USSR                                                            UDC 632.95

LOZINSKIY, M. O., PROTOPOPOVA, G. V., DZYUBAN, A. D., REYDALOVA, L. I.,
KUKOTA, S. N., PEL'KOS, P. S.

"Pesticidal Properties of α-arylhydrazono-β-oxocarboethoxybutyryl-λ-
triphenyl (or trimethylol)-phosphonium Bromides"

Translation: The synthesis and insecticidal properties of compounds with the
following formula are described: $[R_3PCH_2COC(=NNHC_6H_4R')COOC_2H_5]Br(I)$ (R = Ph,
$CH_2OH$; R' = H, Cl, alkyl). A solution of 0.02 moles of $Ph_3P$ in 10 ml of $C_6H_6$
is added to a solution of 0.02 moles of $BrCH_2COC(COOC_2H_5)$ $(=NNHC_6H_4R')$ in 10-
15 ml of $C_6H_6$, it is mixed at $\sim 20°$ for 10 to 12 hours, the precipitate is
separated, washed with $C_6H_6$ and crystallized from the mixture of $C_6H_6$ and
acetone to obtain I (R', the melting point in °C are presented) R = Ph:
H(Ia), 144; π-Me (Ib), 143; π-OMe (Ic), 146; π-Cl (Id), 167-8; π-COOMe (Ie),
177-8; π-NO2, 135-6; 2-OMe-5-NO2, 146. By a reaction in dimethylformamide,
I (R = $CH_2OH$) is obtained (R' and the melting point in °C are presented):
π-CL, 141-2; 2-OMe-5-NO2, 140. The Ia-e in a concentration of 0.1% have 60
to 100% activity with respect to greenbug (Toxoptera graminum). The I has
low activity with respect to red spider mites.

B.  Mathematical Statistics

USSR

DZYUBDZELYA, V.

"Limiting Distributions of Extremum of Ordered Statistics in a Sequence With Random Length"

Translation:  It is shown that the well known results of N. V. Smirnov on limiting distributions of the extreme terms of a variational series and their regions of attraction remain in force for samples of random volume $N_n$ under condition that $N_n/n \to 1$ with respect to probability.

1/1

,USSR                                                    UDC: 621.375.82

DZYUBENKO, M. I., KOROBOV, A. M., MASLOV, V. V., and NAUMENKO, I. G.

"Investigating the Characteristics of Lasers Using Organic Compounds With Dispersion Resonators"

Translation: The oscillation characteristics of 1-phenyl-4-(p-chlordiphenyl) butadiene-1.3 in a prism dispersion resonator and bis-/1-p-tolyl-6-methyl-quinoline-4/trimethodionecyaninperchlorate in a resonator with a diffraction grating are investigated. The solutions of these substances were excited by the second harmonic and fundamental frequency of a ruby laser in the first and second cases respectively. Smooth tuning of the average oscillation wavelength of the first compound was realized in the 4045-4215 Å range, for the second compound it was realized in the 7320-7620 Å range. Here, the radiation spectrum for each narrowed to 10-20 Å and 1-3 Å respectively. It was discovered that the superluminescence phenomenon arising in lasers using organic solutions with dispersion

1/2

·˙USSR

DZYUBENKO, M. I., et al., V sb. Kvant. elektronika, No 6, 1972, pp 109-119

resonators limits the tuning frequency range and substantially affects the spectral, energy, and spatial angular characteristics of the stimulated emission. Bibliography of 15. Authors' abstract

2/2

- 40 -

USSR

UDC 669.721.5:548.53

OVECHKIN, B. I., GUR'YEV, I. I., DZYUBENKO, N. I., IL'INA, R. F.

"Peculiarities of the Variations in Structure During the Process of Deformation and Recrystallization of Magnesium Alloy Sheets"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 61-64 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I653)

Translation: A study was made of the variation of the structure of MA8 and MA2-1 alloy sheets after warm rolling and annealing. New data were obtained on the peculiarities of recrystallization in these alloys. It was established that in the deformation bands in the surface layers in comparison with the central layers, the temperature range of recrystallization is shifted to lower temperatures. These characteristic features of recrystallization can be used when making sheets in the semipeened state. 3 illustrations and 10-entry bibliography.

1/1

USSR

UDC 669.715'5'721+669.715'5'296]:534-8

DRITS, M. Ye., ROKHLIN, L. L., BOCHVAR, N. R., GUR'YEV, I. I., and DZYURENKO M. I., All-Union Institute of Light Alloys

"Sound Conduction of Al+20% Zn Alloy With Additions of Magnesium and Zirconium as a Function of Conditions of Heat and Pressure Treatment"

Tekhnol. legkikh splavov. Nauch.-tekhn. bvul. VILSa (Technology of Light Alloys. Scientific and Technical Bulletin of All-Union Institute of Light Alloys), 1971, No 4, pp 9-13 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 11727 by I. Yereshenkova)

Translation: The authors studied the influence of homogenization, as well as pressing temperature, annealing, and aging on the ultrasound attenuation coefficient in alloys of Al 20% Zn and 0.1-0.3% Zr or 0.1-0.2% Mg. Optimum conditions of heat and pressure treatment to assure lowest values of the ultrasound attenuation coefficient in the alloys were determined: for Al-Zn-Mg alloy homogenization of ingots at 500°, pressure treatment at 400°, annealing at 350° with subsequent cooling, resulting in no significant decomposition of the solid solution of Al, and natural aging; for Al-Zn-Zr alloy homogenization of ingots at 500° and pressure treatment at 450-500°. Four illustrations. Bibliography with four titles.

1/1

· USSR

UDC 669.715'5'721'3:620.193:620.192.46     -/- 2

VAL'KOV, V. D., SINYAVSKIY, V. S., YELAGIN, V. I., ALESHKINA, Ye. V., DZYUBENKO, M. I., and ROZENFEL'D, I. L.

"Study of the Corrosion Cracking of Al-Zn-Mg-Cu Alloys"

Translation: A study was made of the resistance to corrosion cracking of Al-Zn-Mg-Cu alloy sheet as a function of chemical composition, heat-treatment procedures, and production process. Under low-temperature aging procedures (140°, 16 hr; 100°, 4 hr ÷ 160°, 8 hr) the addition of Cr to a greater extent than Zr increases resistance to corrosion cracking. The employment of a two-stage aging procedure with high temperature in the second stage (100°, 4 hr ÷ 180°, 4-6 hr) makes it possible to obtain high resistance to corrosion cracking for alloys doped with Zr. Additions of Ti and Mn have no favorable effect on resistance to corrosion cracking. It rises with a decline in the degree of recrystallization of sheet. The production of a fibrous recrystallized structure is promoted by additions of Cr and, to a greater degree, Zr,

1/2

USSR

VAL'KOV, V. D., et al, Korroziya i zashchita met. (Metal Corrosion and Pro-
tection -- Collection of Works), Moscow, "Nauka," 1970, pp 75-83 (from RZh-
Metallurgiya, No 12, Dec 70, Abstract No 12 1796 by authors)

as well as by a number of technological factors:  high cooling rates during
casting, manufacture of sheet from extruded strips, rolling after hardening
(up ~50%).  Four illustrations.  One table, Bibliography of 26 titles.

2/2

USSR                          $D$                              UDC 535.89

DZYUBENKO, M. I., KOROBOV, A. M. and NAUMENKO, I. G., Institute of Radiophysics and Electronics of the Academy of Sciences UkrSSR, Khar'kov

"Flashbulb-Excited Organic Dye Laser of Green Light"

Abstract: The use of solutions of organic dyes to produce intense, highly direc-tional coherent radiation was found to involve one basic difficulty associated with the short lifetime of organic molecules in the excited state. To produce generation in the green region of the spectrum, a discharge of a low inductance capacitor through a vacuum discharge into two direct xenon tubes of the type IFP-2000 was applied. The experiments established that by increasing the volt-age from 6 to 24 kv the discharge period decreased from 3.8 to 2.1 μsec and the length of a light pulse increased from 1.15 to 1.4 μsec, while the rise front decreased from 0.7 to 0.4 μsec. Aqueous and alcohol solutions of sodium fluores-cein, 9-aminoacridine, 4-methylumbelliferone, and certain other coumarin deriva-tives were used. Generation was obtained in alcohol and aqueous solutions of fluorescein with concentrations of $1.25 \cdot 10^{-5} - 6.10 \cdot 10^{-4}$ mole/liter and the wave-lengths varied in the range 5420-5810 Å depending on the concentration. No radiation was obtained in the blue region of the spectrum.
1/1

UNCLASSIFIED

TITLE--GREEN LIGHT LASER USING ORGANIC DYES EXICTED BY PULSE TUBES -U-

PROCESSING DATE--04DEC70

AUTHOR-(03)-DZYUBENKO, M.I., KOROBOV, A.M., NAUMENKO, I.G.

COUNTRY OF INFO--USSR

SOURCE--UKRAINS'KII FIZICHNII ZHURNAL, VOL. 15, FEB. 1970, P. 342-344

DATE PUBLISHED----FEB70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER, LASER PUMPING, LASER POWER OUTPUT, XENON, PULSE SHAPER, SODIUM COMPOUND, DYE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/1446

STEP NO--UR/0185/70/015/002/0342/0344

CSRC ACCESSION NO--AP0112442

UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0112442                    PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  DESCRIPTION OF EXPERIMENTS WITH A
GREEN LIGHT LASER USING AQUEOUS OR ALCOHOL SOLUTIONS OF SOIDUM
FLUORESCEIN, 9 AMINOACRIDINE, 4 METHYLUBELLIFERONE AND OTHER COUMARIN
DERIVATIVES AS ACTIVE MEDIA AND TWO XENON PULSE TUBES, A CAPACITOR AND A
VACUUM DISCHARGER FOR PUMPING.  THE SPECTRAL CHARACTERISTICS OF LASER
POWER OBTAINED WITH FLUORESCEIN ARE DESCRIBED.        FACILITY:
AKADEMIIA NAUK UKRAINS'KOI RSR, INSTITUT RADIOFIZIKI I ELEKTRONIKI,
KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED

USSR                                             UDC   681.332.6

PANCHISHIN, V. I., DZYUBENKO, P. S., Institute of Mathematics, Academy of
Sciences of the UkrSSR

"A Stand for Modeling Differential Equations"

USSR Author's Certificate No 321827, filed 28 Sep 70, published 31 Jan 72
(from RZh-Avtomatika, Telemekhanika i Vychislitel'nava Tekhnika, No 9,
Sep 72, Abstract No 9B450 P)

Translation:  A design is presented for a system to improve contact be-
tween contacts and electrically conductive paper and to maintain contact
when studying problems in partial derivatives by using electrically con-
ductive paper.  The paper is pressed against the contacts by evacuating
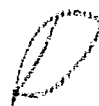the air from a cavity beneath the paper.  One illustration.  I. V.

1/1

UNCLASSIFIED

TITLE--LIGHT INDUCED UPTAKE OF H PRIME POSITIVE BY ISOLATED CHLOROPLASTS
-U-

PROCESSING DATE--23OCT70

AUTHOR-(02)-MOLOTKOVSKIY, YU.G., DZYUBENKO, V.S.

