. P., et al., Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 28-32

It was found that the desorption coefficient is determined by the desorption of gases adsorbed on the surface (as indicated by the high desorption coefficient for titanium, nickel, and stainless steel during the initial irradiation period) and by the desorption of gases dissolved in the volume of the metals. Experiments staged during irradiation of targets at 300 and 78° K show that desorption of gases dissolved in the volume of the metals occurs mainly as a result of thermal channel diffusion along the tracks of the fast ions. The desorption coefficient does not exceed 5-6 percent for any metal-metallic film combination. The titanium-nickel film (platinum film) combination has the advantage of a high trapping coefficient if the film thicknesses satisfy the condition $l \leqslant R$, where R is the mean path depth of the $H^{\pm}$ ions.

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1/2   037   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--DESORPTION OF GASES DURING THE PROTON IRRADIATION OF METALS AND
   METAL METALLIC FILM SYSTEMS -U-
AUTHOR-(03)-KATRICH, N.P., KALASHNIKOV, L.N., KOSIK, N.A.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(1), 28-32

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--METAL FILM, IRRADIATION, NICKEL PLATING, TITANIUM, PROTON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1562   STEP NO--UR/0089/70/028/001/0028/0032

CIRC ACCESSION NO--AP0120341
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0120341

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   IN THE BOMBARDMENT OF TI, OF NI,
AND OF 4 NI COATED TI FILMS, THE LAST HAVING NI THICKNESSES OF 6 TIMES
10 PRIME NEGATIVE6 1.2 TIMES 10 PRIME NEGATIVE5, 1.6 TIMES 10 PRIME
NEGATIVE5, AND 2.6 TIMES 10 PRIME NEGATIVE5 CM, RESP., BY 15 KEV H PRIM
POSITIVE IONS (60 MU A BEAM), THE ION IMPLANTATION COEFFS, ETA WERE
0.89, 0.25, 0.70, 0.46, 0.24, AND 0.23, RESP.: ETA INCREASED WITH
INCREASING H PRIME POSITIVE ION ENERGY, AND THE RESP. VALUES FOR 35 KEV
H POSITIVE IONS WERE 0.95, 0.33, 0.95, 0.94, 0.85, AND 0.55. FOR TI,
NI, AND TI COATED WITH THE 6 TIMES 10 PRIME NEGATIVE6 CM NI FILM, THE
DESORPTION OF GASES (DISSOLVED IN THE METAL) DURING THE BOMBARDMENT WIT
H PRIME POSITIVE IONS WAS SUBSTANTIAL, E.G. THE DESORPTION COEFFS. BET
FOR THESE 3 MATERIALS WERE 1.12, 1.0, AND 0.6, RESP., IN THE CASE OF
BOMBARDMENT WITH 10 PRIME15 IONS (IT DECREASED TO SIMILAR TO 0.25 FOR
ALL 3 MATERIALS WHEN THE NO. OF IONS WAS INCREASED TO 10 PRIME17-10
PRIME18); FOR TI COATED WITH THE THICKER NI FILMS, BETA WAS NOT GREATER
THAN 0.1 AND WAS INDEPENDENT OF THE NO. OF IONS. PRESUMABLY, THE
DESORPTION OF GASES FROM THE BULK OF THE METAL TAKES PLACE BY DIFFUSION
ALONG THE H PRIME POSITIVE TRACKS.

UNCLASSIFIED

USSR   UDC 621.372.822.092.22

YATSUK, L. P., KATRICH, V. A.

"Parameters of Nonresonance Slots in a Rectangular Wave Guide with a Comb Delay Structure"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 49-55 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B129)

Translation: Data are presented from calculating the reflection, transmission and radiation coefficients. There are 3 illustrations and a 2-entry bibliography.

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Miscellaneous

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USSR

UDC 621.771.23

ZELICHENOK, B. Yu., VINOGRADOVA, A. I., MEDVEDEV, V. V., MUL'KO, G. N., and KATRICHENKO, K. P.

"Factors Affecting the Expenditure of Metal in Sheet Rolling"

Moscow, Stal', No 2, Feb 71, pp 139-142

Abstract: This article reports on mathematical and statistical analyses made at the Orsko-Khalilov Metallurgical Combine of the factors determining variations in sheet steel lengths. Personnel of the plant have also computed the probability of obtaining ordered sheet lengths so that they can make an optimal choice of slab weights for their type-2800 thick-sheet mill. The finished sheets of 17G1S steel are 12.5 mm thick, 1.88 meters wide, and 12.1 meters long. To suit the welding procedures at the Chelyabinsk Tube-Rolling Plant to which they are sent to be welded into tubes of 1220-mm diameter for carrying gas, however, the lengths of these sheets may be 11.9, 11.5 or 11.3 meters. The article offers formulas and statistical data for computing the proper sheet lengths and other production parameters.

1/1

USSR   UDC 547.834.4+541.634

MIKHLINA, YE. YE., YANINA, A. D., ALEKSEYEVA, L. M., TURCHIN, K. F., SHEYNKER,
YU. N., YAKHONTOV, L. N., DYUK, R. F., RICHARD, A. YA., and KATRITSKY, A. R.
All-Union Scientific Research Pharmaceutical Chemical Institute imeni S.
Ordzhonikidze, Moscow and Chemistry Department, University of East Anglia at
Norwich, Great Britain

"Reaction of Benzo [b]quinuclidine with Electrophilic Reagents"

Abstract: Electrophilic substitution of benzo [b] quinuclidine (I) was studied:
bromination, nitration, and sulfochlorination. These results are closely related
to the absence of p-π electron interaction in I. When I is brominated in
several different solvents (acetic acid, chloroform) at 0, 20, and 60° (with or
without catalysts), only the perbromide of I and a molecular complex of I with
bromine were obtained. The absence of the p-π mesomeric effect in I is shown
by its pK. In contrast to bromination, nitration and sulfochlorination of I
form products of electrophilic substitution. When I is treated with a nitrating
mixture at temperatures from -4 to -7°, mononitrobenzo [b] quinuclidine is
formed. When I is treated with chlorosulfonic acid, first at 0° and then at
50°, benzo [b]quinuclidine-sulfonyl chloride is formed.
1/1

Acc. Nr: *AP0034679*

PRIMARY ASSESSMENT OF ANTITUMOROUS ACTIVITY OF SOME FRACTIONS ISOLATED FROM THE CELLS OF STRIGOMONAS ONCOPELTI

Sukhareva-Nemakova, N. N.; Silayev, A. B.; Katrukha, G. S.; Zeleneva, R. N.; Urinyuk, V.M.

Moscow State University

The study of the effect of fractions isolated from the cells of Strigomonas oncopelti on sarcoma-180 revealed that the cellular homogenate stimulates the growth of this tumor, the amino-acid fraction inhibiths it, the peptide fraction is inactive, the total lipid fraction inhibits the growth of sarcoma-180 at early periods of tumor development and causes stimulation in a more prolonged introduction, the lipid fraction devoid of sterines and their esters is not endowed with a stimulating action, both at early and late periods of tumor development, microsomal-mitochondrial fraction possesses a significant antitumorous activity; the removal of lipids by the extraction of this fraction with a chloroform-methanol mixture leads to a loss of its antitumorous effect.

D.A.

02

USSR   UDC: 621.762.5.001

KATRUS, O. A. and ALESHINA, A. V., Institute of Problems of Material
Science, Academy of Sciences, Ukrainian SSR

"Study of the Sintering of Rolled Stock From Titanium Powders"

Abstract: The objective of the study was the sintering of rolled stock
from titanium powders as applied to continuous technological cycles of
sintering in argon current with hold times not exceeding several minutes.
Involved were reduced and electrolytic titanium powders with average
particle sizes of 20-30 μ and 150-200 μ, respectively. The measurements
included porosity, HV hardness, conductivity, and resistivity. The higher
shear strength, lower resistivity (converting to zero porosity), and
higher relative conductivity in the reduced titanium specimens is
attributed to the greater activity in sintering the finer calcium hydride
titanium. The inferred activation mechanism is due to thermally activated

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USSR
KATRUS, O. A., et al, Poroshkovaya metallurgiya, No 12, Dec 71, pp 32-34

dislocation slip within the first 15 sec of sintering. The change in the
porosity of calcium hydride titanium within the first minute amounts to
12% while further changes (by 8%) occur during the next 5 mins. The
changes in resistivity and hardness versus preliminary sintering time and
the changes in resistivity, relative conductivity, shear strength, and
porosity versus sintering time are reflected in curves. The cited changes
in the physicomechanical properties of porous rolled metal from reduced
and electrolytic titanium powders indicate optimal hold times of 30-40 sec
and 60-120 sec, respectively. (2 illustrations, 8 bibliographic
references).

