UDC 538.54

USSR

ZATSEPIN, N. N., Department of Physics of Non-Destructive Control, Academy of Sciences BSSR

"Analytical Function Describing the Path of a Symmetrical Loop of Magnetic Hysteresis"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 4, 1973, pp 29-31

Abstract: This article discusses an analytical function that describes the path of a symmetrical loop of magnetic hysteresis. The method of higher harmonics is based on expansion of periodic processes that are complex in form into harmonic components. Unknown coefficients, determined from the experimental conditions, are used to find the analytical expressions. Since they are not constants of the material but characterize its magnetic state the applicability of the formulas is limited by the accuracy of finding these coefficients for the various magnetic materials.

1/2

USSR

ZATSEPIN, N. N., Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 4, 1973, pp 29-31

The author states that by proceeding from the basic properties of a symmetrical hysteresis loop it is possible to find with sufficient accuracy a simple analytical function for the curve that contains only constants of the material.

Four graphs are illustrated which give various properties of the discussed alloys.

The article contains 4 illustrations and 3 bibliographic references.

2/2

1/2 036 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--INVESTIGATING THE MAGNETIC FIELD OF DEFECTS SURROUNDED BY DIRECT OR ALTERNATING CURRENT; CURRENT DENSITY DISTRIBUTION IN THE DEFECT ZONE OF

AUTHOR-(02)-BENKLEVSKAYA, N.P., ZATSEPIN, N.N.

COUNTRY OF INFO--USSR

SOURCE--SVERDLOVSK, DEFEKTOSKOPIYA, NO. 1, 1970, PP 89-94

DATE PUBLISHED--------70

SUBJECT AREAS--METHODS AND EQUIPMENT, MATERIALS

TOPIC TAGS--MAGNETIC FIELD, NONDESTRUCTIVE TEST, STEEL, SURFACE PROPERTY, CURRENT DENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/0114 STEP NO--UR/0381/70/000/001/0089/0094

CIRC ACCESSION NO--AP0100655

UNCLASSIFIED

2/2 036 UNCLASSIFIED

CIRC ACCESSION NO--AP0100655 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR A QUALITATIVE EXPLANATION OF THE PECULIARITIES OF THE MAGNETIC FIELD TOPOGRAPHY OF DEFECTS SURROUNDED BY CURRENT, IT IS IMPORTANT TO KNOW THE CURRENT DENSITY DISTRIBUTION IN THE DEFECT ZONE. THIS ARTICLE DESCRIBES EXPERIMENTS PERFORMED TO STUDY THE X, Y, AND Z COMPONENTS OF THE CURRENT DENSITY AS FUNCTIONS OF THOSE COORDINATES AND THE DIMENSIONS OF THE DEFECT. THE METHOD OF MEASUREMENT IS DESCRIBED; SINCE THE CURRENT DENSITY CANNOT BE MEASURED DIRECTLY, OHM'S LAW IN DIFFERENTIAL FORM IS USED. THIS REQUIRES MEASUREMENT OF THE POTENTIAL DIFFERENCE BETWEEN THE UNDAMAGED PART OF THE MATERIAL AND THE ZONE OF THE DEFECT, A PROCESS EXPLAINED IN SOME DETAIL. A PICTURE OF THE SENSOR WITH WHICH THE MEASUREMENT IS MADE IS GIVEN. THE RESULTS OF THE EXPERIMENT GIVE A QUALITATIVE ESTIMATE OF THE CURRENT FLOW AROUND THE DEFECT AND EXPLAIN SOME OF THE CHARACTERISTICS OF THE MAGNETIC FIELD TOPOGRAPHY OF THESE DEFECTS. SUBJECTS OF THE EXPERIMENTS WERE STEEL PLATES 150 MM WIDE AND 15 MM THICK WITH TRANSVERSE ARTIFICIAL DEFECTS. THESE WERE RECTANGULAR SLITS OF VARIOUS DIMENSIONS. THE AUTHORS CONCLUDE THAT THE CURRENT DENSITY IN THE SURFACE ZONE OF THE DEFECT IS NONUNIFORMLY DISTRIBUTED; IT IS WEAKENED AT THE CENTRAL PART AND STRENGTHENED AT ITS END. THEY FIND ALSO THAT FOR DEFECT DETECTION, IT IS BEST TO USE THE CURRENT DENSITY COMPONENT IN THE DIRECTION OF THE DEFECT LENGTH, AND THAT THE EXTENT OF THE DEFECT CAN BE JUDGED FROM THE POSITIONS OF THE MAXIMA OF THIS CURRENT DENSITY COMPONENT.