COUNTRY OF INFO--USSR

SOURCE--MOLEKULYARNAYA BIOLOGIYA, 1970, VOL 4, NR 3, PP 383-394

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VEGETABLE CROP, PLANT PHYSIOLOGY, CHLOROPLAST, PROTON
   INTERACTION, PHOTOCHEMISTRY, ELECTRODIALYSIS, LIGHT BIOLOGIC EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0150

STEP NO--UR/0463/70/004/003/0383/0394

CIRC ACCESSION NO--AP0120850

UNCLASSIFIED

CIRC ACCESSION NO--AP0120850          UNCLASSIFIED          PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  CHLOROPLASTS PREPARED FROM VICIA FABA LEAVES EXHIBIT LIGHT INDUCED PROTON UPTAKE IN SALT MEDIA AT PH 6.0. THE STEADY STATE OF THIS PROCESS IS ACHIEVED IN 20 PLUS OR MINUS 2 SEC OF LIGHT EXPOSURE, THE CHLOROPLASTS ACCUMULATING 0.6 MU MOL H PRIME POSITIVE PER 1 MG OF CHLOROPHYLL.  THIS RESULTS IN APPEARANCE OF PH GRADIENT ACROSS THE MEMBRANE IN THE LIMITS OF 3.0 PH UNITS.  THE UPTAKE OF H PRIME POSITIVE BY CHLOROPLASTS IS STIMULATED BY PMS AND SUPPRESSED BY DCMU, SOME UNCOUPLERS (METHYLAMINE, NH SUB4 CL, PHLORIZINE), AG PRIME POSITIVE, PCMB.  THE INHIBITORY EFFECT OF PCMB CAN BE REVERSED BY SUBSEQUENT ADDITION OF DIMERCAPTOPROPANOL.  CHLOROPLASTS LOSE THE ABILITY FOR H PRIME POSITIVE UPTAKE IN THE LIGHT AFTER DEIONIZATION BY ELECTRODIALYSIS, THIS PROPERTY BEING RESTORED BY KCL OR NACL ADDITION. AFTER ADDITION OF THE SAME SALTS IN DARK, DEIONIZED CHLOROPLASTS RAPIDLY EXTRUDE PROTONS, THE LATTER ONES BEING COMPLETELY ABSORBED AFTER SWITCHING ON LIGHT.  IT IS SUPPOSED THAT THE LIGHT INDUCED UPTAKE OF H PRIME POSITIVE BY CHLOROPLASTS IS CONNECTED WITH EXISTENCE OF ANIONIC GROUPS ACCEPTING H PRIME POSITIVE IN THE LIGHT ON THE INNER SIDE OF THYLAKOIDS.          FACILITY:  INSTITUTE OF PLANT PHYSIOLOGY, ACADEMY OF SCIENCES, USSR, MOSCOW.

UNCLASSIFIED

TITLE--TRANSITIONS IN POLYBUTADIENES -U-

AUTHOR-(04)-KULICHIKHIN, V.G., DZYURA, YE.A., MALKIN, A.YA., VINOGRADOV,
    G.V.

CCUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 568-73

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--POLYBUTADIENE, TRANSITION TEMPERATURE, MELTING POINT,
    CATALYTIC POLYMERIZATION, COMPLEX COMPOUND, THERMOMECHANICAL PROPERTY,
    DIELECTRIC PROPERTY, ISOMER, SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1209        STEP NO--UR/0459/70/012/003/0568/0573

CIRC ACCESSION NO--AP0116674
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0116674
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE GLASS TRANSITION TEMP. (T
SUBG) AND M.P. OF STEREOREGULAR 1,4,POLYBUTADIENE RUBBERS (I) (PREPD. BY
POLMN. IN THE PRESENCE OF COMPLEX CATALYSTS CONTG. TI SALTS AND HAVING
VARIABLE AMTS. OF 1,4,CIS AND 1,4,TRANS ISOMERS) WERE STUDIED BY
THERMOMECH., DIELEC., AND MECH. METHODS.  THE M.P. OF I DECLINED WHEN
EITHER CIS  OR TRANS HOMOPOLYMER WAS INTRODUCED INTO THE POLYMER CHAIN.
I FAILED TO CRYSTALLIZE WHEN 30-70PERCENT OF EITHER ISOMER WAS PRESENT.
THE T SUBG STEADILY INCREASED WITH INCREASED CONTENT OF 1,4,TRANS UNITS.
 EXTRAPOLATION OF THE CURVE PLOTTED FOR T SUBG VS. CONTENT OF 1,4,TRANS
UNITS GAVE THE T SUBG OF THE CIS AND TRANS ISOMERS AS NEGATIVE 100 AND
NEGATIVE 75DEGREES, RESP.        FACILITY:  INST. NEFTEKHIM. SIN. IM.
TOPCHIEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 614.3/.4.07:658.387

VIL'CHEK, M. G., SHNEYDERMAN, V. E., and EADKEVICH, V. S., All-Union Institute of the Poultry-Processing Industry, Zelenograd, Moscow Oblast

"Role of Sanitary-Epidemiological Stations in Developing and Introducing Measures Relating to the Scientific Organization of Labor"

Moscow, Gigiyena i Sanitariya, No 10, 1973, pp 93-94

Abstract: Assembly-line technology has reduced the physical element in the work process but greatly increased stress. Mechanization has improved hygienic conditions while adversely affecting the workers' psychology and physiology. The monotony of many jobs and other unfavorable psychological and physiological factors require physiological research to study the level of performance during a shift and work week in order to provide a sound basis for developing programs to minimize the impact of negative factors on labor productivity and health. Sanitary-epidemiological stations are best suited for this work because of their trained staff and equipment.

1/1

USSR

UDC 621.357.12;661.418(088.8)

EBERIL', V. I., YELINA, L. M., SHKRED, V. V., TSEYTLIN, R. I., YURKOV, L. I., GURVANOV, L. S., KORYAGIN, V. I., PANCHENKO, M. B., and SHANTALIN, A. M.

"Process of the Decomposition of Active Chlorine in Solution"

USSR Authors' Certificate No 335211, filed 20 Jun 60, published 15 May 72 (from Referativnyy Zhurnal -- Khimiya, No 8, (II), 1973, Abstract No 8L254P)

Translation: A process is patented for the dissociation of active chlorine in solutions by means of heating, which is distinguished in that, in order to increase the velocity of dissociation, a process occurs in order to maintain a stable pH value for the solution equal to 5.5 to 6.5. It is proposed to carry out the process by bubbling gases which have been pre-heated and humidified to 60-100% (relative to the temperature of the solution). The value of the pH of the solution during the process starys in the region 5.5 to 6.5 by the addition of alkaline or alkali salts to the solution. The temperature of the solution is confined to the region 60-100°C. The process is carried out either as a batch or as a continuous system, for example, for the flow of the pre-heated solution across a step-wise capacity pattern. The solution is made alkaline at the beginning of the process; that is, the most rapid reduction in the pH of the solution occurs during the first stage of the pro-
1/2

- 4 -

USSR

EBERIL', V. I., et al., USSR Authors' Certificate No 335211, filed 20 Jun 60, published 15 May 72

cess when velocity of dissociation of the active chlorine is highest. From 50-100% of the alkali reagents supplied in the solution are introduced during the first 60 minutes of the process.

2/2

1/2    011                    UNCLASSIFIED          PROCESSING DATE--30OCT70
TITLE--EFFECT OF SODIUM CHLORIDE CONCENTRATION ON THE ANODIC POTENTIAL AND
   ON THE WEAR OF GRAPHITE ANODES DURING THE ELECTROCHEMICAL PREPARATION OF
AUTHOR-(02)-EBERIL, V.I., KUPOVICH, F.V.

CCUNTRY OF INFO--USSR    *probably correct* .

SCURCE--ELECTROKHIMIYA 1970, 6(3), 332-5

DATE PUBLISHED------70


SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SODIUM CHLORIDE, ELECTRODE POTENTIAL, ELECTRCSYNTHESIS,
   CHLORATE


CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0657        STEP NO--UR/0364/70/006/003/0332/0335

CIRC ACCESSICN NO--AP0124329
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0124329     UNCLASSIFIED     PROCESSING DATE--30OCT7:

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE RATE OF RISE OF ANODE WEAR WITH DIMINISHING NACL CONCN. INCREASES WITH C.D., I.E. ANODE POTENTIAL. AS C.D. INCREASES FROM 0.084 TO 0.097 A-CM PRIME2, ANODE WEAR SHARPLY INCREASES FOR ALL NACL CONCNS., CONFIRMING THE HAZARD OF OPERATING IMPREGNATED ANODES AT POTENTIALS NEAR TO THE CRIT.  OPTIMUM CONDITIONS FOR IMPREGNEATED ANODES ARE OBTAINED WITH HIGHER NACL CONCNS. IN THE ELECTROLYTE WHEN WORKING WITH HIGH C.DS. OR WITH LOWER C.DS. AND LOWER NACL CONCNS.

UNCLASSIFIED

USSR

BASKAKOV, V. V., ZAKHVATOV, V. N., EBERLING, N. I.

"Algorithm and Program for Multidimensional Statistical Analysis"

Mat. Metody v Geol. [Mathematical Methods in Geology -- Collection of Works], No 2, Alma-Ata, 1971, pp 177-189 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V700, by A. Doroshenko).

Translation: An algorithm and program for multidimensional statistical analysis are described: determination of means and dispersions, comparison of means (in pairs) using the Student criterion, comparison of multidimensional means using the method of multidimensional dispersion analysis. The initial data (files of numbers) are represented in matrix form. The program can solve the problem is there are not over 10 components in the file and 1270 tests in the two files being compared. The program occupies $1663_8$ locations of Ural-2 computer memory. 5 biblio. refs.

1/1

1/2    014              UNCLASSIFIED         PROCESSING DATE--09OCT70
TITLE--THE EFFECT OF AUTOSTRAINS OF E. COLI ON THE LEVEL OF ANTIBODIES TO
  SOME CAUSATIVE AGENTS OF INTESTINAL INFECTIONS -U-
AUTHOR-(02)-EBERT, L.YA., YEVTUSHENKO, A.D.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII 1970, NR 3,
  PP 42-45
DATE PUBLISHED------70


SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTIBODY, ESCHERICHIA COLI, GASTROINTESTINAL DISEASE



CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1465        STEP NO--UR/0016/70/000/003/0042/0045

CIRC ACCESSION NO--AP0109525
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0109525

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE WORK WAS DEVOTED TO THE STUDY
  OF THE CAPACITY OF E. COLI, AS A REPRESENTIVE OF NORMAL INTESTINAL
  MICROFLORA, TO CAUSE IMMUNITY IN THE HOST'S ORGANISM.  EXPERIMENTS WERE
  CARRIED OUT ON RABBITS, TO WHICH AFTER THE DETERMINATION O THE INITIAL
  LEVEL O IMMUNOLOGICAL REACTIONS, A SUSPENSION OF E. COLI AUTOSTRAINS WAS
  INJECTED (250 MILLION MICROBIAL CELLS BY THE OPTIC STANDARD).  IN
  ASSOCIATION WITH BACTERMIA THERE WAS AN INCREASE OF THE NUMBER OF
  LEUKOCYTES IN THE PERIPHERAL BLOOD AND OF LYSOZYME  LEVEL IN THE SERUM:
  VARIATIONS OF THE LATTER DIRECTLY DEPENDED ON BACTEREMIA.  A RISE OF
  AGGLUTININS NOT ONLY TO THE ANTIGENS OF THE E. COLI AUTOSTRAIN, BUT ALSO
  TO S. TYPHI AND SH. SONNEI WAS NOTED IN THE BLOOD.  THIS LED TO THE
  CONCLUSION THAT, AS A REPRESENTATIVE OF NORMAL INTESTINAL MICROFLORA, E.
  COLIA PRODUCED A SIGNIFICANT EFFECT ON FORMATION OF NATURAL RESISTANCE
  NOT ONLY AGAINST OUN MICROFLORA, BUT ALSO AGAINST SOME CAUSATIVE AGENTS
  OF INTESTINAL INFECTIONS.

UNCLASSIFIED

USSR·

EBRALIDZE, Sh. S., Tbilisi

"Inequalities for Probabilities of Large Deviations in the Multidimensional Case"

Abstract: Let $X_1$, $X_2$, ..., $X_n$ be independent random vectors with values from the m-dimensional Euclidean space $R^m$ which satisfy the conditions

$$EX_i = 0, \; E|X_i|^2 = \Lambda_i, \; E|X_i|^3 = M_i. \qquad (1)$$

where X denotes the length of the vector $X \in R^m$. Let $S_n$ denote the sum $X_1 + \ldots + X_n$, and let $Y_n$ denote the normal sum $Y_n = S_n / \sqrt{n}, \Lambda = \frac{1}{n}\sum_{i=1}^{n}\Lambda_i$ and $M = \frac{1}{n}\sum_{i=1}^{n} M_i$. The author proves the following theorem: Absolute constants $K_1$ and $K_2$ exist, such that when

1/2

USSR

conditions (1) are satisfied,

$$P(|Y_n| \geqslant x) \leqslant 4 \exp\left(-K_1 \frac{x^2}{\Lambda}\right) + K_2 \frac{M}{\sqrt{n} \, x^3} \tag{2}$$

(for instance, it may be assumed that $K_1 = \frac{1}{24}$ and $K_2 = 30\,000$).