2/2

USSR   UDC 621.762.4.001

KATRUS, O. A., and OTROK, A. I., Institute of Problems of Material Science,
Academy of Sciences Ukrainian SSR

"Study of the Moldability of Metal Powders for Rolling"

Kiev, Poroshkovaya Metallurgiya, No 8, 1971, pp 36-40

Abstract: The moldability of metal powders with different prehistory of fabri-
cation was investigated. Rolling rolls with 36, 181, 500, and 900 mm diameters
were used. Prior to rolling, to reduce volatility the powders were lubricated
with water, gasoline, spindle oil, or kerosene. The rate of rolling was in the
limits 0.5-8 m/min. The phenomenon of flaking of the rolled stock was investi-
gated as a function of the following factors: 1) granulometric composition of
the powder; 2) shape of particles and condition of their surface; and 3) physi-
cal condition of the powders. Iron powders were oxidized in air at 500° for 20
minutes. Reduced copper powders were oxidized in room temperature and with
prolonged air exposure; electrolytic copper powder was treated with ammoniacal
solutions. Other metal powders investigated include: carbonyl iron R10,
molybdenum, electrolytic titanium, reduced titanium, and carbonyl nickel
ПНК-2. Properties tabulated include: bulk weight, weight after shakedown,
particle size, and particle shape. Comparison of curves plotting dimensionless
thickness of rolled stock as a function of its density showed that, under
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KATRUS, O. A., et al, Kiev, Poroshkovaya Metallurgiya, No 8, 1971, pp 36-40

otherwise equal conditions, the onset of flaking for the entire series of
powders occurs earlier, the larger the roll diameter, that is, for larger abso-
lute thickness of rolled stock. The tendency to flaking is clearly manifested
in the region of relatively high porosity, and appears earlier, the finer
the powder. These correlations are observed for powders with different pre-
history of fabrication (carbonyl, electrolytic, and reduced). In order of
their influence on flaking of rolled stock, the properties of the powders
studied can be placed as follows: 1) granulometric composition; 2) presence
of oxides on particle surface; 3) phase state of powders (quenching, annealing);
and 4) particle shape.

2/2

Powder Metallurgy

Abstract: The theoretical possibility of short-period sintering of porous
rolled steel from Kh18N9 and Kh18N15 stainless steel powders under a hydrogen
atmosphere at 1350-1400° C is demonstrated. The results, presented in graphs
in the form of the relative electric conductivity, tensile strength, and porosity
dependence on sintering holding time at 1400°C, as well as the dependence of the
relative electric conductivity and tensile strength on porosity at 1400°C, show
that sintering of relatively high-initial-density samples is accompained by a
substantial shrinkage. They also show that short-time sintering at 1400°C of
the aforementioned steels ensures mechanical properties sufficient for filter
materials. The perfection of interparticle contacts at short-time sintering
evaluated by the value of electric conductivity at 1350-1400°C is somewhat
lower than that observed with longer time sintering.

1/1

USSR   UDC 62-72

ZHURBA, A. S., SMOL'NIK, YU. YE., KATRUSH, R. V., SABIROVA, G. V., and
USUPOVA, L. G., All Union Scientific Research Institute of Petrochemical
Processing

"The Influence of the Depth of Hydropurification of the Fractions of Jet Fuel
on Their Low Temperature Properties"

Abstract: The effect of the depth of hydrofining being used as the first stage
of the hydrogenation process of jet fuels with increased content of aromatic
hydrocarbons has been investigated in regard to the low temperature properties
of the hydrofined fuel. It has been noted that after deep hydrofining the
temperature of the initial crystallization is raised and a turbidity is observed
proceeding the crystallization by some 12-14°C. It has been determined that this
turbidity is caused by accumulation of poorly branched paraffin hydrocarbons
of high molecular weight.

1/1

USSR   UDC 665.658.2.061.735.7

SMOL'NIK, YU. YU., ZHURBA, A. S., UGUPOVA, L. G., and PANFILOV, R. V.
All Union Scientific Research Institute of Petrochemical Processes

"Hydrogenation of Aromatic Hydrocarbons of Narrow Fractions of Aviation Kerosene"

Abstract: Hydrogenation of aromatic hydrocarbons, fractions 130-150 and 150-240°C, on an industrial alumina-platinum catalyst AP-56 was studied. The optimal conditions for this process are: pressure -- 40 atms, temperature -- 275-325°C. Under such conditions and at a 1.5 hr^{-1} volume rate of addition of starting material, the hydrogenation of both fractions exceeds 80%. The yield of the product is approximately 97 weight-%. The catalyst used is quite stable even after 200 hrs.

1/2

USSR   UDC 612.172.2

YAKOVLEVA, M. I., KATRUSHENKO, A. G., and SLAUTSITAYS, V. V., Department of
Ecological Physiology, Institute of Experimental Medicine, Academy of Medical
Sciences USSR, Leningrad

"An Analysis of the Self-Regulating Mechanism of Heart Rhythmic Activity"

Abstract: Eleven male chinchilla rabbits were trained to decrease their heart
rate by means of instrumental conditioning using feed-back with a bioregulated
loop. The transition of heart rhythmic activity onto a new level involved a
decrease in the number of self-reinforcement impulses. After 10 to 12 experi-
ments a lowering of heartbeat rate by 20 to 30 percent, achieved in 2 to 3
minutes, was observed. Initial experiments required 120 to 180 minutes for
any lowering of rate. The stability of the changed rate also increased with
further trials. This data is said to indicate that the evolved regimens of
heart activity are stable and adaptive, leading to minimization of biologically
negative effects, in contrast with the classical conditioned reflex. A time
link between the structures regulating positive emotions and those regulating
the functional control is also proposed.
1/1

USSR   UDC 621.385.632

KALININ, YU. A., KATS, A.M., RYKSHIN, B.V.

"Investigation Of The Dependence Of The Gain And Efficiency Of A TWT On The Radius Of The Electron Flow"

Elektron. tekhnika. Nauchno-tekhn.sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 8, pp 29-36 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12A176)

Translation: The structure of the electron flow in a traveling-wave tube is investigated by photoregistration methods and a diaphragm with an aperture. A connection between the gain and efficiency of the device and the structure of the electron flow is experimentally established. The experimental results obtained are equal to the theoretical. 8 ref. S

1/1

USSR

IL'INA, YE. M., KATS, A.M., TIMCHENKO, L.P.

"Nonlinear Theory Of A Type-O BWT With The Distribution Of The High-Frequency Field With Respect To The Beam Taken Into Account"

Translation: It is shown that the efficiency of a Type-O backward-wave tube (with the distribution of the field with respect to the beam taken into account) comes out to be considerably less than in conventional one-dimensional theory. 8 ref. Summary.

1/1

USSR   UDC 621.385.652

KATS, A.M., MAN'KIN, I.A., RYKSHIN, B.V.

"Investigation Of The Effect Of Pulsations Of An Electron Stream On The Output Power Of A TWT"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics),1970,Issue 11,pp 51-58 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A184)

Translation: An experimental and theoretical investigation was conducted of the effect of pulsations of the electron stream on the output power of a traveling-wave tube. Devices were investigated in which focusing of the electron stream was accomplished both by a magnetic periodic focusing system and by the permanent magnetic field of a solenoid. Good agreement of the experimental results with the theoretical was obtained. 6 ref. Summary.

1/1

USSR   UDC 621.385.032.26:621.385.63

BOROVKOV, YU. I., KALININ, YU. A., KATS, A.M.

"Investigation Of The Structure Of An Electron Beam In A Dynamic Regime By The Method Of An Iris With A Small Hole"

V sb. Vopr. elektron. tekhniki (Problems Of Electronics Technology--Collection Of Works), Saratov, 1970, pp 155-160 (from RZh--Elektronika i yeye primeneniye, No 6, June 1970, Abstract No 6a22)

Translation: A method is described for the use of an iris with a small hole for an analysis of the structure of an electron beam traveling-wave tube in a dynamic regime. Measurements were conducted in the flight channel and also in the collector area. The possibilities of the method are evaluated. Some experimental results are presented. Summary.

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USSR

UDC 621.385.632

GERASIMENKO, Yu. A., KALININ, Yu. A., KATS, A. M., KUDRYASHOV, V.P.

"Change Of Phase And Amplitude Of The Output Signal In A TWT During A Pulse"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 6, pp 86-94 (from RZh--Elektronika i yeye primeneniya, No 10, October 1970, Abstract No 10A158)

Translation: The mechanism is considered of changes during a pulse, of the phase and amplitude of the output signal of a TWT resulting from ionization of residual gases by an electron beam. It is shown that the magnitude of the changes depends on the pressure of the residual gases and parameters of the TWT. An approximate calculation is given for the changes of phase and amplitude of the output signal in a pulse. Experimental results are presented. Summary.

1/1

USSR   UDC 616-022.6

MUKHAMETZYANOV, Sh. A., GLANTS, S. A., MAKARON, D. I., and KATS, A. S.