2/2

- 31 -

USSR

CHAVCHANIDZE, Corresponding Member of the Georgian Academy of Sciences V. V.;
MEGRELISHVILI, R. Sh.; EBRALIDZE, T. D.   (Georgian Academy of Sciences, Insti-
tute of Cybernetics)

"Holography through a Diaphragm with a Small Opening"

Abstract: The authors present a theoretical analysis of the object images
produced in a pinhole camera and reconstructed from part of hologram whose
dimensions are commensurable with the dimensions of the pinhole camera.  The
identify of these images is shown mathematically, and the possibility of
reconstructing the object projective image from a small part of the hologram
in white light was found.  On this basis the question of object holography in
non-coherent light by means of a pinhole camera was studied.
    The article includes six equations.  There are three references.

1/1

- 81 -

Acc. Nr.: __AP0051511__                                Ref. Code: _URO114_

USSR                        UDC 621.224.001.5:620.193.16

YU.A. GRIVNIN, YU.U. EDEL'

"Cavitational Erosion in Hydraulic Turbines"

Leningrad, Energomashinostroyeniye (Power Machinery Construction), 1970, No 1, pp 5-8

Translation:

        The status of scientific research studies in the field of cavitational erosion is discussed, basic results of some studies are presented, and they are evaluated from the viewpoint of applicability to hydraulic turbines. Results are presented of studies made at the Central Boiler and Turbine Institute of cavitational erosion on profiles of the hydraulic turbine type and it is shown that the erosion process is significantly different for different forms of cavitation. Five figures, 32 references.

1/1                          Reel/Frame

Acoustics

USSR

ALEKSANDROV, L. N.: BOROV, M. I.: EDELMAN, F. L., Institute of Semi-
conductor Physics, Siberian Department, Academy of Sciences, USSR,
Novosibirsk

"Some Mechanisms of Sound Wave Attenuation in Plastically Deformed
Silicon"

Abstract:   In an earlier study the authors had investigated the
effect of heat treatment and alloying with copper upon the internal
friction in silicon containing a relatively small amount of disloca-
tions.   In the present work a study is made of the internal friction
in plastically deformed silicon, the effect of alloying with copper
upon the internal friction in the silicon, and the dependence of
attenuation on amplitude.   It is found that the experimental data

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USSR

ALEKSANDROV, L. N., et al, Fizika Tverdogo Tela, Vol 12, No 6, June
1970, pp 1859-1860

concerning the relationship of the attenuation of sound waves in
plastically deformed silicon are in qualitative agreement with the
Keller-Granato-Lücke theory in the area of the dependence of the
decrement on amplitude.

2/2

UDC 547.558.1+543.422

USSR

EDEL'MAH, T. G., STEPANOV, B. I., Moscow Institute of Chemical Technology imeni D. I. Mendeleyev

"Synthesis and Properties of Arylimines of p-Nitrophenyldiphenylphosphine"

Abstract: Arylimines of p-nitrophenyldiphenylphosphine (I) were synthesized with general formula $p-O_2NC_6H_4(C_6H_5)_2P=NC_6H_4X-p'$ where X = $N(CH_3)_2$ (II), H (III), and $NO_2$ (IV). The initial phosphine (I) was synthesized by a previously described method (G. P. Schiemenz, Chem. Eer., Vol 99, p 514, 1966), and phosphazo compounds (II-IV) were obtained by reacting (I) with aromatic azides. Analysis of the electron absorption spectra of the resultant compounds showed that adding a nitro group to the phenyl ring bound to the phosphorus atom increases the conductivity of the P-N bond. New absorption bands then show up caused by electron transitions in the system comprising the entire molecule of the phosphazo compound.

1/1

USSR

EDEL'MAN, T. G., and STEPANOV, B. I., Moscow Chemical-Technological Institute Imeni D. I. Mendeleyev

"Synthesis and Electronic Adsorption Spectra of Phosphazo Compounds"

Abstract: UV spectra of phosphazoazobenzenes have been studied. Absorption bands were identified in these spectra corresponding to the electronic transitions in the molecules of starting azobenzenes and p-nitrophenyldi-phenylphosphine. No bands have been found corresponding to a single con-jugated system in the phosphazoazobenzene. It has been shown that the introduction of a nitro group into p-position in respect to the phosphorus atom of the phosphazoazobenzenes has no effect to speak of on the trans-mission of the P=N bond. It is possible that the phenylazo groups in the phosphazoazobenzenes obtained act as electron acceptors interferring with the formation of a single conjugation system.

1/1

USSR                                    UDC:  519.2:658.562.012.7

INAMOV, I., EDEL'NANT, M. I.

"Concerning an Application of the Method of Unbiased Estimates to Statistical Acceptance Monitoring"

Nauch. zap. Tashkent. in-t nar. kh-va (Scientific Notes of the Tashkent Institute of National Economy), 1970, vyp. 34, pp 14-18 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V273)

Translation: A monitoring plan with parameters n, c is considered. Let $x$ be the number of defective items in a sample. In the case $x > c$ a batch is rejected, and in the case $x \leq c$ it is subjected to continuous monitoring. Let X be the number of defective items in a batch, $P_l = P$ $(X = l)$. For a given X, the number of defective items in a sample $x$ is assumed to be hypergeometrically distributed. Let $X^{II}$ be the number of defective items detected during continuous monitoring of $N - n$ articles (if the batch is rejected, $X^{II}$ is taken as zero). Let t batches be checked with identical distribution of the number of defective items in a batch X. Unbiased estimates based on the statistics of $X^{II}$ are given

1/2

USSR

INAMOV, I., EDEL'NANT, M. I., Nauch. zap. Tashkent. in-t nar. kh-va, 1970, vyp. 34, pp 14-18

for the probabilities $P_l$ for these t batches, as well as an unbiased estimate of the variance of these estimates.  A. Zaslavskiy.

2/2                                    - 9 -

USSR

*Soviet*

BYKOV, V. D., KISIN, I. M., and EDELSHTEYN, K. K.

"Conference on the Problem of Clean Water"

Moscow, Vestnik Moskovskogo Universiteta, Seriya 5, Geografiya, No 2, Mar/
Apr 71, pp 117-118

Translation:  On the 25th and 26th of December 1970, the All-Union Conference on
"Scientific Fundamentals for the Control of Processes Affecting the Quality of
Water and Water Bodies which are Main Sources of Water Supply" took place at
the Department of Geography of MGU [Moscow State University].  The problem of
providing the population and the national economy with clean, fresh water
becomes at present one of the most urgent problems.  Irregularity in the dis-
tribution of water resources over the country's territory and, at the same
time, the population increase in industrial centers and the sharp increase in
industrial production enhancing pollution of the surface waters with public
and industrial wastes -- all this requires control of the water resources of
the country in a quantitative and qualitative way.  The most widespread
method of sewage water control is the creation of artificial bodies of water --
water reservoirs.  The processes taking place in the reservoirs essentially

1/5

USSR

BYKOV, V. D., et al., Vestnik Moskovskogo Universiteta, Seriya 5, Geografiya,
No 2, Mar/Apr 71, pp 117-118

modify the physicochemical and biological properties of the waters accumulating
in the water body.
     Thirty-five reports and communications were presented at the conference,
in which more than 100 specialists from 40 organizations of various cities of
the country participated.  There was an extremely necessary and useful exchange
of information on reservoir research which made it possible to present the
main trends of scientific work carried out by scientific research institutes,
by planning and industrial institutions, and by institutions of higher learn-
ing of the country.  All reports were received with great interest and actively
discussed by the participants of the conference.
     Most speakers at the conference were researchers in the field of water
bodies: hydrolimnologists, hydrobiologists, hydrochemists.  It is particularly
worth noting that in most reports predominated the idea that it is impossible
to solve the problem of clean water in water bodies without analysis of the
processes taking place in their drainage collecting systems, without protection
of the water bodies themselves and, still more importantly, without protection
of the basins.  Particular attention was directed to this problem in the intro-
ductory lecture "Scientific Fundamentals of Quality Control of Surface-Waters
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USSR

BYKOV, V. D., et al., Vestnik Moskovskogo Universiteta, Seriya 5, Geografiya, No 2, Mar/Apr 71, pp 117-118

Destined for Water Supply", which had been prepared by leading scientists.  In this same lecture it was reported that the existing standards of physico-chemical criteria for the evaluation of the water quality are inadequate for guaranteeing the population with high-grade drinking water; the problem of setting up biological criteria was presented, inasmuch as the existing standards of sampling are clearly inadequate.  In analyzing the current methods used for calculating water quality, the authors of the report were forced to state that in spite of the fact that methods are available for determining the concentra-tion of pollution in local waters at the spot of sewer discharge, no methods are available for calculating the water quality in a water body as a whole. Consequently, the processes in the interior of the water body of a lake or of a water reservoir have as yet not been sufficiently studied.

The topic of interplay of drainage system and water body served as basis for still another survey report read by Professor L. L. Rossolimo (IG AN SSSR [Institute of Geography, USSR Academy of Sciences]) in which emphasis was placed on the ever increasing eutrophication of lakes and water reservoirs as a result of the annually increasing volume of mineral and organic wastes with the fertilized, agricultural land areas of their drainage systems.
3/5

USSR

In a report presented by the Krasnovidov Laboratory of Water Reservoir Research
of the Department of Geography, Moscow State University, the importance of the
internal processes in water bodies for the transformation of fluvial drainage
was discussed.  The results of the research led to the conclusion that in
spite of the sharp drop in the discharge of suspended debris, dissolved and
suspended organic matter, emerging after construction of water reservoirs, the
water quality in the under waters was for most of the year impaired.  Survey
reports by Professor Kh. A. Velner (Tallin Polytechnic Institute) and by the
senior scientific associate of the State Hydrology Institute V. A. Znamenskii
were devoted to a theoretical method of calculating water quality in bodies of
water and laboratory-scale modelling of the latter.  Problems of calculating
the flow of suspended debris, the importance of upper water vegetation in the
self-cleansing processes of water bodies, the behavior of organic and biogenic
matter in waters, and the development of novel approaches to the evaluation of
water quality were discussed in a number of communications.
    A resolution was taken at the Conference, which contained important recom-
mendations for all organizations and specialists working on general and partial

4/5

USSR

BYKOV, V. D., et al., Vestnik Moskovskogo Universiteta, Seriya 5, Ceografiya,
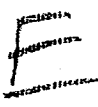No 2, Mar/Apr 71, pp 117-118

problems of guaranteeing a supply of clean fresh water for the population and
the national economy.