"Hemodialysis in Hemorrhagic Fever With a Renal Syndrome"

Abstract: Of 16 hemorrhagic fever patients admitted to the kidney centers in
Kazan' and Chelyabinsk in fair condition with acute renal insufficiency,
azotemia, acidosis, hyperhydration, neurologic and cardiovascular disturbances,
and (in three cases) meningoencephalitic symptoms, six responded to the stan-
dard therapy and regained normal kidney function. The other 10 received as
part of the therapy venovenous hemodialysis with an artificial kidney 1 to
5 times. Azotemia decreased markedly, the composition of the plasma salts
returned to normal, and kidney function was completely restored in 2 to 12
days. The three patients with the meningoencephalitic syndrome died, despite
the initial effectiveness of hemodialysis and elimination of uremic poisoning.

1/1

1/2   029   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--STIMULATED SCATTERING OF LIGHT BY SURFACE WAVES -U-

AUTHOR-(03)-GAVRIKOV, V.K., KATS, A.V., KONTOROVICH, V.M.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
  NR 4, PP 1318-1331
DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LIGHT SCATTERING, SURFACE WAVE, CRYSTAL SURFACE,
  INCOMPRESSIBLE FLUID, LIGHT PULSE, LIGHT POLARIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1491   STEP NO--UR/0056/70/058/004/1318/1331

CIRC ACCESSION NO--AP0106247
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0106247
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STIMULATED SCATTERING BY CAPILLARY
  WAVES ON THE SURFACE OF AN INCOMPRESSIBLE FLUID OR BY RAYLEIGH WAVES ON
  THE SURFACE OF AN ISOTROPIC SOLID BODY WITH SMALL OPTICOELASTIC MODULII
  IS INVESTIGATED. BOTH LONG AND SHORT PULSES ARE INVESTIGATED, AND IT IS
  SHOWN THAT THE THRESHOLD APPRECIABLY DEPENDS ON THE PULSE DURATION.
  CASES OF BOTH LOW AND HIGH TEMPERATURES ARE CONSIDERED FOR SCATTERING BY
  RAYLEIGH WAVES. THE DEPENDENCE OF THE STIMULATED SCATTERING THRESHOLD
  ON THE ANGLE OF INCIDENCE AND POLARIZATION OF THE INCIDENT LIGHT AND
  PROPERTIES OF THE SCATTERED RADIATION NEAR THE THRESHOLD ARE ANALYSED.
  THE POSSIBILITY OF OBSERVING THE EFFECT IN A SOLID BODY OR LIQUID IS
  DISCUSSED.   FACILITY: INST. RADIOFIZIKI I ELEKTRONIKI, AN UKR.
  SSR.

UNCLASSIFIED

USSR

UDC 616.61-088.64-036.11-085.835.3

KATS, B. G., and ROZOV, Ye. Ye.

"The Use of Hyperbaric Oxygenation in the Treatment of Patients With Acute Renal Insufficiency"

Moscow, Urologiya i Nefrologiya, No 3, May-Jun 71, pp 55-56

Abstract: Case histories are presented of two patients who suffered from acute renal insufficiency and were successfully treated with hyperbaric oxygenation. Patient K., age 22, drank about 400 ml of ethylene glycol and, on the next morning, was admitted to the hospital in a very bad general condition. He did not respond to conventional treatment, his condition deteriorated throughout the day, and bladder catheterization yielded a total of only 350 ml of opaque, very acid urine containing protein. He was placed in the hyperbaric chamber where he breathed oxygen under 2 atm for 1 hour. Soon, cyanosis disappeared and his blood pressure, heart rate and respiratory rate improved considerably. Within approximately half an hour of breathing oxygen under pressure, he regained consciousness, asked for a glass of water, and began to pass urine spontaneously. His condition kept improving throughout the night, and on the following day he spent another hour in the pressure chamber. Since his general condition was satisfactory, he was transferred to the Oblast Hospital
1/2

USSR

KATS, B. G., and ROZOV, Ye. Ye., Urologiya i Nefrologiya, No 3, May-Jun 71, pp 55-56

where he received conventional treatment, recovered completely within 20 days, and was discharged. Patient G. was a 32-year old woman who developed renal insufficiency after surgery (obstructive jaundice with complications, including chronic nephritis). Though she was in coma when first placed into the hyperbaric chamber, her condition soon began to improve. After the second session, her spontaneous urine output reached about 1.6 liters per day, and after the third session her general condition was so good that the treatment was discontinued. She recovered within a month and was discharged from the hospital.

2/2

USSR   UDC   621.373.544(088.8)

KATS, B. M.

"A Multiphase Matrix Flip-flop"

USSR Author's Certificate No 255350, Filed 23 Sep 68, Published 12 Mar 70 (from
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10G191 P)

Translation: This Author's Certificate introduces a multiphase matrix flip-flop
which contains two linear multiphase flip-flops based on transistors of opposite
conductivity types, and also a diode matrix. To simplify the device and reduce
power consumption, the load resistors, which also act as the resistors in the col-
lector circuits of both linear multiphase flip-flops, are directly connected to the
matrix nodes in series with semiconductor diodes.

1/1

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USSR   UDC: 621.375.4.029.45

KATS, B. Z.

"A Transformerless Low-Frequency Amplifier"

V sb. Obmen opytom v radioprom-sti (Experience Pooling in the Radio Industry
—collection of works), vyp. 1, Moscow, 1971, pp 89-90 (from RZh-Radiotekh-
nika, No 5, May 71, Abstract No 5D106)

Translation: The paper describes a low-frequency transformerless amplifier
which does not have such disadvantages as comparatively high standing current,
and abrupt fall-off of maximum undistorted power. The peculiarities of the
amplifier are presented together with its basic data. Resumé.

1/1

USSR   UDC 8.74

GORELYSHEVA, I. V., KATS, E. KH., LUKHOVITSKAYA, E. S.

"Realizing the Debugging Levels in the ALGOL Complex Translator"

V sb. Teoriya yazykov i metody postroyeniya sistem programmir. (Language Theory
and Methods of Constructing Programming Systems--collection of works), Kiev-
Alushta, 1972, pp 287-294 (from RZh-Kibernetika, No 12, Dec 72, Abstract No
12V468)

Translation: The characteristic of the debugging levels in the ALGOL transla-
tor which translates from the input language (of the ALGOL type) into the ALMO
language is given. Each next level offering greater debugging possibilities
by comparison with the preceding one makes the program longer. The zero level
means that the translator creates the operating program, that is, a program
without debugging capabilities. The first level means that the translator
creates a program differing somewhat from the operating program, that is, sup-
plemented by instructions offering the possibility in the case of an emergency
halt of outputting "rough" diagnostic information. The second level offers the
possibility of obtaining more detailed information in the case of an emergency
halt: the text of the operator at which the halt took place is printed out,
and the halt output is executed if it is given by the programmer in the debug-
ging instructions. The third level corresponds to a program combining the
1/2

USSR

GORELYSHEVA, I. V., et al., Teoriya yazykov i metody postroyeniya sistem pro-
grammir.,Kiev-Alushta, 1972, pp 287-294

capabilities of the first and second levels. It is noted that in the future
provision will be made in the transistor for a fourth level permitting "expan-
sion" of some interval of operators. By expansion we mean print out of the
text of the executed operator and the results of its operation if this opera-
tor is an allocation operator.

2/2

USSR   UDC 669.721.042.6

GALKIN, M. N., KATS, E. L., SPIRIDONOV, YE. V.

"Effect of the Conditions of Formation on the Shrinkage Porosity and Tight-
ness of Castings made of Magnesium Alloys"

Usadochn. protessy v splavakh i otlivkakh -- V sb. (Shrinkage Processes in
Alloys and Castings -- collection of works), Kiev, Naukova Dumka Press, 1970,
pp 296-301 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G223)

Translation: The results of investigations of the temperature fields of
castings during hardening were investigated in order to analyze the process
of formation and selection of the technological casting parameters. A
mathematical description is presented for the two-dimensional temperature
field of cylindrical castings during hardening with correlation to the proper-
ties and initial parameters of the mold and cast metal. The probability
dependence of the casting tightness on the shrinkage porosity is presented.
There are 6 illustrations.

1/1

USSR

KATS, G. I. and KORONKEVICH, A. I.