- END -

CSO: 1841

5/5

TITLE--THEORY OF HYPERBOLIC DIAMAGNETIC EXCITONS -U-

AUTHOR-(02)-RASHBA, E.I., EDELSHTEYN, V.M.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
   NR 4, PP 1428-1442
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EXCITON, DIAMAGNETISM, CRITICAL POINT, ELECTRON MOBILITY, HOLE
   MOBILITY, STRONG MAGNETIC FIELD, COULOMB INTERACTION, HYPERBOLIC
   FUNCTION, MAGNETIC FIELD CONFIGURATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1710          STEP NO--UR/0056/70/058/004/1428/1442

CIRC ACCESSION NO--AP0106448
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0106448
ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT.  A THEORY OF DIAMAGENTIC HYPERBOLIC
  EXCITONS IS DEVELOPED IN WHICH ISOENERGETIC ELECTRON AND HOLE SURFACES
  NEAR THE CRITICAL POINTS ARE ROTATION HYPERBOLOIDS OR ELLIPSOIDS WITH
  ARBITRARY AXES RATIOS.  THE COMPLETE REGION OF ORIENTATIONS OF THE
  STRONG MAGNETIC FIELD WITHIN A CONE IS INVESTIGATED; IN THIS REGION THE
  CLASSICAL ELECTRON AND HOLE MAGNETIC MOTION TRAJECTORIES ARE LOCATED IN
  THE IMMEDIATE VICINITY OF THE CRITICAL POINT.  THE CONDITION FOR COULOMB
  BINDING OF THE PARTICLES IS DERIVED.  IT IS SHOWN THAT DEPENDING ON THE
  DISPERSION LAW PARAMETERS COULOMB BINDING MAY OCCUR EITHER THROUGHOUT
  THE CONE OR IN A PART OF IT (ADJACENT TO THE CONE AXIS OR CONE SURFACE)
  OR IN ENTIRELY BE ABSENT.  THE MAIN SPECTRUM PARAMETERS IN THE PRESENCE
  AND IN THE ABSENCE OF COULOMB BINDING ARE FOUND.  THE WIDTH OF THE LEVEL
  CORRESPONDING TO THE EXCITON GROUND STATE IS CALCULATED AND IT IS SHOWN
  THAT IT IS SMALL AND DECREASES WITH INCREASE OF THE MAGNETIC FIELD
  STRENGTH.  DIAMAGNETIC HYPERBOLIC EXCITONS SHOULD THEREFORE BY
  ACCESSIBLE TO EXPERIMENTAL DETECTION.  ELECTRO ABSORPTION AND SPATIAL
  DISPERSION EFFECTS ARE ALSO EVALUATED.            FACILITY:  INST.
  TEORETICHESKOY FIZIKI IM. L. D. LANDAU, AN SSSR.

UNCLASSIFIED

USSR

EDISHERASHVILI, N.A.

"Experimental Study of Model of Multistorey Steel Frameworks under Static and Dynamic Loads"

Materialy Vses. Soveshts. Pröektir. i Str-vo Seysmostoyk. Zdaniy i Soorush. [Materials of All Union Conference on Planning and Construction of Earthquake-Resistant Buildings and Structures], Tvilish-Frunze Metsniereva Press, 1971, pp 61-68.  (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1972, Abstract No 1V1018 by Z. L. Gil'gur).

Translation:  Results are presented from an experimental study of multistorey steel frameworks under static and dynamic loads.  The studies were performed using steel models of 9-storey steel frameworks of frame and frame-coupler types in one-sixth scale.  The models consist of 3-dimensional 2-span frames consisting of three transverse frames connected by longitudinal cross beams. The columns are of box section consisting of 2 angle pieces.  Connection of cross beams to columns is rigid, welded.  The frame-coupler system is made of reinforced concrete slabs 4 cm thick, reinforced with a network of wire 3 mm in diameter.
    The purpose of the study was to determine the influence of a large number of values of various parameters for determination of the optimal static and dynamic characteristics of the system.  The models were tested until destroyed.
1/2                               - 50 -

USSR                                                        UDC 539.3

probably EYESORG

EESORG, KH. KH., PROMET, P. KH., VIRKUS, KH. M., KULMET, R. YU.

"Stress Concentration Around a Rectangular Inclusion in a Homogeneous Elastic Medium Under a Plane Stress State"

Translation:  The stress distribution in a plate with a rectangular inclusion of another material under uniaxial compression was investigated for its application to the tensometric study of concrete structures with the aid of measuring plates applied to the material by the photoelasticity method.  The results are compared with data obtained by the authors by an approximate analytical method.  The coincidence was satisfactory.  N. P. Fleyshman.

1/1

EFANOV, V.A.

So. JPRS 59985
7 Sep 73    (8)

UDC 621.396.628:523.164

PARAMETERS OF THE RT-22 KRAO RADIOTELESCOPE ANTENNA AT
WAVELENGTHS OF 3 AND 1.35 CENTIMETERS

[Article by L. D. Bakhrakh, M.I. Grigor'yeva, V.A. Efanov, L.R.
Kogan, V.I. Kostenko, L.I. Matveyenko, I.G. Moiseyev, and Yu. C.
Monin, of the Institute of Space Research of the USSR Academy of
Sciences; Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, --
Radiofizika, Russian, Vol 16, No 5, 1973, submitted 3 July 1972,
pp 675-679]

A two-reflector antenna system in the 3-centimeter wave
band was developed in 1968 in order to improve the KRAO [Crime-
an Astrophysical Observatory] RT-22 radiotelescope[1] and, to
provide maximum sensitivity, it was tuned and its basic elec-
trical parameters at 3.34 centimeters were determined. In de-
veloping the illuminating system of the KRAO's RT-22, the oper-
ating experience of the FIAN[2] [Physics Institute imeni P. N.
Lebedev of the USSR Academy of Sciences] RT-22 was considered
and certain changes in its system parameters were introduced;
the diameter of the secondary reflector D2 = 1,500 millimeters,
and the system's secondary focus was chosen as 200 millimeters,
from the vertex of the paraboloid with a view to insuring mini-
mal losses in the millimeter waveband. These circumstances
limited the longitudinal dimension of the irradiator in the 3-
centimeter wave band. The two-reflector irradiator has a com-
paratively small longitudinal dimension, which is why it was
chosen. Its scheme was tried out on an analogical antenna,
the FIAN RT-22[2], and gave satisfactory results.

The radiation patterns of the two-reflector irradiator
in the E and H planes and the cross-polarization characteris-
tic at the 3.34 centimeter wavelength are shown in figure 1.
The irradiator's dispersion coefficient, computed per the
radiation pattern, does not exceed $\beta = 0.2$.

Preliminary tuning of the antenna was done on the sun,
final tuning on radio sources of small angular size. A radiom-
eter with a parametric amplifier was used in tuning at the

- 23 -

## Organophosphorous Compounds

EFENDIYEV, A. A., ABBASOVA, B. G., BABAZADE, S. N., ORUDZHEV, D. D., KHUDIYEV, A. K.

"Synthesis and Sorption Properties of Phosphorus Containing Selective Poly-
electrolytes"

Abstract:  A description is given of the synthesis of complex-forming films
based on copolymers of diethyl ether of vinylphosphonic acids and acrilic acid
with different ratios of the components.  A study is made of their sorption
properties as a function of the copolymer composition.  Tabulated data are
presented which show that it is more difficult for the diethyl ether of vinyl-
phosphonic acid to enter into the copolymerization reaction than acrilic acid --
for all monomer ratios in the initial mixture, copolymers are obtained which
are impoverished with respect to the ether.
        A study was made of the sorption properties of cross-linked films with
respect to K, Na, Ca, Mg, Ba, Zn and Cu ions in solutions with a concentration
equal to 0.1 normal by the static method.  Films based on the copolymers of
all compositions (including the homopolymer of acrilic acid) fail in practice
to extract ions of alkali and alkali-earth metals from water solutions of
their chloride and sulphate salts.  The films extract K and Na ions only in
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USSR                                                            UDC 678.6

an alkaline medium.  The films are capable of extracting copper ions from
neutral and even weakly acid solutions which indicates the occurrence of
complex formation.

2/2

- 8 -

USSR                                        UDC 661.718.1+661.183.123

EFENDIYEV, A. A., ABBASOVA, B. G., OSMANOV, U. O., and KERIMOVA, S. A.,
Institute of Theoretical Problems of Chemical Technology, Academy of Sciences
Azerbaydzhan SSR

"Phosphorus-Containing Complex-Forming Polymers on the Basis of Vinylphosphonic
Acid Diisobutyl Ester and Acrylic Acid"

Abstract: Vinylphosphonics acid diisobutyl ester (I) was copolymerized with
acrylic acid (II) to form copolymers containing I 50.2, II 49.8, cross-linking
agent 4% (P 6.8%) and I 22.5, II 77.5, cross-linking agent 4% (P 3.0%). Co-
polymerization was carried under the action of UV light in the presence of 1%
cumene hydroperoxide, (cf. V. A. Kargin, A. A. Efendiyev, et al DAN SSSR, Vol 144,
p 1307, 1962). I was prepared by splitting off HCl from beta-chloroethyl-
phosphonics acid diisobutyl ester obtained by reacting iso-BuOH with a mixture
of $AlCl_3$, $PCl_3$ and dichloroethane. Comparison of the two copolymers showed that
with an increasing content of II the moisture content increased, the tensile
strength and relative elongation decreased, and the rate of swelling increased.
The capacity of films of the copolymers to adsorb K, Na, Ca, Mg, Ba, Ln/Mn ?/,
Cu, Co, and Ni ions was determined. The films practically did not adsorb
1/2

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EFENDIYEV, A. A., et al., Azerbaydzhanskiy Khimicheskiy Zhurnal, No 2, 1971,
pp 159-163

the ions of alkali and alkaline earth metals (adsorption capacity $< 0.1$
mg/equiv/g), while adsorbing effectively and with a selectivity close to 100%
the ions of Cu, Co, and Ni from aqueous solutions containing ions of alkali
and alkaline earth metals. Adsorption of Cu, Co, and Ni ions took place with
the formation of complexes which were decomposed under the action of 1N HCl.
Adsorption of $Co^{++}$ and $Ni^{++}$ was carried out at pH 6.8, that of $Cu^{++}$ at pH
5.2, using solutions of acetates of the metals being adsorbed. A study of the
kinetics of adsorption of $Cu^{++}$ at pH 5.2 indicated that adsorption proceeeded
slowly - a state of equilbbrium was reached only in several days. On the other
hand, desorption with 1N HCl took place rapidly, being completed in 30 min.
As shown by an electron-microscopic study, the difference in the rate of de-
sorption vs. that of adsorption was due to a change in the structure of the
copolymers with a changing pH; at pH $\leq 1.1$ the copolymer macromolecules had
a fibrillar structure, whereas at pH $\geq 3$ the fibrils rolled up, forming
globules.

2/2

USSR

EFENDIYEV, R. S. (Institute of Mathematics and Mechanics)

"Asymptotic Behavior of the Solution, with Respect to a Small Para-
meter, of a Boundary Value Problem for a 2m-Order Elliptical
Equation in a Thin Region" (presented by Academician Z. I. Khalilov,
Azerbaydzhan Academy of Sciences)

Baku, Doklady Akademiya Nauk Azerbaydzhanskoy SSR, June 1970,
pp 9-13

Abstract: The article concerns a problem in mechanics. A cylinder
Q with height h is given in n-dimensional space. It is assumed that
the height of the cylinder is measured along the $X_n$-axis. It is
assumed further that the height h is quite small compared with the
other dimensions of the cylinder.

With regard to Q the author considers the problem

$$D_n^{2m}u + \sum_{|\alpha|=2m} a_\alpha \dot{D}^\alpha u + \sum_{|\beta|<2m-1} b_\beta D^\beta u = 0, \qquad (1)$$

1/3

- 2 -

USSR

EFENDIYEV, R. S. Doklady Akademiya Nauk Azerbaydzhanskoy SSA, June
1970, pp 9-13

with the boundary conditions

$$D_n^m u \big|_{x_n = h} = P, \qquad D_n^m u \big|_{x_n = 0} = 0, \qquad (2)$$

$$D_n^k u \big|_{x_n = h} = 0, \qquad D_n^k u \big|_{x_n = 0} = 0, \qquad (3)$$

$$\frac{\partial^i u}{\partial \nu^i}\Big|_\Gamma = 0, \qquad \begin{aligned} k &= m+1, \ldots, 2m-1 \\ i &= 0, 1, \ldots, m-1 \end{aligned} \qquad (4)$$

where (1) is an elliptic equation, F is the surface of the cylinder,
h > 0 is a small parameter, and $P(x_1, \ldots, x_{n-1})$ is a given smooth
function. Here

$$D^\gamma = D_1^{\gamma_1} \cdot D_2^{\gamma_2} \ldots D_{n-1}^{\gamma_{n-1}}, \qquad |\gamma| = \alpha_1 + \alpha_2 + \ldots + \gamma_{n-1},$$

$$D_j = \frac{\partial}{\partial x_j}, \qquad (j = 1, \ldots, n)$$

$$D^\beta = D_1^{\beta_1} \cdot D_2^{\beta_2} \ldots D_n^{\beta_n}, \qquad |\beta| = \beta_1 + \ldots + \beta_n, \quad (x = x_1, \ldots, x_n)\, \beta_n \geq m,$$

2/3

USSR

EFENDIYEV, R. S., <u>Doklady Akademiya Nauk Azerbaydzhanskoy SSR</u>, June
1970, pp 9-13

The author obtains the asymptotic expression

$$u = \sum_{i=-m}^{N_1} h^i W_i + \sum_{j=0}^{N_1} h^i v_j + h^{N+1} z_N.$$

as a solution to the problem (1) which satisfies the boundary
conditions (2), (3), and (4). The functions $W_i$ are determined
by an iteration process; and $v_j$, by a second iteration process.
$z_N$ is the remainder term, which is bounded as a metric of the space
$\overset{\circ}{0}$, $L_2(Q)$.

3/3

- 3 -

1/2     027                    UNCLASSIFIED          PROCESSING DATE--23OCT70
TITLE--EFFECTIVE MASS OF CHARGE CARRIERS IN GLASSY ARSENIC CHALCOGENIDES
   -U-
AUTHOR-(03)-KOLOMIYETS, B.T., MAZETS, T.F., EFENDYEV, SH.M.

*EFENDIYEV Sh. M.*
Consult as EFENDIYEV

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(2), 661-3

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ABSORPTION SPECTRUM, OPTIC SPECTRUM, ABSORPTION EDGE, ARSENIC
   COMPOUND, CHALCOGENIDE GLASS, CARRIER DENSITY, ELECTRIC FIELD, LINE
   SHIFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1975          STEP NO--UR/0181/70/012/002/0661/0663

CIRC ACCESSION NO--AP0105049
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0105049
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MEASUREMENTS WERE CARRIED OUT ON
   THE SHIFT OF THE OPTICAL ABSORPTION EDGE (ELECTROABSORPTION ON A SERIES
   OF COMPDS. OF GLASSY AS CHALCOGENIDES WITH SUBSEQUENT SUBSTITUTITON OF
   HEAVIER CHALCOGEN ELEMENTS. MEASUREMENTS ON AS SUB2 S SUB3, AS SUB2 S
   SUB3 TIMES AS SUB2 SE SUB3, AS SUB2 SE SUB3, 15AS SUB2 SE SUB3 TIMES AS
   SUB2 TE SUB3 WERE CARRIED OUT WITH A MONOCHROMATOR WITH DIFFRACTION
   GRATING, SELECTIVE AMPLIFIER, SYNCHRONOUS DETECTOR, AND ELECTRONIC
   POTENTIOMETER.   PLANE PARALLEL MASSIVE SPECIMENS WERE USED 60-300 MU
   THICK.   ELEC. FIELD INTENSITY WAS 10 PRIME5 V-CM AND TEMP. WAS ROOM
   TEMP.   DEPENDENCE IS GIVEN OF THE SHIFT OF THE OPTICAL ABSORPTION EDGE
   DELTA E SUBG ON THE INTENSITY OF THE ELEC. FIELD.   THESE DEPENDENCES CAN
   BE WELL APPROXIMATED BY THE POWER LAW DELTA E SUBG SIMILAR TO F PRIMEN,
   WHERE N EQUALS 1.8-2.0.   THE NATURE OF THE FIELD DEPENDENCE OF THE
   MAGNITUDE OF THE SHIFT OF THE ABSORPTION EDGE AS WELL AS ITS DEPENDENCE
   ON THE ENERGY OF INCIDENT PHOTONS ARE SATISFACTORILY DESCRIBED BY THE W.
   FRANTZ (1958) THEORY FOR SUBSTANCES WITH EXPONENTIAL EDGE.
   FACILITY:  FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

TITLE--ENERGY SPECTRUM OF VITREOUS ARSENIC SULFIDE -U-

AUTHOR--KOLOMIYETS, B.T., MAZETS, T.F., EFENDTYEV, SH.M., ANDRIYESH, A.M.

COUNTRY OF INFO--USSR

SOURCE--J. NON. CRYST. SOLIDS 1970, 4(1), 45-56

DATE PUBLISHED-------70


SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ABSORPTION SPECTRUM, ARSENIC SULFIDE, VOLT AMPERE
   CHARACTERISTIC, ENERGY SPECTRUM, PHOTOCONDUCTIVITY, SEMICONDUCTOR FILM,
   FORBIDDEN BAND


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0386       STEP NO--NE/0000/70/004/001/0045/0056

CIRC ACCESSION NO--AT0108680
ZZZZZZZZZZZZZ          .            UNCLASSIFIED.

CIRC ACCESSION NO--AT0108680
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  A BRIEF REVIEW OF AN EXPTL. STUDY
OF REFLECTIVITY, ABSORPTION AND PHOTOCOND. SPECTRA, AND CURRENT VOLTAGE
CHARACTERISTICS OF VITREOUS AS SULFIDE IS PRESENTED. THE ABSORPTION
SPECTRA WERE OBTAINED IN THE HIGH ABSORPTION RANGE UP TO K EQUALS 10
PRIME5 CM PRIME NEGATIVE1.  THE VALUE OF THE FORBIDDEN BAND E SUBG OF
VITREOUS AS SUB2 S SUB3 OBTAINED FROM THE OPTICAL DATA IS 2.4 EV.  THE
ABSORPTION EDGE AT ENERGIES E IS LESS THAN E SUBG HAS AN EXPONENTIAL
CHARACTER DUE TO LOCALIZED STATES NEAR THE ALLOWED BAND EDGES.  IN AN
ELEC: FIELD THE EXPONENTIAL ABSORPTION EDGE SHIFTS TO A LOWER ENERGY
RANGE OBEYING FRANZ' THEORY.  FROM A STUDY OF THE PHOTOCOND. SPECTRA AND
CURRENT VOLTAGE CHARACTERISTICS IN THE NONLINEAR RANGE, SOME CONCLUSIONS
CAN BE MADE CONCERNING THE ENERGY DISTRIBUTION OF THE LOCALIZED STATES
IN THE FORBIDDEN BAND OF THE AMORPHOUS AS SULFIDE FILMS.

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USSR

KOLOMIYETS, B. T., MAZETS, T. F., EFENDIEV, Sh. M.

"Effective Mass of Charge Carriers in Vitreous Arsenic Chalcogenides"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 2, 1970, pp 661-663

Abstract: This is an article describing measurements of the electrical absorption on several compounds of the type described in the title. Measurements were made on $As_2S_3$, $As_2S_3 \cdot As_2Se_3$, $As_2Se_3$, and $15As_2Se_3 \cdot As_2Te_3$ using an automatic device based on the IKM-1 monochromator with a diffraction grating of 1200 lines per mm, a selective amplifier, a synchronous detector, and an EPP-09 electronic potentiometer. The authors performed this experiment because of the marked growth of interest in recent years in the behavior of charge carriers in disordered systems. These electrical absorption measurements make it possible to estimate the mass of the charge carriers, an estimate which is difficult to make on the basis of kinetic phenomena. A table of the estimates for the different compounds measured is provided.

1/1

USSR

TAGIZADE, T. A., EFENDIYEV, S. S., and MARDANLY, A. S.,

"Determination of Survival Period of Leptospira in Different Waters Under Conditions of the Azerbaydzhan SSR"

Abstract:  It has been established that sea water possesses therapeutic properties with respect to certain diseases.  Undoubtedly, contamination of sea water by various waste products or waste waters reduces the therapeutic properties of sea water and also creates the hazard of spreading infections.
       In this work the survival period of Leptospira was studied in different waters under conditions of the Azerbaydzhan SSR.  The following conclusions were made.  In the sea waters along the Shikhovo beach, Leptospira survive from 15 to 31 days, while in the sea waters of Buzovnov they live 10-31 days, after which they lose pathogenicity.  Saprophytic microbes found in these waters affect survival of the Leptospira in sea water.  In the rain, snow, and water supply system waters of Baku, Leptospira survive for a certain time without losing pathogenicity.  The obtained results confirm the opinion held by a number of authors that Azerbaydzhan water conditions play a definite role in the spread of diseases caused by Leptospira.
1/1

USSR

TAGI-ZADE, T. A., MARDANLY, A. S., and EFENDIYEV, S. S.

"Study of the Survival Time of Leptospira in the Environment in the
Azerbaydzhan SSR"

Baku, Doklady Akademii Nauk Azerbaydzhanskoy SSR, No 7, 1971, pp 94-96

Abstract:  Of great interest from the epidemiological standpoint is the sur-
vival time of Leptospira in the environment in the Azerbaydzhan SSR, specif-
ically in the city of Baku, where Leptospira is found both in man and in
animals.

The survival time of Leptospira in different kinds of water (tap, rain, and
melted snow), and in human urine was studied under laboratory conditions.  It
was found that in artificially infected Baku tap water (pH 7.0) Leptospira
remain viable about 34 to 38 days, in melted snow (pH 5.5) about 42 days, in
rainwater (pH 6.8) 16 to 29 days, in human urine (pH 5.0) 10 to 15 days, and
in tap water contaminated with urine 45 to 50 days.  The morphological and
pathogenic properties of the Leptospira were also studied.

1/2

USSR

TAGI-ZADE, T. A., et al., Doklady Akademii Nauk Azerbaydzhanskoy SSR, No 7, 1971, pp 94-96

Thus, the survival of Leptospira in different kinds of water and in human urine suggests that these sources may play a role in the spread of lepto-spirosis in the Azerbaydzhan SSR, particularly in the city of Baku.

2/2

RUBINOV, A. N., BATYREV, V. A., EFENDIYEV, T. Sh.

"Problem of the Kinetics of the Generation Spectrum of Solutions of Organic Pigments"

Abstract:  A theoretical study was made of the kinetics of the generation spectrum of solutions of organic molecules in a resonator with nonselective mirrors.  By solving the corresponding differential equation on a computer, the authors show that as a result of a decrease in the nonstationary losses at the initial points in time the generation frequency shifts into the low-frequency range.  At later points in time a frequency shift takes place to the short-wave range which is connected with the accumulation of molecules in the triplet state and the occurrence of triplet-triplet absorption.  The specific relations found for the generation frequency as a function of the pumping level and the resonator base obtained theoretically were checked experimentally.

The case of small pumpings was investigated.  The pumping of the pigments was carried out by the second harmonic of a neodymium laser with modulated
1/2

- 93 -

USSR

Q-factor. The maximum pumping energy was 0.12 joules with a duration of 30 nanoseconds. The pigment laser resonator was formed of mirrors with reflection factors of $R_1$ = 100% and $R_2$ = 85%. The experimental results are presented for rhodamine and potassium iodide in ethanol. The relations are discussed between increasing the resonator base and the shift of the integral generation spectrum toward the short-wave band. The nonstationary losses appearing during brief excitations have a significant effect on the spectral characteristics of the pigment generation. They cause a wavelength shift of the generation spectrum during the initial period of time and lead to the appearance of additional dependence of the generation frequency on the pumping intensity, the resonator base, and the cell length.

2/2

USSR                                                      UDC 577.1:615.7/9

EFENDIYEVA, R. I.

"Effect of Epidermal Application of Different Amounts of Detarred
Naphthalene on Vitamins C and B"

Abstract:  Detarred naphthalene (I) was applied daily for 15 days to the skin
of rabbits at the rate of 0.1 and 0.5 ml/kg after which vitamins C and $B_1$ were
determined in the peripheral blood at 5-day intervals.  I caused a slight
increase in the amount of both vitamins.  It was concluded that I is less
toxic than crude naphthalene and in the smaller dose (0.1 ml/kg) has a more
positive and moderate effect than the larger dose (0.5 ml/kg).