"Frobenius Theorem for Functions of Commuting and Anticommuting Arguments"

Moscow, Funktsional'nyy Analiz i Yego Prilozheniya, Vol 5, vyp 1, 71, pp 78-80

Abstract: 1. The authors examine the ring $Q_x = Q_{x1,\ldots,x_{n+m}}$ of polynomials of the anticommuting generatrices x_i ($n < i \le n+m$) with coefficients which are R^n infinitely differentiable functions. 2. Then still another ring, $Q_{x'} = Q_{x'1,\ldots,x_{n'+m'}}$, is studied, and each is discussed. 3. The authors then give the equation $\omega(x,dx) = 0$, and the ring $Q_{t,u} = Q_{t_1,\ldots,t_{f+\ell},\; u_1,\ldots,u_q}$ ($g(t_i) = 0$ ($1 \le i \le f$), $g(t_i) = 1$($f < i \le f+\ell$), $g(u_i) = 1$), is examined. The generatrices u_i are termed parameters, and $du_i = 0$ is assumed by definition from differentiation of the elements of $Q_{t,u}$. Then $s = f+\ell$ and the $n+m$ elements of $x_i(t,u) \in Q_{t,u}$ are termed the s-dimensional solution to the equation $\omega(x,dx) = 0$ if certain cited conditions are satisfied. 4. Then a system of equations $\omega_j(x,dx) = 0$ ($j = 1,2,\ldots,N$) is studied, relative to which it is proposed that the rank of the matrix $\|\delta\omega_{ji}(x_1,\ldots,x_n)\|$ is identically equal to N. This system is termed completely integrable if for all numbers $x_1^{(0)},\ldots,$

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USSR

KATS, G. I., et al, Funktsional'nyy Analiz i Yego Prilozheniya, Vol 5, vyp 1, 71, pp 78-80

$x_n^{(0)}$ the system has an $r = n+m-N$-dimensional solution with the initial conditions $v_i = x_i^{(0)}$ $(1 \quad i \quad n)$, $v_i = u_i$ $(n \quad i \quad n+m)$, where $u_{n+1},\ldots,u_{n+m}-m$ are odd parameters. 5. Omitting the technical details, the authors give proof of the Frobenius theorem, deriving it as in the classical case. Two cases are examined and proven here: that is, the odd and the even cases. The article cites one literature reference.

2/2

1/2   016   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--AUTOMATIC ANALYZER OF TIN IN SLURRIES -U-

AUTHOR-(02)-NIKITIN, F.V., KATS, I.E.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(1), 116-17

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS, METHODS AND EQUIPMENT

TOPIC TAGS--CHEMICAL ANALYSIS, TIN, COAGULATION, AMIDE, AQUEOUS SOLUTION,
 X RAY ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0600   STEP NO--UR/0032/70/036/001/0116/0117

CIRC ACCESSION NO--AP0107197
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0107197
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SLURRY SAMPLE IS COAGULATED BY
A POLYACRYLAMIDE SOLN. AND THE SN CONTENT DETD. IN 5 MIN BY EXCITATION
OF X RAY FLUORESCENCE OF THE SN WITH PRIME170 TM. ANAL. OF SLURRIES
CONTG. 0.14-2.3PERCENT SN AGREES WITH CHEM. ANAL. WITHIN 20PERCENT.

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UNCLASSIFIED

USSR

ABASHEV, F. KH and KATS, I. YA.

"Stochastic Problems of Optimal Control with Nonconvex Limitations"

Teor. i Prikl. Issled. Obshchenauch. Kafedr.   [Theoretical and Applied
Studies of the General-Sciences Department -- Collection of Works],
Sverdlovsk, 1972, pp 64-66 (Translated from Referativnyy Zhurnal Kiber-
netika, No 9, 1973, Abstract No 9V256)

Translation: Problems of optimal control are discussed for linear sys-
tems described by differential equations

$$\frac{dx_t}{dt} = A(t)\, x_t + B'(t)\, u_t + \xi_t.$$

where u_t is the control action, ξ_t is a certain random process, $A(t)$,
$B(t)$ are known continuous functions of t. Control u_t is a determin-
istic function of time and is selected from a weakly compact convex
set. The optimal control from this set minimizes $t_\beta - t_\alpha$, where t_α
is the initial moment in time, t_β is the moment in time when

$$M\rho_1\left[Px_{t_\beta} - Px^1\right] < \varepsilon,$$

1/2

24

USSR

ABASHEV, F. KH and KATS, I. YA, Teor. i Prikl. Issled. Obshchenauch. Kafedr., Sverdlovsk, 1973, pp 64-66

here x^β is an assigned vector, P is a known matrix, ρ_1 is a convex or quasiconvex function.

It is pointed out that the solution to this and similar problems is based on functional methods of the theory of optimal processes.

R. Liptser

2/2

1/2   025   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--PREPARATION AND STUDY OF AROMATIC OILS ,RUBBER, SOFTENERS FROM
    VOLGOGRAD PETROLEUMS -U-
AUTHOR-(05)-ZMIYEVSKIY, P.K., SALNIKOV, D.D., KATS, KH.SH., FRENKEL,
    R.SH., KURYANOVA, I.S.
COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (2), 9-10

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--AROMATIC HYDROCARBON, PHENOL, SOLVENT EXTRACTION, THERMAL
    STABILITY, PETROLEUM PRODUCT, ELASTICITY, RUBBER CHEMICAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1525   STEP NO--UR/0318/70/000/002/0009/0010

CIRC ACCESSION NO--AP0118512
                       UNCLASSIFIED

CIRC ACCESSION NO--AP0118512

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PHENOLIC EXT. FROM ZHIRNOVSK AND
  KOROBKOVSK PETROLEUM DEASPHALTATE WAS AGAIN EXTD. WITH 2.5 PARTS BY VOL.
  PHOH AND 10PERCENT H SUB2 O, GIVING A HIGHLY AROMATIC EXT. AND A
  NAPHTHENIC AROMATIC DISTILLATE. THE 2 PRODUCTS WERE GOOD SOFTENERS FOR
  RUBBER, YIELDING VULCANIZATES WITH ELASTICITY AND THERMAL STABILITY
  HIGHER THAN THOSE OBTAINED WITH THE USUAL ONES.

UNCLASSIFIED

B. Information Theory

USSR

KATS, L. A., LINKOVSKIY, Zh. B.

"Method of Comparison of Approximation Criteria Using the Measure of
Information"

Stat. i Elektronno-Vychisl. Tekhn. v Ekon. [Statistics and Electronic
Computer Technology in Economics -- Collection of Works], Moscow, Statistika
Press, 1972, pp 218-222 (Translated from Referativnyy Zhurnal Kibernetika,
No 4, 1973, Abstract No 4V468, by A. Kuznetsov).

Translation: Suppose $a_1, \ldots, a_n$ is a nondecreasing sequence of positive
numbers. For arbitrary number C, satisfying the inequalities $a_r \leq C \leq a_{r+1}$
with a certain $1 \leq r \leq n$, the quantity

$$I_c = \sum_{i=1}^{n} \left| \ln \frac{a_i}{C} \right|$$

is introduced and called the measure of information. The number C_0, for which
the function I_c is defined and minimal, is called the best estimate. No infor-
mation on the expediency of the concepts introduced above is presented.

1/1

USSR

UDC: 621.372.853.09

AL'TSHULER, Yu. G., YERSHOV, V. V., and KATS, L. I.

"Electromagnetic Wave Propagation in Channelized Systems Partially Filled With a Solid-State Magnetoactive Plasma"

Tomsk, Izvestiya VUZ -- Fizika, No 9, 1973, pp 7-13

Abstract: This paper solves the problem of computing the dispersion of partially filled waveguides for the following configurations of channelized systems: a cylindrical waveguide with a concentrically placed solid-state plasma rod in a longitudinal magnetic field, and a waveguide of rectangular cross section with a solid-state plasma plate, extending longitudinally, in a transverse magnetic field. The relationships obtained in the theoretical portion of the paper were experimentally tested by a measuring device based on a balanced bridge circuit for determining the complex transfer factor of a measured four-terminal network, the plasma-filled waveguide. The dispersion characteristics are plotted, and a curve is obtained for the experimental propagation constants as functions of the frequency for a rectangular waveguide. It is concluded that these configurations are practical for at least
1/2

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USSR   UDC: 621.372.853.09

AL'TSHULER, Yu. G., Izvestiya VUZ -- Fizika, No 9, 1973, pp 7-13

such devices as attenuators and phase shifters.

2/2

AL'TSHULER, YU. G., KATS, L. I., REVZIN, R. M.