1/1

1/2    020                    UNCLASSIFIED          PROCESSING DATE--13NOV70
TITLE--DITETRACYCLINE AGAINST INFECTIONS -U-

AUTHOR-(05)-LAZAREVA, E.N., BELOZEROVA, O.P., KRYUCHKOVA, A.P.,EFIMOVA,
   T.I., SITNIKOVA, L.V.
COUNTRY OF INFO--USSR

SOURCE--GER. OFFEN. 1,804,400

DATE PUBLISHED--14MAY70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TETRACYCLINE, EYE DISEASE, MOLECULAR STRUCTURE, PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0001        STEP NO--GY/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AA0123801
                         UNCLASSIFIED

CIRC ACCESSION NO--AA0123801
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.   THE TITLE COMPD. (I), USEFUL
  AGAINST INFECTIONS, ESP. EYE INFECTIONS, WAS PREPD. FROM (II), HCHO, AND
  PHCH SUB2 NHCH SUB2 CH SUB2 NHCH SUB2 PH (III), IN ISO-BUOH OR TERT-BUOH
  AT 74-3DEGREES.   THUS, II 65.18, III 13.52, AND 40PERCENT HCHO 8.4 G
  GAVE 45.85 G I.   I IS LESS ACTIVE THAN II.           FACILITY:   ALL UNION
  SCIENTIFIC RESEARCH INSTITUTE OF ANTIBIOTICS.

UNCLASSIFIED

USSR

UDC [537.226+537.311.33]:[537+535]

SHKLOVSKIY, B. I., and EFIROS, A. L.

"Impurity Zone and the Conductivity of Compensated Semiconductors"

V sb. Materialy 6-y Zimney shkoly po teorii yadra i fiz. vysok. energiy, 1971. Ch. 3 (Materials of the 6th Winter School on Nuclear Theory and High Energy Physics, 1971. Part 3 -- Collection of Works), Leningrad, 1971, pp 438-454 (from RZh Fizika, No 12, Dec 71, Abstract No 12Ye1202)

Translation: The effect of compensation on the electron spectrum and the conductivity of semiconductors is explained. The lecture is devoted to the fundamental case of high alloying. The case of low alloying as applied to Ge ($N \le 5 \cdot 10^{18}$ cm$^{-3}$) is discussed briefly.

1/1

1/2     017                       UNCLASSIFIED              PROCESSING DATE--04DEC70
TITLE--STATE DENSITY TAILS IN HIGHLY DOPED SEMICONDUCTORS -U-

AUTHOR-(02)-SHKLOVSKIY, B.I., EFROS, A.L.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA I TEKHNIKA POLUPROVODNIKOV, VOL. 4, FEB. 1970, P. 305-316

DATE PUBLISHED----FEB70


SUBJECT AREAS--PHYSICS

TOPIC TAGS--SEMICONDUCTOR MATERIAL, IMPURITY CENTER, IMPURITY LEVEL,
   CARRIER DENSITY, FORBIDDEN BAND


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1465            STEP NO--UR/0449/70/004/000/0305/0316

CIRC ACCESSION NO--AP0112459
                        UNCLASSIFIED

UNCLASSIFIED              PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0112459
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THEORETICAL ANALYSIS OF THE
  ELECTRONIC STATE DENSITY OF HIGHLY DOPED SEMICONDUCTORS IN THE FORBIDDEN
  BAND.  THE CONDITIONS OF APPLICABILITY OF THE THEORY ARE SMALLNESS OF
  THE STATE DENSITY AND APPLICABILITY OF THE METHOD OF EFFECTIVE MAXX.  IT
  IS ASSUMED THAT FLUCTUATIONS IN THE IMPURITY CONCENTRATION ASSUME THE
  FORM OF HOMOGENEOUS SPHERES THE CARGES AND RADII OF WHICH MAY VARY.
  SUCH AN ASSUMPTION MAKES IT POSSIBLE TO DETERMINE THE MAIN TERM OF THE
  LOGARITHM OF THE STATE DENSITY TO THE NEAREST NUMBERICAL FACTOR.  A LAW
  GOVERNING THE DECREASE IN THE STATE DENSITY FAIRLY DEEP WITHIN THE
  FOBIDDEN BAND IS DERIVED, AND A CLASSIFICATION OF THE CASES WHICH CAN
  OCCUR IN SEMICONDUCTORS IS PRESENTED.        FACILITY:  AKADEMIIA NAUK
  SSSR, FIZIKO-TEKHNICHESKII INSTITUT, LENINGRAD, USSR.

UNCLASSIFIED

## BAND TAILING AND ABSORPTION OF LIGHT IN SEMICONDUCTORS

### Shklovskiy, B. I.; Efros, A. L.

The density of states arising in the forbidden band of a strongly doped semiconductor as a result of concentration fluctuations of charged impurities is considered. It is shown that sufficiently deep in the forbidden band the state density is determined by clusters of attracting impurities; these clusters form multicharged nuclei of atoms whose ground hydrogen-like states realize the energy required. The state density decreases with increasing tail depth as $\ln \rho(\varepsilon) \approx -\sqrt{\varepsilon}\ln\varepsilon$ for random distribution of the impurities and as $\ln \rho(\varepsilon) \sim -\varepsilon^{1/2}$ if a correlation exists in the impurity distribution due to mutual repulsion during preparation of the sample. It is shown that the frequency dependence of the interband light absorption coefficient in the deep tail reproduces the state density.

2/ DI

USSR                                    UDC 576.3:612.017:615.5

OVSYANKO, E. P., ROZIN, M. A., and EFROS, A. M.

"The Effect of Benzimidazole Derivatives on the Heat Resistance of Trade-
scantia Leaf Cells", pp 50-54, Sentez Belka i Rezistentnost' Kletok,
(Protein Synthesis and Cell Resistance), Leningrad, "Nauka," 1971, 104 pp

Abstract:  The resistance of Tradescantia leaf cells to the effect of
$41^\circ C$ temperature and the infiltration of solutions of test substances into
leaf fragments were determined according to the Aleksandrov method (1955).
Under the influence of benzimidazole, 2-methylbenzimidazole, and 2-benzyl-
benzimidazole (dibazole) in a concentration range of $4.1 \cdot 10^{-7}$ -- $4.1 \cdot 10^{-9}$ M,
the heat resistance of cells increased.  1,2,3,-Trimethyl-benzimidazole was
ineffective.  In the presence of chloramphenicol ($3.1 \cdot 10^{-7}$ -- $3.1 \cdot 10^{-9}$ M) or
puromycin ($2.1 \cdot 10^{-8}$ -- $2.1 \cdot 1^{-10}$ M), stimulating effect of benzimidazole
derivatives on the heat resistance of Tradescantia cells was not observed.

1/1

1/2     029                     UNCLASSIFIED          PROCESSING DATE--04DEC70
TITLE--EFFECT OF ALLOYING ELEMENTS ON THE SPECIFIC ELECTRIC RESISTANCE OF
   IRON MANGANESE AUSTENITE DURING ANTIFERROMAGNETIC TRANSFORMATION -U-
AUTHOR-(03)-BOGACHEV, I.N., YEGOLAYEV, V.F., EFROS, B.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL. METALLOVED. 1970, 29(2), 424-6

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--CONDUCTION ELECTRON, RESISTIVITY, ANTIFERROMAGNETISM, ALLOY
   COMPOSITION, AUSTENITE, IRON ALLOY, MANGANESE ALLOY, MAGNETIC
   TRANSFORMATION, TEMPERATURE DEPENDENCE, NICKEL, CHROMIUM, SILICON, ALLOY
   ADDITIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0356          STEP NO--UR/0126/70/029/002/0424/0426

CIRC ACCESSION NO--AP0129588
                       UNCLASSIFIED

CIRC ACCESSION NO--AP0129588     UNCLASSIFIED     PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF NI, CR, AND SI ON THE ANTIFERROMAGNETIC TRANSFORMATION OF FE-MN AUSTENITE WAS STUDIED, USING THE G40 (40PERCENT MN) ALLOYS AS AN EXAMPLE, BY THE ELEC. RESISTANCE METHOD. THESE ELEMENTS LOWER THE NEEL POINT AND AFFECT THE ANOMALIES IN THE SP. RESISTANCE IN THE TRANSFORMATION. THE RESISTANCE WAS DETD. AT 77-800DEGREESK FOR ALLOYS CONTG. 4-10PERCENT BY WT. NI, 2.0-10.3PERCENT CR, OR 0.12-2.00PERCENT SI. THE RELATIVE CHANGE IN THE RESISTANCE BECAUSE OF THE ANTIFERROMAGNETIC ORDERING IS CHARACTERIZED BY A FACTOR, D. THE TEMP. DEPENDENCE OF D SHOWS THAT SI AND NI HAVE THE GREATEST EFFECTS; THIS IS ATTRIBUTED TO A DECREASE IN THE EFFECTIVE NO. OF CONDUCTION ELECTRONS.     FACILITY:  URAL. POLITEKH. INST. IM. KIROVA, SVERDLOVSK, USSR.

UNCLASSIFIED

USSR                                           UDC 621.316.543.26.017.42

MORDUKHOVICH, N. G., KHARACH, G. M., EFROS, D. G.

"Optimizing Contact Mechanisms in Switches"

Moscow, Radiotekhnika, Vol 25, No 9, 1970, pp 81-87

Abstract:  Breakdowns in high-frequency switching devices are usually caused
by erratic behavior of the switch contact points.  The transfer resistance of
the contact points is the most important characteristic determining resistance
to wear and long life of the switch containing them; the lower is the transfer
resistance, the more remote the likelihood of breakdown.  Reduced and stable
transfer resistances are difficult to achieve in high-frequency switching
devices; in standard switches, sliding contacts suffering from increased
wear due to surface friction are usually employed.  Such measures as using
wear-resistant materials for the contact surfaces or covering them with
noble metals cannot guarantee stability and low transfer resistance, and
new construction methods reducing friction and wear of the contacts must be
utilized.  The article discusses various construction systems and analyzes
them mathematically.  A quantitative description of rolling contact mechan-
isms is derived, and it is found that such contacts provide minimal wear.
Also given is an analytical method for choosing materials and developing
switch construction with optimal friction coefficients taken into account.
1/1

KALINNIKOV, Ye. S., EFROS, D. I., BORODETS, I. V., YABUROV, S. I., IZMANOVA,
T. A., and POKROVSKIY, V. A.

"Some Properties of the Ingots of Chrome-Nickel-Molybdenum Steel Treated With
Liquid Synthetic Slag and in   Vacuum"

Translation:  Three melts of structural chrome-nickel-molybdenum steel were
made in a basic 50-T open hearth furnace.  In the ladle, the metal of each melt
was treated using one of three versions of technology:
    I--refining with liquid synthetic slags;
   II--evacuation in the ladle;
  III--refining with liquid synthetic slag with subsequent evacuation in the
ladle.
    The structural and chemical heterogeneity of a 2.85-T ingot and the mechani-
cal properties of the cast metal were studied.
    The steel produced by versions I and II were distinquished
by low sulfur content, 0.007 and 0.006% respectively, while type II steel had
minimum hydrogen content.  The structural zones of all ingots were developed
practically identically.  Ingots of versions I and III showed stability of

1/2

USSR

chemical composition both in height and in cross section.  The steel treated
with the synthetic slag differs from the vacuum steel in its higher mechanical
properties.  Vacuum treatment of the steel after treatment with synthetic slag
did not cause a further increase in properties.  It is established that the
influence of sulfur on the development of non-axial heterogeneity and changes
in the mechanical properties of cast steel is more significant than the in-
fluence of hydrogen.  7 figures; 6 tables; 6 biblio. refs.

2/2

USSR                                       UDC 547.785.5'814.1:542.953

BERESNEVA, N. K., ZAKHS, E. R., and EFROS, L. S., Leningrad Technological
Institute Imeni Lensovet                        correct as is

"Condensation Products of 5-Nitro- and 5,6-Dinitro-1,2,3-trimethyl-benzimida-
zolium Salts and o-Hydroxyaldehydes"

Abstract:  Condensation of aromatic o-hydroxyaldehydes with 5-nitro and 5,6-
dinitro-1,2,3-trimethylbenzimidazolium salts gave respective 2-(p-hydroxystyryl)
benzimidazoliums.  5-Nitro-1,2,3-trimethylbenzimidazolium methyl sulfate (I)
and its 5,6-dinitro homolog (II) were obtained by alkylation of respective
nitro-1,2-dimethylbenzimidazoles with dimethyl sulfate.  In an alcoholic solu-
tion and in the presence of piperidine (I) condenses easily with salicylaldehyde
and its derivatives (5-nitro-, 3,5-dibromo-,) and 2-hydroxynaphtylaldehyde.
Condensation of (II) in an alkaline medium is accompanied by hydrolytic
cleavage of the imidazole ring, which however does not interfere with the forma-
tion of merocyanines with 3,5-dibromosalicyl and 2-hydroxynaphtylaldehydes,
which are highly insoluble and precipitate from the reaction mixture.  If the
reaction is slow, the immediate products stay in solution, undergo cleavage and
make it difficult to obtain pure products.  In absolutely aprotic solvents the
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USSR

BERESNEVA, N. K., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 7, Jul 71, pp 961-966

derivatives of salicyl and 5-methoxysalicylaldehydes undergo intramolecular cyclization forming derivatives of spiro(benzimidazoline-2,2'-[2H]-chromene.