"Submillimeter Band Electromagnetic Wave Propagation in a Solid State Drift Plasma"

Abstract: A study was made of the possibility of applying electro-optical effects of a solid state magnetized plasma to create submillimeter-band control devices. The magnetic field defines the significance of the electro-optical effect and the types of waves propagated in the solid state plasma, and the propagation parameters are controlled by varying the external electric field. The electro-optical phenomena caused by the effect of a constant electric field on the propagation of a circularly polarized wave in a magnetically active solid state plasma are highly effective in the submillimeter wave band. There are regions of sharpest variation of the propagation parameters as a function of the magnitude of the applied electric field. The magnitude of the applied constant magnetic field determines the effectiveness of the investigated phenomena, and the dependence of the propagation parameters on the collision frequency makes it possible to consider that the investigated phenomena are experimentally realizable only at low temperatures. Calculation of the parameters of devices controlled by an electric field indicates that
1/2

USSR

AL'TSHULER, YU. G., et al., Izvestiya Vuzov SSR, Radioelektronika, Vol XV, No 8, 1972, pp 932-937

an attenuator can be obtained with attenuation on the order of 10-15 decibels for $H_0 = 1,000$ oersteds and variation of v_0 from 0 to $2 \cdot 10^6$ m/sec of the

phase shifter and that the polarization plane can be rotated within the limits of $\pi/3$ for $H = 500$ oersteds and v_0 from 0 to $2 \cdot 10^6$ sec.

2/2

USSR

AL'TSHULER, YU. G., KATS, L. I., REVZIN, R. M.

"Experimental Study of Millimeter-Band Electromagnetic Wave Propagation in a Wave Guide Filled with n-InSb in a Magnetic Field"

Abstract: An experimental study was made of the millimeter-band electromag-
netic wave propagation through a waveguide with an n-InSb plate in a constant
magnetic field. There are defined laws on the application of the investigated
effects for purposes of measuring the parameters of semiconductor materials.
As a result of the small values of $\omega_c \tau$, the method of cyclotron resonance
obviously has limited application in the given band. The methods based on the
Faraday effect and especially the investigation of helicon waves are much more
efficient. The results of measurements in different orientations of the mag-
netic fields indicate the effectiveness of the latter with respect to the ampli-
tude and phase of the transmitted microwave signal. The maximum attenuation
drop in the case of a longitudinal magnetic field at the temperature of liquid
nitrogen with a plate thickness of 600 microns is 30 decibels on variation of
the magnetic field from 0 to 5 kiloersteds. In a transverse magnetic field
the maximum attenuation drops for a plate thickness of 250 microns is 17.5
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USSR

decibels. The phase of the transmitted signal varies in this case from 0.to -133 degrees on variation of H from 0 to 15 kiloersteds. In the case of propagation through a waveguide with an n-InSb plate arranged along the axis of the wave guide in a transverse magnetic field, nonreciprocal transmission of the millimeter-band radiation is observed with maximum decoupling of 14 decibels. Thus, it is possible to build different types of control devices (attenuators, phase converters, gyrators) in the millimeter band with parameters which are acceptable in practice on the basis of magnetically active plasma effects in semiconductors.

2/2

USSR   •   UDC: 621.372.853.09

AL'TSHULER, Yu. G., YERSHOV, V. V., and KATS, L. I.

"Experimental Investigation of Electromagnetic Wave Propagation
in the Transverse Magnetic Field in a Rectangular Waveguide
Partially Filled With n-InSb in the Transverse Magnetic Field"

Abstract: A description is given of experiments conducted on a
waveguide of rectangular cross section, partially filled with
n-type InSb, for the purpose of finding a practical application.
The InSb specimen, in the form of a plate, was placed inside a
waveguide section measuring 10X23 mm^2 in cross section, the whole
kept at the temperature of liquid nitrogen. The shape and posi-
tion of the plate and the direction of the magnetic field, the
latter varying from 0-8 kilogauss, are shown in the diagram of
the apparatus, together with curves of the complex transfer coef-
ficient of the waveguide as a function of the magnitude and di-
rection of the magnetic field. The results of the experiment,
put in the form of curves for the phase and attenuation of the
transmitted wave, showed that the effect of the n-InSb plate on
1/2

USSR   UDC: 621.372.853.09

AL'TSHULER, Yu. G., et al, Radiotekhnika i elektronika, No 8,
1972, pp 1737-1739

the propagation process can be quantitatively represented, and
that the mutuality effect can be estimated. It is also found
that the phase of the transmitted wave can be varied in phase
up to 750° for various changes in the magnetic field.

2/2

USSR   UDC 621.38:61

DOLGOPYATOV, R.M., KATS, L.I., SMOLYANSKIY, S.A.

"Concerning The Possibility Of The Use Of High-Frequency Magnetic Fields For
Creation Of Systems Of Modulation And Demodulation Of Laser Radiation"

V sb. Ispol'z. optich.kvant.generatorov. v sovrem. tekhn. i med. Ch.2-3 (Use
Of Lasers In Contemporary Technology And Medicine. Parts 2-3--Collection Of
Works), Leningrad, 1971, pp 12-15 (from RZh:Elektronika i yeye primeneniye, No 2,
Feb 72, Abstract No 2A526)

Translation: A formula is derived for computation of the amplitude modulation
factor of laser radiation in a variable magnetic field. With H = 12 oersted a
percentage of modulation of 17 percent is reached with a frequency of 44 MHz.
For excitation of a modulating magnetic field of a frequency of 22 MHz, the
long line of a spiral wound on the laser tube is used. Demodulation took place
at a receiver acted upon by the photoelectromagnetic effect with use of a simi-
lar artifical long line. 3 ill. 2 ref. L. Sh.

1/1

USSR

KATS, L.I., SELEL'NIKOV, V.A.

"To An Analysis Of The Field Of An N-Mode Waveguide By The 'Hidden Periodicity' Method"

V sb. Vopr. elektron. tekhn. (Problems Of Electronics Technology--Collection Of Works), No 2, Saratov, Saratov University, 1971, pp 209-218 (from RZh--Radiotekhnika, No 2, Feb 72, Abstract No 2B79)

Translation: The theoretical principles of the method are stated. The difficulties of its practical realization are considered. A measuring device is described with a fixed electrical probe of small diameter ($0.03 \div 0.05$ mm) in a circular waveguide. The results are presented obtained at a 4-mm wave for a smooth transition from a rectangular to a circular waveguide. 1 ill. 11 ref. N.S.

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Oscillators and Modulators

USSR

UDC   621.376.222.029.64:533.9

KATS, L. I., KIREYEV, N. N., SMOLYANSKIY, S. A.

"On the Problem of Modulating Electromagnetic Radiation by a Gas-Discharge Plasma in a Variable Magnetic Field"

Moscow, Radiotekhnika i Elektronika, vol 16, No 12, Dec 71, pp 2273-2277

Abstract: A theory is constructed in the "average electron" approximation for a microwave modulator of electromagnetic radiation based on utilizing magneto-optical effects in a gas-discharge plasma located in an alternating field. The results show the possibility of developing such modulators for the millimeter and submillimeter bands in the case of static and rf magnetic field strengths suitable for practical use. The authors thank B. K. Taykin, D. I. Trubinkov and M. A. Khodorkovskiy for discussing the results of the work. Two figures, bibliography of seven titles.

1/1

USSR

AL'TSHULER, YU. G., DOVZHENOK, A. A., KATS, L. I.

"Interaction of Superhigh-Frequency Electomagnetic Emission with a Solid State Plasma"

Abstract: A survey of publications on superhigh-frequency wave effects in a solid state plasma is presented, and the prospects for creation of passive and active devices are investigated. A study is made of the characteristic features of a solid state plasma and methods of calculating effects in such a plasma, types of waves propagated in a solid state plasma, the magnetoplasma fringe and the Faraday effect, wave propagation in wave guides with a solid state plasma, utilization of plasma effects in a solid state for the creation of microwave control devices, application of plasma effects to measure the parameters of semiconductors, instability of solid state plasmas and active microwave devices.

The survey reflects the modern state of the art in the problem of the interaction of electromagnetic radiation with a solid state plasma. Most of the papers are of a theoretical nature but experiments of a preliminary nature are noted which have practical value, and a basis is provided for expectation

1/2

USSR

AL'TSHULER, YU. G., et al., *Izvestiya vysshikh uchebnykh zavedeniy--Radioelek-tronika*, Vol XIV, No 9, 1971, pp 972-996

of practical applications of solid state plasma effects in the superhigh frequency range.

2/2

1/2   045   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--THE EFFECT OF LASER FIELD STRUCTURE ON THE SPECTRUM OF MODULATED
   RADIATION -U-
AUTHOR-(03)-DOLGOPYATOV, R.M., KATS, L.I., SMOLYANSKIY, S.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA, NO 2, 1970, PP 48-52

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MULTIMODE LASER, LASER MODULATION, MODULATION SPECTRUM,
   SUPERHIGH FREQUENCY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1283   STEP NO--UR/0108/70/000/002/0048/0052

CIRC ACCESSION NO--AP0123242
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0123242

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDY THE EFFECT OF
   THE COMPLEX STRUCTURE OF A LASER, WHERE THE STRUCTURE IS CONDITIONED BY
   THE PRESENCE OF MULTIMODALITY, ON THE SPECTRUM OF MODULATED RADIATION.
   THE CALCULATIONS ARE MADE FOR A KERR CELL TYPE MODULATOR OPERATING IN
   THE SUPER HIGH FREQUENCY RANGE.