2/2

1/2     009                    UNCLASSIFIED          PROCESSING DATE--30OCT70
TITLE--PHOTOCHEMICAL DESULFURIZATION OF AROMATIC SULFONIC ACIDS -U-

AUTHOR-(05)-YELTSOV, A.V., STUDZINSKIY, O.P., KULBITSKAYA, O.V.,
   OGOLTSOVA, N.V., EFROS, L.S.      Certified as is

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(3), 638-9

DATE PUBLISHED-------70


SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NAPHTHALENE, AMINE DERIVATIVE, QUINONE, SULFONIC ACID, ORGANIC
   SULFUR COMPOUND, DESULFURIZATION


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1657        STEP NO--UR/0366/70/006/003/0638/0639

CIRC ACCESSION NO--AP0112651
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0112651
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.   THE IRRADN. OF NA
   1,NAPHTHALENESULFONATE IN AQ. SOLN. AT PH 1-13 GAVE NAPHTHALENE.
   SIMILARLY, ALPHA AMINO NAPHTHALENE WAS OBTAINED BY THE PHOTOLYTIC
   DESULFONATION OF NA 4,AMINO,1,NAPHTHALENESULFONATE IN THE 7-13 PH RANGE.
   THE DESULFONATION OF ALPHA ANTHAQUINONESULFONIC ACID IN WATER GAVE
   ANTHRAQUINONE, BUT IN DIL. AMMONIA SOLN. ALPHA AMINONANTHRAQUINONE WAS
   FORMED.   THE DESULFONATION OF O, P, OR M,H SUB2 NC SUB6 H SUB4 SO SUB3 H
   GAVE, RESP., TRACES, 7, AND 40-50PERCENT PHNH SUB2.          FACILITY:
   LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

Acc. Nr: AP0045159    Abstracting Service:    Ref. Code:
                       CHEMICAL ABST.    4/70    UR0409
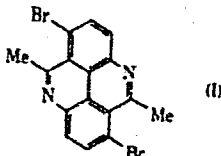
EFROS L.S.

90341a   Nucleophilic mobility of a bromine atom in 1,6-di-
bromo-5,10-dimethyl-4,9-diazapyrene. Alam, L. V.; Veksler,
K. V.; Efros, L. S. (Leningrad. Tekhnol. Inst. im. Lensoveta,
Leningrad, USSR). Khim. Geterotsikl. Soedin. 1970, (1), 133-4
(Russ). Heating 21.8 g 5,5-dibromo-2,2-bis(acetamido)biphenyl
with 217 g AlCl₃ and 46.4 g NaCl 8 hr at 250° gave 8% 1,6-di-
bromo-5,10-dimethyl-4,9-diazapyrene (I), m. 275-7° (decompn.)



which with piperidine 5 hr at 180° in a sealed tube gave yellow 1-
piperidinyl-6-bromo-5,10-dimethyl-4,9-diazapyrene,  m.  175-8°
(decompn.).   ir and uv spectra are given.    G. M. Kosolapoff

REEL/FRAME
19780059

TITLE--AUDIOMETRIC INVESTIGATION OF HEARING THRESHOLDS ACCORDING TO BONE
   CONDUCTION -U-

AUTHOR--EFRUSSI, M.M.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OTORINOLARINGOLOGII, 1970, NR 3, PP. 34-37

DATE PUBLISHED-------70


SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AUDIOLOGY, BONE, MEDICAL EXAMINATION



CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1245         STEP NO--UR/0607/70/000/003/0034/0037

CIRC ACCESSION NO--AP0107721
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0107721
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE PAPER DISCUSSES SOME PROBLEMS
OF AUDIOMETRY OF HEARING THRESHOLDS BY MEANS OF BONE CONDUCTION IN
CONNECTION WITH INACCURACIES IN THE PERTINENT LITERATURE, IN PARTICULAR,
IN T BYSTSHANOVSKA'S MANUAL "CLINICAL AUDIOLOGY" PUBLISHED IN 1965 IN
WARSAW IN THE RUSSIAN LANGUAGE.  THESE PROBLEMS CONCERN THE FOLLOWING:
THE EFFECT OF CLOSURE OF AUDITORY PASSAGES BY EAR MUFFS, THE INFLUENCE
OF THE LEVEL OF MASKING NOISE FOR THE EXCLUSION OF ONE OF THE EARS AND
MAXIMAL HEIGHT OF TONE IN WHICH IT IS POSSIBLE TO INVESTIGATE THE BONE
THRESHOLDS OF HEARING, AS WELL AS THE POSSIBLE RELATION BETWEEN HEARING
LOSS ACCORDING TO BONE AND AN CONDUCTION.  IN CONCLUSION THE AUTHOR
GIVES A NUMBER OF PRACTICAL RECOMMENDATIONS ON AUDIOMETRY OF BONE
THRESHOLDS OF HEARING AND CHECKING OF THE ACCURACY OF INDICES OF THE
SCALE OF HEARING LOSS.         FACILITY:  OTOKINOLARINGOLOGICHESKOGO
OTD. PERVOY POLIKLINIKI 4-GO GLAVNOGO UPRAVLENIYA PRU MINISTERSTVE
ZDRAVOOKHRANENIYA SSSR.

UNCLASSIFIED

USSR                                          UDC 681.325.3

FILIMONOV, V. A., EFTERZON, Yu. Ya.

"Code-Voltage Converter with Addition of Currents"

Materialy II Nauchno-tekhn. Konf. Kramatorsk. N-i. i Proyektno-tekhnol. In-ta.
Mashinostr., 1969 [Materials of Second Scientific and Technical Conference of
Kramatorsk Scientific Research and Planning-Technological Institute for Machine
Building, 1969 -- Collection of Works], Kramatorsk, 1970, pp 129-132. (Trans-
lated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya
Tekhnika, No. 5, 1971, Abstract No. 5B488 by V. V.).

Translation: An analysis is presented of code-voltage converters of two types:
with addition of voltage and with addition of current. The defects of circuits
of the first type are determined. Recommendations are given for application of
circuits of the second type.

1/1

USSR

UDC 582.288.577.158.7

EGAMKULOV, M., SAFIYAZOV, ZH., and SABIROVA, KH., Microbiology Branch of
the Uzbek SSR Academy of Sciences

"Study of Catalase and Invertase Activity of Verticillium dahliae"

Abstract:  It was found that with increasing growth of Verticillium dahliae
catalase and invertase activity in the mycelia decreases and enzymatic
activity of the nutrient medium increases.  Just as the various fungus strains
differ in pathogenic character, so they differ in their enzyme contents.
When larger amounts of phosphorus or sulfur salts were added to the nutrient,
catalase activity dropped significantly.  Similar results were obtained with
a nutrient containing $NH_4NO_3$ or $(NH_2)_2CO$ instead of $NaNO_3$.  The invertase
activity of V. dahliae mycelia decreases with increasing fungus growth.  It
was somewhat increased when phosphorus or sulfur salts were added to the
nutrient or when $NaNO_3$ was replaced by $NH_4NO_3$ or $(NH_2)_2CO$.  Thus, it was
found that the enzymatic activity of V. dahliae fungi is affected by the
maturity of the cultures as well as by different nutrient sources and viru
lence.
1/1

USSR                                          UDC 632.95

GILLER, S. A., EGERT, V. E., LIYELGALVE, A. A., AVOTA, L. YA., and SHIMAN-
SKAYA, M. V.

"Methods of Determining Residual Quantities of Phenazone in Foodstuffs,
Soil, Water and Air"

Tr. 2-go Vses. soveshch. po issled ostatkov pestitsidov i profilakt.
zagryazneniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the
Second All-Union Conference on Investigation of Residues of Pesticides, and
Prevention of Pesticide Contamination of Foodstuffs, Fodder and the External
Environment), Tallinn, 1971, pp 271-272 (from RZh-Khimiya, No 11, Jun 72,
Abstract No 11N454)

Translation: In order to determine residual amounts of phenazone, (the
specimen is) hydrolyzed with a 40% sodium hydroxide solution in the presence
of zinc dust, the resultant aniline is distilled (without water vapor) and
diazotized, and coupled with $\alpha$-naphthylamine, and the optical density is
determined (on 537 nm). The sensitivity of the method is 1 mg/kg.

1/1

USSR                                               UDC 669.245:539.376

GUSEVA, L. N., and EGIZ, I. V., Moscow

"On the Question of Creep of Solid Nickel Solutions"

Abstract:  The study shows a change in the activation energy of creep in
nickel alloys with niobium and molybdenum during reheating:  in the tempera-
ture interval 800-890°C $Q_n$ = 70 kcal/g-at. and at 890-950°C $Q_n$ = 61-64
kcal/g-at.  Pure nickel and a nickel alloy with chromium within these same
temperature intervals possess a $Q_n$ value that approaches the energy of
activation of nickel self-diffusion, a fact which indicates that the creep
rate is controlled by the rate of recovery brought about by diffusion.
A somewhat higher value of $Q_n$ in nickel alloys with molybdenum and niobium
in the temperature interval 800-890°C can be explained by the restriction
of the climb of dislocations related to the declining energy of packing
defects during nickel alloying with these elements.

1/1

- 73 -

USSR                                                    UDC: 539.293.546.28

FELTYN', I. A., FREYDBERGA, L. A., EGLETIS, I. YE., EYMANIS, I. A.

"Investigation of Metal-Oxide -- Semiconductor Structures with Silicon Dioxide Films Deposited in a High-Frequency Gas-Discharge Plasma"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, No 2, 1970, pp 48-52

Abstract:  By measuring the capacitance of MOS structures, the charge density in the oxide as well as the density and energy distribution of surface states on the oxide-semiconductor interface for MOS structures with silicon dioxide films was determined.  The films were applied on p-type silicon substrates by decomposing a mixture of tetraethoxysilane and molecular oxygen in a gas discharge plasma excited by high-frequency (12 MHz) eddy currents inside a pyrex cylinder 30 mm in diameter within a second cylinder 40 mm in diameter.  A coolant was circulated between the tubes.  The discharge was excited by a 12-turn inductor (H = 5 oersteds) wound over the outside cylinder.  The substrate surface was cleaned by chemical etching and argon ion bombardment immediately before applying the film.  An interference method was used for determining film thickness.  The charge density of the films was found to be $(1-5) \cdot 10^{16}$ $m^{-2}$, with constant density of surface states equal to $5 \cdot 10^{15}-2 \cdot 10^{16} m^{-2}v^{-1}$ on the oxide-semiconductor interface.  It was found that the films contain no charge which is mobile at room temperature, and the MOS
1/2

USSR

FELTYN', I. A., et al., Izvestiya Akademii Nauk Latviyskoy SSR, No 2, 1970, pp 48-52

structures with these films show no hysteresis effect. They are stable for long periods of voltage application.

2/2

USSR                              UDC 576.858.095.383.612

ROSTOKA, A., and EGLITE, I. E., Institute of Microbiology imeni Avgust Kir-
chenstein, Academy of Sciences Latvian SSR

"In Vitro Interferon Formation by Peripheral Blood Leukocytes of Leukemic
Children"

Abstract: To claify the correlation between leukemia and interferon produc-
tion, an in vitro study was performed on blood samples obtained from 21 leu-
kemic children aged 2-15 years. Newcastel disease virus was added to the
blood samples to induce interferon production by leukocytes, and mean geo-
metric titers were determined. A statistical analysis of the results re-
vealed that in vitro interferon production by the leucocytes of lympholeu-
kemic children is significantly greater ($4.95 \pm 0.52$) than that of healthy
children ($3.2 \pm 0.41$). In a previous study, on the other hand, it was found
that interferon titers in lympholeukemic adults are smaller than in healthy
adults. This difference is probably due to age-associated properties.