UNCLASSIFIED

USSR

UDC   621.373:530.145.6:621.317.17

KATS, L. I., ROMAN'KO, K. S.

"Using the Photoelectromagnetic Effect to Study Laser Emission"

Elektron. tekhnika. Nauchno-tekhn. sb. (Electronic Technology. Scientific and Technical Collection), 1970, ser. 11 (19), pp 137-139 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D333)

Translation: Experiments are described on measuring the amplitude-modulated emission of a laser by using a photoelectromagnetic receiver. These experiments show the possibility of utilizing the photoelectromagnetic effect in alternating magnetic fields to determine the spectral composition of modulated laser emission. One illustration, one table, bibliography of four titles. N. S.

1/1

USSR

UDC 576.851.252.097.21:576.851.252.094

AKATOV, A. K., KATS, L. N., and PROKHOROV, V. Ya., Institute of Epidemiology
and Microbiology imeni Gamalea, USSR Academy of Medical Sciences, and Institute
of Medical and Biological Problems, USSR Ministry of Health, Moscow

"A Possible Correlation Between the Virulence of Staphylococci and Some Characteristics of Their Submicroscopic Structure"

Abstract: Experimental infection was produced in white mice by intraperitoneal
injection of four Staphylococcus strains which were similar biologically but
differed in virulence. Virulent strains survived in the abdominal cavity as
a result of their incomplete phagocytosis, while Staphylococci of low virul-
ence were subject to intensive destruction by phagocytes. Electron micro-
scopy revealed no morphological differences among the four strains cultured
in vitro. However, a significant difference was found among Staphylococci
grown in vivo. Each cell of the virulent strain was surrounded by a distinct
microcapsule, while strains of low virulence showed only traces of such cap-
sules. It is suggested that formation of microcapsules in vivo is one factor
responsible for the increased resistance of Staphylococcus to complete phago-

1/2

USSR

AKATOV, A. K., et al, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii,
No 5. May 71, pp 58-62

cytosis. The results are analyzed with reference to Roger's hypothesis (1963)
on the correlation between virulence of Staphylococci and their ability to form
capsules in vivo.

USSR   UDC 676.809.4

TORDZHYAN, I. KH., and KATS, L. N., Institute of Epidemiology and Micro-
biology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"Localization of Dehydrogenase Activity in the Cells of Obligate Anaerobic
Bacteria"

Abstract: Ultrastructural cytochemistry was used to localized dehydrogenases
in two types of anaerobic bacteria: Cl. sporogenes No 324 and Cl. oedenatiens
No 198. Two indicators of dehydrogenase activity were used as artificial
hydrogen acceptors: tetranitro blue tetrazolium and potassium telluride.
It was determined that for Cl. sporogenes the indicator is reduced primarily
in the cytoplasm outside the membrane structure; in the membrane structure
and in cytoplasm membrane reduction occurs to a lesser extent. With Cl.
oedematiens, indicator reduction occurs exclusively in the cytoplasm. In
this case the membrane structures do not participate in dehydrogenase
organization.

1/1

Acc. Nr: лР0043864⁻ KATS L N. Ref. Code: UR 0016

ELECTRON MICROSCOPIC STUDIES OF ANTIGENS
LOCALIZATION IN F. TULARENSIS WITH THE AID
OF FERRITIN-LABELED ANTIBODIES

Kats, L. N.; Mescheryakova, I. S.; Ogiyevetskaya, M. M.

A study was made of localization of Vi- and O-antigenic complexes in the virulent (S),
vaccine (SR) and avirulent (R) strains of F. tularensis with the aid of ferritin-labeled anti-
bodies. Vi- and O-γ-globulins were marked with ferritin by Singer's method (1959). Vi- and
O-γ-globulins were prepared from antisera obtained in immunization of rabbits with the
S- and R-cultures of F. tularensis, respectively. Electron microscopic studies were carried
out on intact microbial cells. Considerable amount of Vi-antigen of the virulent strain proved
to localize along the whole thickness of the capsule-like coat, and O-antigen — on its sur-
face. In avirulent strain O-antigen also localized along the whole capsule-like coat. The prob-
lem on localization of ferritin-labeled antibodies in other bacteria, and also on the structu-
res of bacterial cells serving as the antigen-carriers is discussed.

//

REEL/FRAME
19770288

6 DI

USSR   UDC: 576.851.45.097.2.07

KATS, L.N., MESHCHERYAKOVA, I.S., and OGIYEVETSKAYA, M.M., Institute of
Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR,
and Institute of Biophysics, Academy of Sciences USSR

"Determination of the Localization of Antigens in F. tularensis Using ferritin-
Labeled Antibodies: Electron-Microscope Studies"

Abstract: Localization of Vi and O-antigenic complexes in tularemia bacteria
was studied using ferritin-labeled antibodies. Vi antigen in a virulent
strain and O antigen in an avirulent strain were found in the outer, mucous,
capsule-like sheath of the bacterial cell, and not on the surface of the cell
wall. The Vi antigen was localized in the mass of the sheath, and the O antigen
on its surface. The nature and amount of Vi and O antigenic determinants as
revealed by the ferritin method corresponded to the visual picture of Vi and
O agglutination in tularemia bacteria.

1/1

UDC 539.3

USSR

KOSMODAMIANSKIY, A. S., KATS, L. YE., and BARG, YA. A., Donetsk State Institute; VNIIGidroprivod All-Union Scientific Research, Planning and Design Institute of Hydraulic Drives)

"An Approximate Method Based Upon the Use of a Hydrodynamic Analogy"

Abstract: A method of hydraulic analogy is presented, based upon the similarity of physical stress fields in an elastic region and pressures in a steady flow of liquid in two-dimensional problems of elasticity and hydrodynamics theory. The analogy is as follows: If the region of flow of a two-dimensional potential steady flow of an ideal incompressible fluid is similar to an isotropic elastic region, with a free contour acting as a hard, immovable wall, and the boundary conditions in both regions are analogous, the stress distribution at any contour is similar to the pressure distribution at the corresponding flow boundary. This analogy simplifies the investigation of stress concentrations in simply connected and multiply connected regions of complex shape by means of the theoretical and experimental methods of aero- and hydrodynamics. The method of hydrodynamic analogy is used illustratively to solve problems of stress distribution beside an elliptical opening and a streamlined fillet.
9 references.
1/1

KATS M.L.

92

Table I. Comparative data on supersonic nondivergent plasma jets

Jet type	E, joules	Nozzle dia., cm	Chamber pressure, atm	Exit velocity km/sec	Adiab. index, γ	Mach no.
With shock wave	3.0	0.9	11	3.1	1.67	—
With periodic structure	2.2	0.9	8	2.6	1.67	1.9

Aseyev, G. I., and M. L. Kats, Destruction mechanisms of alkali halide crystals and multi-photon ionization of impurity centers. FTT, no. 5, 1972, 1303-1307.

The destruction of a series of natural and impure alkali halide crystals (NaCl, KCl, KBr, NaBr, KCl-Eu, KCl-Ag, KCl-Tl, and KCl-In) under the effect of ruby and neodymium lasers was investigated in a free-running regime (energy = 1.5 joule, duration = 500 μsec). Beam focusing on the specimens was done by f = 50 and 150 mm lenses. The destruction mechanism in crystals is explained in terms of Brillouin forced dispersion and local heating. The temperature at the damage site was approximately 5000°C at a near critical power density. Forced dispersion components were not observed. Results show little likelihood of destruction due to hypersonic phonons and high-frequency breakdown; the primary destruction mechanism is rather the local heating associated with absorption of a portion of the laser energy by crystal structure defects. The dynamics of the destruction process and causes of optical fatigue in alkali halide crys-

Titanium

USSR

UDC 669.71'295.053.4.094(088.8)

MAZALETSKIY, G. D., KATS, M. SH., ZHURAVLEV, V. M., RYABIN, V. A., BAYTAKOVA, R. S., GOLODOV, S. M.

"Procedure for Processing Slag from Aluminothermal Production of Ferrotitanium"

Translation: A procedure is proposed for obtaining Ti concentrate and Al_2O_3 from slag obtained during aluminothermal production of Fe-Ti. The procedure includes sintering of the crushed slag with soda at $1,130-1,150°$. The cake is processed in a sodium solution which converts the oxides to solution from which $Al(OH)_3$ is precipitated, and the Ti oxides remain in the slag.

1/1

TITLE--PHASE COMPOSITION OF CARBONIFEROUS FERROCHROMIUM SLAGS DURING
  OPERATIONS USING MAGNESIAN CHROMIUM ORES -U-
AUTHOR-(05)-KATS, M.SH., ZHURAVLEV, V.M., AGANICHEV, P.V., MELNICHENKO,
  N.V., UMAROV, K.U.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 74-9

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, CHEMISTRY

TOPIC TAGS--FERROCHROMIUM, METAL ORE, ELECTRIC CONDUCTIVIEY, SPINEL,
  MAGNESIUM COMPOUND, CHROMIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0157   STEP NO--UR/0370/70/000/001/0074/0079

CIRC ACCESSION NO--AP0054953
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0054953
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHASE COMPN. OF FERROCHROMIUM
SLAGS WAS DETD. BY CHEM. AND MINERALOGICAL ANAL. THE CALCN. WAS BASED
ON THE FACT THAT MGO DOES NOT TAKE PART IN THE CR SPINEL COMPLEX AND
FORMS A PART OF THE ORTHOSILICATES. THE OXIDES OF THE R SUB2 O SUB3
TYPE DO NOT DISSOLVE IN ORTHOSILICATES, AND THEY ARE DISTRIBUTED BETWEEN
THE CR SPINEL AND THE GLASS. THE HIGH CONTENT OF PICROCHROMITE IN THE
CR ORE AND THE EXCHANGE OF AL SUB2 O SUB3 AND CHROMIC OXIDE IN THE
SPINEL PHASE OF CARBONIFEROUS FERROCHROMIUMS NEG. AFFECT THE REDN. THE
ELEC. COND. IS IMPROVED BY AN INCREASED VALUE OF THE RATIO MGO:AL SUB2 O
SUB3.

UNCLASSIFIED

TITLE--THEORY OF THE ACCELERATION OF CHARGED PARTICLES IN THE PLASMA OF
   OUTER SPACE -U-
AUTHOR-(02)-KATS, M.YE., YUKHIMUK, A.K.

COUNTRY OF INFO--USSR

SOURCE--GEOMAGNETIZM I AERONOMIIA, VOL. 10, NO. 2, 1970, P. 328-331

DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, PHYSICS

TOPIC TAGS--CHARGED PARTICLE, ACCELERATION, PLASMA INSTABILITY,
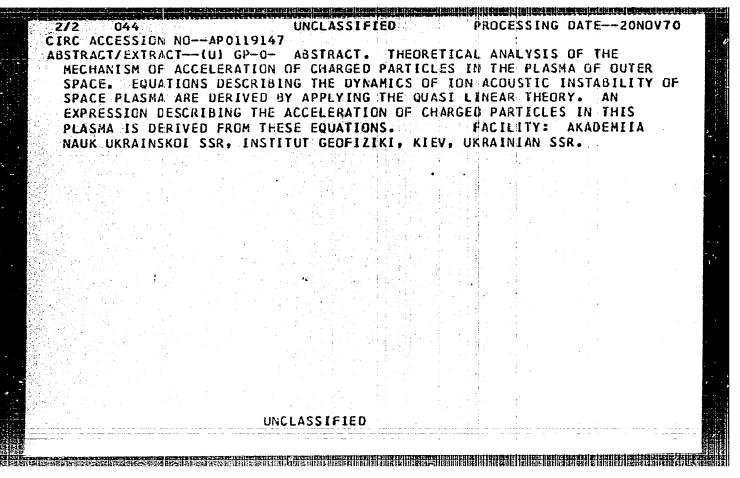   ATMOSPHERIC PHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0151   STEP NO--UR/0203/70/010/002/0328/0331

CIRC ACCESSION NO--AP0119147
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0119147
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL ANALYSIS OF THE
  MECHANISM OF ACCELERATION OF CHARGED PARTICLES IN THE PLASMA OF OUTER
  SPACE. EQUATIONS DESCRIBING THE DYNAMICS OF ION ACOUSTIC INSTABILITY OF
  SPACE PLASMA ARE DERIVED BY APPLYING THE QUASI LINEAR THEORY. AN
  EXPRESSION DESCRIBING THE ACCELERATION OF CHARGED PARTICLES IN THIS
  PLASMA IS DERIVED FROM THESE EQUATIONS.   FACILITY: AKADEMIIA
  NAUK UKRAINSKOI SSR, INSTITUT GEOFIZIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

USSR

KATS, R. V., MALYUTINA, G. YA. and TOMILOV, B. YE.

"Application of the Method of Stochastic Approximation to the Search of the Maximum of a Regression Function"

Tr. NII Upravl. Vychisl. Mashin [Works of the Scientific Research Institute for Control of Computer Machines], 1971, No 3, pp 145-149 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V209)

Translation: The method of stochastic approximation is used to find the optimal value of temperature, corresponding to the maximum time between failures, for the KVM-1 computer.   YA. Kogan

1/1

USSR   UDC 666.1:539.377

SIL'VESTROVICH, S. I., KAZAKOV, V. D., KATS, R. YA., Moscow
Institute of Chemical Technology Imeni D. I. Mendeleyev

"Features of Chemical Etching of the Surface of an Intensively
Hardened Glass"

Moscow, Neorganicheskiye Materialy, Vol 6, No 5, May 70,
pp 952-956

Abstract: The authors were interested in fine points of the
chemical surface etching of glass with highly developed defects,
such as occur on hardening when microcracks are formed. The
selectivity of chemical surface etching of microlaminated
glasses is determined by two phases of different resistance
toward hydrofluoric acid action and by specific production
conditions when they are subjected to various thermochemical
actions. The glass strength, which is increased after chemical
etching, is connected mainly with the presence of hazardous
microcracks on its surface. When they are absent the strength
is determined by the degree of microlamination and the quality
of surface contour.

1/1

- 24 -

1/2   009   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--FEATURES OF CHEMICAL ETCHING OF THE SURFACE OF AN INTENSIVELY
   HARDENED GLASS -U-
AUTHOR-(04)-SILVESTROVICH, S.I., KAZAKOV, V.O., KATS, R.YA., MENDELEYEV,
   O.I.
COUNTRY OF INFO--USSR

SOURCE--IZV. SSSR. MOSCOW, NEORGANICHESKIYE MATERIALY, VOL 6, NO 5, MAY
   70, PP 952-956
DATE PUBLISHED----MAY70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GLASS PROCESSING, HYDROFLUORIC ACID, GLASS STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1042   STEP NO--UR/0363/70/006/005/0952/0956

CIRC ACCESSION NO--AP0134745
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0134745
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS WERE INTERESTED IN
  FINE POINTS OF THE CHEMICAL SURFACE ETCHING OF GLASS WITH HIGHLY
  DEVELOPED DEFECTS, SUCH AS OCCUR ON HARDENING WHEN MICROCRACKS ARE
  FORMED. THE SELECTIVITY OF CHEMICAL SURFACE ETCHING OF MICROLAMINATED
  GLASSES IS DETERMINED BY TWO PHASES OF DIFFERENT RESISTANCE TOWARD
  HYDROFLUORIC ACID ACTION AND BY SPECIFIC PRODUCTION CONDITIONS WHEN THEY
  ARE SUBJECTED TO VARIOUS THERMOCHEMICAL ACTIONS. THE GLASS STRENGTH,
  WHICH IS INCREASED AFTER CHEMICAL ETCHING, IS CONNECTED MAINLY WITH THE
  PRESENCE OF HAZARDOUS MICROCRACKS ON ITS SURFACE. WHEN THEY ARE ABSENT
  THE STRENGTH IS DETERMINED BY THE DEGREE OF MICROLAMINATION AND THE
  QUALITY OF SURFACE CONTOUR.   FACILITY: MOSCOW INSTITUTE OF
  CHEMICAL TECHNOLOGY IMENI.

UNCLASSIFIED

TITLE--EXPERIMENTAL AND THEORETICAL STUDY OF ABSOLUTE INTENSITIES AND
DEPOLARIZATIONS IN THE RAMAN SPECTRAL LINES OF POLYATOMIC MOLECULES. IX.
AUTHOR-(03)-KATS, S.M., VAKHLYAYEVA, V.I., SVERDLOV, L.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(4), 56-61

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--RAMAN SPECTRUM, DEUTERIUM COMPOUND, BROMINATED ORGANIC
COMPOUND, CALCULATION, ANISOTROPY, CHEMICAL LABORATORY
EQUIPMENT/(U)DFS12 INSTRUMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0842   STEP NO--UR/0139/70/013/004/0056/0061

CIRC ACCESSION NO--AT0137870
                              UNCLASSIFIED

CIRC ACCESSION NO--AT0137870
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABS. INTENSITIES OF THE RAMAN
    SPECTRA LINES OF MECOBR (I) AND CD SUB3 COBR WERE MEASURED AND
    THEORETICALLY CALCD. AND SYSTEM OF ELECTROOPTICAL PARAMETERS CONCERNING
    C:O, C,C, AND C,H BONDS CALCD. THE SPECTRA WERE RECORDED WITH DFS,12
    INSTRUMENT WITH DIFFRACTION LATTICE OF 600 LINES-MM. AT 300DEGREESK.
    THE MATH. METHOD OF CALCN. AND RESULTING ELECTROOPTICAL PARAMETERS ARE
    GIVEN. THE COMPARISON OF CALCD. AND EXPTL. DATA FOR ABS. INTENSITIES
    AND DEPOLARIZATION DEGREE SHOWED GOOD COINCIDENCE. THE DATA SHOWED THAT
    ANISOTROPY OF C"O BOND OF I IS LOWER THAN THE SAME IN MECOCL (II), AND
    THAT IN THE SERIES ACH, II AND I, THE INCREASE OF TRACE TENSOR OF DERIV
    POLARITY OF C,C BOND (2.97, 3.9, AND 4.7 ANGSTROM, RESP.) WAS OBSD.
    FACILITY: SARATOV. POLITEKH. INST., SARATOV, USSR.