1/1

USSR

BAKHVALOV, N. S., EGLIT, M. E., Moscow

"Study of One-Dimensional Motion of a Snow Avalanche Down a Flat Slope"

Abstract: Increased construction in mountain areas where there is a danger of snow avalanches makes it important to provide protection from them. Various methods can be used in practice, bringing up a large number of engineering and mechanical problems. In particular, in planning protective structures information is required on the parameters on moving avalanches -- velocities, front heights, snow densities, etc., that is the movement of avalanches down a slope must be calculated, as must their interaction with the structure being studied. Other important information includes the maximum range of an avalanche, that is the boundary of the avalanche danger zone. This work is dedicated to analytic and numerical studies of the one-dimensional movement of an avalanche. An asymptotic solution is produced to the problem of one-dimensional movement of an avalanche down a flat, smooth slope. The avalanche is modeled considering that quiet snow lies before it of known density, strength and thickness, and that the snow begins
1/2

USSR

BAKHVALOV, N. S., EGLIT, M. E., Mekhanika Z idkosti i Gaza, No 5, Sep-Oct 73, pp 7-14

moving when the avalanche front passes.  The snow is broken up into clumps by the passing avalanche, penetrates into the body of the avalanche and travels along with it, mixing chaotically.  The stream of snow produced is looked upon as a turbulent flow of fluid with complex properties.

2/2

1/2    039                    UNCLASSIFIED         PROCESSING DATE--30OCT70

TITLE--MOS STRUCTURES CONTAINING SILICON DIOXIDE FILMS DEPOSITED IN A HIGH FREQUENCY GAS DISCHARGE PLASMA -U-

AUTHOR-(04)-FELTINS, I., FREIBERGA, L., EGLITIS, I., EIMANIS, I.

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, FIZ. TEH. ZINAT. SER. 1970, (2), 48-52

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--HIGH FREQUENCY DISCHARGE, DISCHARGE PLASMA, OXIDE FILM, SILICON DIOXIDE, OXYGEN, CARRIER DENSITY, SURFACE PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1145          STEP NO--UR/0371/70/000/002/0048/0052

CIRC ACCESSION NO--AP0124800

                        UNCLASSIFIED

CIRC ACCESSICN NO--AP0124800
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  DECOMPN. OF TETRAETHOXYSILANE IN A
  HIGH FREQUENCY O PLASMA GAVE RISE TO FILMS OF SIO SUB2 WITH CHARGE D.
  (1-5) TIMES 10 PRIME NEGATIVE16-M PRIME2 AND CONST. D. OF SURFACE STATES
  AT THE INTERFACE OF 5 TIMES 10 PRIME15 MINUS 2 TIMES 10 PRIME16-M
  PRIME2-V.  THE FILM OF GAS DISCHARGE SIO SUB2 CONTAINS NO CHARGE MOBILE
  AT ROOM TEMP.; MOS STRUCTURES WITH THESE FILMS SHOW NO HYSTERESIS EFFECT
  AND ARE STABLE IN THE PRESENCE OF LONG LASTING APPLIED BIAS.
  FACILITY:  FIZ.-ENERG. INST., RIGA, USSR.

UNCLASSIFIED

USSR

UDC: 621.382.002    1

KALNYNYA, R. P., FELTYN', I. A., FREYBERGA, L. A., EGLITIS, I. E., AND EYMANIS, I. A.

"Silicon Oxide Films Obtained by Reactive Sputtering of Silicon in a High-Frequency Plasma"

Abstract: A description is given of the use of reactive sputtering in a high-frequency gas-discharge plasma for the deposition of silicon oxide films. Monocrystalline silicon was used as the source and a high-frequency discharge was employed since they broaden the chemical composition of the film and result in high productivity. The purpose of this paper is to establish a connection between the condition of the films and their electrophysical parameters. The films were grown on silicon substrates set at right angles to the target in an argon-oxygen plasma in which the oxygen content was varied from 0-100%. Further details of film deposition and of the experimental apparatus are given together with the absorption spectra of $SiO_2$ films and curves illustrating the electrophysical characteristics of the films. The authors are associated with the Physics-Energy Institute, Academy of Sciences of the Latvian SSR.
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1/2    044

UNCLASSIFIED

PROCESSING DATE—30OCT70

TITLE—INFLUENCE OF TEMPERATURE ON THE LIGHT EMISSION CHARACTERISTICS OF MICROPLASMA IN SILICON P,N JUNCTIONS —U—

AUTHOR-(03)-EGLITIS, V., BALODIS, J., PURITIS, T.

COUNTRY OF INFO—USSR

SOURCE—LATV. PSR. ZINAT. AKAD. VESTIS, FIZ. TEH. ZINAT. SER. 1970, (2), 20-5

DATE PUBLISHED————70

SUBJECT AREAS—PHYSICS

TOPIC TAGS—PN JUNCTION, SILICON SEMICONDUCTOR, SEMICONDUCTOR PLASMA, LIGHT EMISSION, THERMOELECTRIC PROPERTY, CURRENT DENSITY, THERMAL IONIZATION, IMPACT IONIZATION

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—2000/1128

STEP NO—UR/0371/70/000/002/0020/0025

CIRC ACCESSION NO—AP0124783

UNCLASSIFIED

CIRC ACCESSION NO--AP0124783
ABSTRACT/EXTRACT--(U) GP-0--  ABSTRACT.  THE DEPENDENCE OF THE LIGHT
EMISSION OF MICROPLASMA IN A SI SHALLOW DIFFUSED P,N JUNCTION ON THE
REVERSE VOLTAGE BIAS, THE AMBIENT TEMP., AND THE DYNAMIC COND. OF THE
JUNCTION IS INVESTIGATED TO FIND A CORRELATION BETWEEN THE LIGHT
EMISSION CHARACTERISTICS AND THE VARIOUS TYPES OF BREAKDOWN IN A P,N
JUNCTION.  WITH INCREASING TEMP., THE THERMAL IONIZATION CURRENT
INCREASES, WHEREAS THE LIGHT EMISSION AS WELL AS THE AVALANCHE CURRENT
IN THE REGION OF MICROPLASMA DECREASE AND FINALLY DISAPPEAR AT APPROX.
THE SAME TEMP.  IN THE REGION OF THERMOELEC. BREAKDOWN, THE INTENSITY OF
LIGHT EMISSION SHOWS A PARABOLIC DEPENDENCE ON THE REVERSE CURRENT
THROUGH THE P,N JUNCTION.  WITH THE INCREASE IN CURRENT NEAR THE ONSET
OF THE SECONDARY BREAKDOWN, A GRADUAL TRANSITION FROM IMPACT TO THERMAL
IONIZATION IS OBSD. IN THE MICROPLASMA.         FACILITY:  FIZ. ENERG.
INST., RIGA, USSR.

UNCLASSIFIED

USSR                                               UDC 537.311.33

BALODIS, YA.K., PENTYUSH, E.V., FURITIS, T.YA., FOMAV, E.A., EGLITIS, V.YA.

"Light Emitting Phenomena Of Mesoplasma In Silicon P-N Junctions In A Pulse Regime"

V sb. Poluprovodniki i ikh primeneniye v elektrotekhn. (Semiconductors And Their Application To Electrical Engineering--Collection Of Works), No 5, Riga, "Zinatne," 1971, pp 159-162 (from RZh:Elektronika i yeye primeneniye, No 1, Jan 72, Abstract No 1B131)

Translation: The time dependence of light emission of mesoplasma in a pulse regime is investigated. The regularities established are evidence that the appearance of light emission preceding an abrupt change of the voltage or current are dependent upon the appearance of mesoplasma. The degree of warming up of the carriers is analyzed as well as the possibility of the appearance of recombination radiation in the "pre-mesoplasma" state and in the time of existence of the mesoplasma. 6 ill. 34 ref. Summary.

1/1

UDC 621.382.2

USSR

PURITIS, T.YA., EGLITIS, V.YA.

"Microplasma Breakdown Of Silicon P-N Junction"

V sb. Poluprovodniki i ikh primeneniye v elektrotekhn. (Semiconductors And Their Use In Electrical Technology--Collection Of Works), No 4, Riga, "Zinatne," 1970, pp 39-66 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B93)

Translation: A summary is given of the results of investigations of microplasma phenomena in p-n junctions in Si. The temperature dependence is established of microplasm parameters and the relation of the temperature coefficient of the break-down voltage of all the p-n junctions and the individual microplasm. An assumption is expressed concerning possible mechanisms for storage of the energy of the charge carriers necessary for impact ionization at various temperatures. On the basis of the results obtained a physical model of the microplasm is proposed which corresponds to actual values of the temperature drop and the power being given off into the microplasm. 9 ill. 49 ref. V.M.

1/1

USSR                                               UDC 577.1:573

EGOLINSKIY, A. YA.

"Proteins and Enzymes in Blood Serum and Liver of a Fetus During the Adminis-
tration of the Teratologenic Drug Chloridin (Pyrimethamine) to Pregnant Rats"

Byul. Eksperim. Biol. i Med. (Bulletin of Experimental Biology and Medicine),
Vol 73, No 2, 1972, pp 46-49 (from Referativnyy Zhurnal -- Biologicheskaya
Khimiya, No 15, 1972, Abstract No 15F2273 by Ye. A. Kozlov)

Translation: The composition of proteins in the serum and liver were studied
as well as the activity and isoenzyme spectrum of lactate dehydrogenase
(compound I), malate dehydrogenase (compound II) and sorbitol dehydrogenase
(compound III) in normal and abnormal rat fetuses, 19-20 days old. Anomalies
were produced by the administration of 7 mg of chloridin to the rats on the 13th
day after conception. In the normal fetuses the concentration of protein in
the serum was 2% by weight; the proteins contained 3 fractions: albumin, pre-
albumin and $\beta$-globulin. In the abnormal fetuses, the protein concentration
was 1.67% by weight and the albumin, and in some cases the $\beta$-globulin fractions,
contained additional components. During electrophoresis in an agar gel the
protein from the liver of the normal fetuses showed 9 components (4 anodic and
5 cathodic) while that of the abnormal fetuses showed only 5 (4 anodic and 1
1/2

USSR

EGOLINSKIY, A. YA., Byul. Eksperim. Biol. i Med., Vol 73, No 2, 1972, pp 46-49

cathodic). In comparison with the normal fetuses, the activity of compound I on abnormal fetuses was about 2 times as high, compound II was about 7.4 times as high and compound III, about 1.5 times as high. A change in the isoenzymic spectra of compounds I and II was observed.

2/2

USSR                                        UDC 612.35.014.21:612.26).014.46:576.85:.
                                                    315.097.29

DZHAPARIDZE, M. N., MARTENS, L. A., and EGOROVA, V. D., All Union Scientific
Research Anti-Plague Institute "Mikrob", Saratov

"The Effect of Cholera Vibrio Endotoxins on the Respiration of Hepatic Mitochondria
in the Presence of Kreb's Cycle Substrates"

Moscow, Byulleten' Eksperimentalnoy i Biologiyi Meditsiny, No 4, 1970, pp 66-69

Abstract:  The effect of cholera vibrio endotoxins, isolated by Boivin's technique
and filtered on Sephadex G-200, on the respiration of hepatic mitochondria of
guinea pigs and white rats was studied in the presence of the Kreb's cycle sub-
strates.  The degree of respiration was determined manometrically by Warburg's
apparatus and chromatographically by the depletion of substrates.  A definite inhib-
iting effect of the vibrio endotoxins on respiration of mitochondria in the pres-
ence of malate, oxalacetate, alpha-ketoglutarate, and pyruvate was observed.  The
toxins did not influence the oxidation of succinate, citrate or restored NAD
(nicotinamide adenine dinucleotide).  From their study the authors conclude that
cholera vibrio endotoxin causes a drastic inhibition of the NAD-dependent dehydro-
genases of the Kreb's cycle.