UNCLASSIFIED

Acc. Nr: AP0040339   K   Ref. Code: UR 0481

PRIMARY SOURCE: Eksperimental'naya Khirurgiya i Anesteziologiya,
1970, Nr / , pp 87-88

CLINICAL USE OF ANAESTHETIC TRIMECAINE

Kats, V. I.

Solutions of trimecain of different concentration were used in 721 operations both for local and regional anaesthesia. The time for the effect to set in and the duration of anaesthesia were studied. General and local effect of trimecaine on the body are described.

REEL/FRAME
19741774

UNCLASSIFIED

PROCESSING DATE--23OCT70

1/2   013
TITLE--QUASI TWO DIMENSIONAL NATURE OF THE SUPERCONDUCTIVITY OF NBSE SUB2
-U-
AUTHOR--KATS, YE.I.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 4, PP 1471-1474
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SUPER CONDUCTIVITY, SELENIDE, NIOBIUM COMPOUND, STOICHIOMETRIC
COMPOSITION, FREE PATH, CRYSTAL ORIENTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1499   STEP NO--UR/0056/70/058/004/1471/1474

CIRC ACCESSION NO--AP0106255
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0106255
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXPERIMENTAL DATA (PRIME2) ARE
COMPARED WITH THE THEORY OF LAMELLAR STRUCTURES (PRIME1).   FOR
STOICHIOMETRIC SAMPLES THE AGREEMENT IS GOOD. ON DEVIATION FROM
STOICHIOMETRY A DETAILED COMPARISON IS DIFFICULT BECAUSE OF ABSENCE OF
DATA ON THE ANGULAR DEPENDENCE OF THE MEAN FREE PATH AND ON VARIATION OF
THE CRYSTAL STRUCTURE.   FACILITY: INST. TEORETICHESKOY FIZIKI,
AN SSSR IM. L. D. LANDAU.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--METHODS OF PURIFYING ACIDIC WASTE WATERS AND THE CORROSION OF
  METALS DURING RECYCLING -U-
AUTHOR-(03)-KATS, YU.A., SOKOLOVA, L.P., BAZHANOVA, S.N.

COUNTRY OF INFO--USSR

SOURCE--TR., GOS. NAUCH.-ISSLED. PROEKT. INST. SPLAVOV OBRAB. TSVET. METAL
  1970, NO. 31, 40-3
DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ION EXCHANGE RESIN, COPPER, COPPER ALLOY, ZINC, CORROSION
  RATE, WATER PURIFICATION, INDUSTRIAL WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0585   STEP NO--UR/0000/70/000/031/0040/0043

CIRC ACCESSION NO--AT0134350
                        UNCLASSIFIED

CIRC ACCESSION NO--AT0134350

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. ACIDIC WASTE WATERS FROM METAL
PICKLING CAN BE PURIFIED BY USING RESIN ION EXCHANGERS. THE OPTIMUM
RATE OF WATER FLOW THROUGH AN EXCHANGER IS 8.6 M PRIME3-HR. PURIFIED
WATERS HAVE PH 6.5-8.0 AND LESS CORROSIVE POWER, WITH REGARD TO CU AND
ITS ALLOYS, THAN NORMAL TAP WATER (PH 7.0). CATION AND ANION EXCHANGERS
ARE REGENERATED IN 10PERCENT H SUB2 SO SUB4 AND 10PERCENT NAOH SOLNS.,
RESP. AND THE CONCD. REGENERATIVE SOLNS. ARE PROCESSED FOR THE RECOVERY
OF CU, ZN, AND NA SUB2 SO SUB4.

UNCLASSIFIED

USSR

FEDOROVA, A. D., et al., Problemy Gematologii i Perelivaniya Krovi, Vol 16, No 8, 1971, pp 11-18

results of the study indirectly confirm the fact that the preservation of plasma proteins participating in coagulation depends on the intensity of the proteolytic and fibrinolytic processes. It may be supposed that addition of tsalol and $\mathcal{E}$-aminocaproic acid to the preserving solution will permit retention of the hemostatic properties of preserved blood for 2 weeks.

2/2

USSR

UDC 615.387.014.41

FEDOROVA, Z. D., KOTOVSHCHIKOVA, M. A., and KATSADZE, YU. L., Blood Coagulation Laboratory of the Leningrad Scientific Research Institute of Hematology and Blood Transfusion

"A Search for New Methods of Blood Preservation for Improving the Retention of Its Hemostatic Properties"

Moscow, Problemy Gematologii i Perelivaniya Krovi, Vol 16, No 8, 1971, pp 11-18

Abstract: A study was carried out of the effect of tsalol and $\mathcal{E}$-aminocaproic acid on the activity of plasma factors in the coagulation of blood stored for 21 days. Tests demonstrated that the addition of tsalol and $\mathcal{E}$-aminocaproic acid to the blood promoted the retention of the full biological value of erythrocytes for a longer period and increased the coagulation properties of the blood. The higher level of antiplasmin and blocking of the activation of plasminogen apparently inhibits the proteolytic and fibrinolytic processes, thus slowing down the decrease of the activity of blood coagulation factors. Particularly important is the fact that up to the 14th day in storage the activity of proacceletin in blood with tsalol and $\mathcal{E}$-aminocaproic acid was approximately 50%, i.e., definitely higher than in control blood. The

1/2

USSR

KATSALAP, S. F., CHERVOV, V. G.

"Modeling of the 'Novelty Neurons' of the Visual System of the Frog"

Translation: A mathematical model of the "novelty neurons" found in the visual system of the frog is studied. The model suggested allows certain principles of information processing by the visual analyzer of the frog to be judged. A successive series of integral transforms was used in the modeling, considering certain nonlinear dependences.

1/1

USSR

UDC 541.64,547.551/.554

KATSARAVA, R. D., KORSHAK, V. V., RUSANOV, A. L., KOLESNIKOV, G. S., FEDOTOVA,
O. YA., and PARESISHVILI, O. I., Institute of Hetero-organic Compounds of
the USSR Academy of Sciences

"Synthesis and Investigation of Polybenzoylenebenzimidazols Based on the
Dianhydride of bis-(3,4-dicarboxyphenyl)phenylphosphine Oxide and Some
Aromatic Tetraamines"

Abstract: Polybenzoylenebenzimidazols (PBB) were synthesized on the basis of
the dianhydride of bis-(3,4-dicarboxyphenyl)phenylphosphine oxide and some
bis-(o-phenylenediamines). A comparative study was made of the properties
of the PBB and polyimides obtained on the basis of the above-mentioned
dianhydride by solid-phase cyclodehydration of prepolymers. The PBB synthe-
sized by cyclization of polyaminoamide acids in the solid state   are insoluble
in all of the solvents used. The data from studying model reactions
indicate that PBB obtained by solid-phase cyclization of polyaminoamido acids
have a three-dimensional structure. The possible reactions for the formation
of the three-dimensional polymers and a method of obtaining PBB soluble in
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USSR

organic based on the dianhydride of bis(3,4-dicarboxyphenyl)phenylphosphine
oxide are proposed. The infrared and nuclear magnetic resonance spectra of
the synthesized polymers are discussed, and their solubilities in seven
organic solvents are tabulated.

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USSR   UDC 621.317.799:621.382.3

KATSAS, YE. B.

"Measurer Of Noise Factor Of L2-21 Low-Power Transistors"

V sb. Cbmen opytom v radioprom-sti (Exchange Of Practical Experience In Radio Pro-
duction), No 2, Moscow, 1970, pp 49-50 (from RZh--Elektronika i yeye primeneniye,
No 8, August 1970, Abstract 8B418)

Translation: The device assures measurement of the noise factor of a transistor
at specified frequencies of 30 and 60 MHz $\pm$ 0.5 percent in the frequency band
2 $\pm$ 0.5 MHz [sic]. The limits of measurement of the noise factor are from 2 to 18
db. The error of measuring the noise factor is not greater than $\pm$ 1.25 db. The
operational characteristics of the device are presented. The circuit of the device,
which uses the modulation method of measuring the noise factor of a transistor, is
described. 1 ref. I.B.

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