UNCLASSIFIED

1/3 : 014 UNCLASSIFIED PROCESSING DATE--03OCT70

TITLE--MODIFICATION OF CONVECTIVE CLOUDS -U-

AUTHOR-(03)-GAYVORONSKIY, I.I., ZATSEPINA, L.P., SEREGIN, YU.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA, VOL VI, NO 3, 1970, PP 252-258

DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--CUMULUS CLOUD, AEROSOL, WEATHER MODIFICATION, CLOUD SEEDING, THUNDERSTORM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/0715 STEP NO--UR/0362/70/006/003/0252/0258

CIRC ACCESSION NO--AP0110449

UNCLASSIFIED

2/3 · 014 UNCLASSIFIED

CIRC ACCESSION NO--AP0110449 PROCESSING DATE--090CT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER GIVES THE RESULTS OF EXPERIMENTS FOR MODIFICATION OF WELL DEVELOPED CUMULUS CLOUDS BY AEROSOLS OF INSOLUBLE SUBSTANCES. THE GREATEST EFFECT WAS OBTAINED WHEN USING HYDROPHILIC PARTICLES. MOST OF THE EXPERIMENTS WERE MADE IN INDIVIDUAL CLOUDS OR IN MASSES OF DEVELOPING AIRMASS AND IRONTAL CONVECTIVE CLOUDS IN THE STAGES CB AND CB CAPIL. THE VERTICAL THICKNESS OF THE CLOUDS SUBJECTED TO MODIFICATION VARIED FROM 5 TO 10 KM. THE TOPS OF THESE CLOUDS ATTAINED 7,000-12,000 M WHERE THE AIR TEMPERATURE WAS -20--58DEGREESC. THE REAGENT USED WAS A COARSE DISPERSE AEROSOL OF PORTLAND CEMENT WHOSE SPECIFIC SURFACE WAS 4,000 CM PRIME2-G. THE EXPERIMENTS CONTINER. EACH UNIT HELD ABOUT 10 KG OF REAGENT. THE CONTROL PANEL WAS ARRANGED SO THAT BETWEEN 10 AND 400 KG OF REAGENT COULD BE DUMPED AT ONE TIME. A POSITIVE RESULT WAS OBTAINED FROM THE SEEDING OF 54 OF 55 THUNDERSTORM CLOUDS WITH GREAT VERTICAL DEVELOPMENT. AFTER SEEDING THE CLOUDS CCEASED FURTHER DEVELOPMENT AND THE TOPS GRADUALLY BEGAN TO SETTLE. THEN THE CLOUD ACQUIRED A FIBROUS STRUCTURE AND BEGAN TO BE STRATIFIED INTO SMALL PARTS WHICH EVAPORATED WITHOUT THE FALLING OF SIGNIFICANT PRECIPITATION. THE CLOUD WAS DISSIPATED WITHIN 7 TO 20 MINUTES. THE CRYSTALLINE PART OF THE CLOUD PERSISTED IN THE FORM OF A LAYER AND THE ANVIL REQUIRED SEVERAL HOURS FOR DISAPPEARANCE. DIRECT COMPARISON OF RESULTS OF MODIFYING SUCH CLOUDS WITH INSOLUBLE SUBSTANCES AND CRYSTALLIZING REAGENTS (AGI OR SOLID CO SUB2) SHOWS THAT THE PROCESS OF CLOUD DESTRUCTION OCCURS MORE RAPIDLY WITH THE INTRODUCTION OF AN AEROSOL OF INSOLUBLE REAGENTS.

UNCLASSIFIED

3/3 014 UNCLASSIFIED

CIRC ACCESSION NO--AP0110449 PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--THE EFFECTIVENESS OF THE LATTER IN THE DESTRUCTION OF THUNDERSTORM CLOUDS IS ALSO CONFIRMED BY RADAR OBSERVATIONS. AFTER SEEDING THERE WAS AN APPRECIALBE DECREASE AND THEN DISAPPEARANCE OF RADIO ECHOES.

FACILITY: CENTRAL AEROLOGICAL OBSERVATORY.

UNCLASSIFIED

Acc. Nr: AP0049966 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR0051

2

95176k Lasing and spectral characteristics of some polymethine dyes. Bonch-Bruevich, A. M.; Zatsepina, N. N.; Razumova, T. K.; Rubanova, G. M.; Tupitsin, I. F.; Shuvalova, V. N. (USSR). *Opt. Spektrosk.* 1970, 28(1), 100–4 (Russ). Lasing was followed for a series of polymethine dyes on excitation by a ruby laser. The absorption and fluorescence band positions, stability, and the relative transformation coeffs. of the pumping energy are tabulated. For cryptocyanine (I), dicarbocyanine (II), and tricarbocyanine, the lasing characteristics are given. The quantum yields and fluorescence spectra are almost independent of the dielec. const. of the solvent; the quantum yields increase with the solvent viscosity. The transformation coeffs. of I and II in EtOH decrease with the no. of the excitation pulse, when the laser emits several pulses in a flash, proceeding in ~100 μsec. The degree of the decrease depends on the excess of the excitation power of the laser over the threshold of the generation excitation of the dye.

P. Adamek

I 13

REEL/FRAME 19801904

7

USSR

UDC 632.95.028

VASIL'YEV, V. P., KOSMATYY, Ye. S., RUDEL', K. A., POLONSKAYA, F. I., and ZATSERKOVSKIY, V. A., Ukrainian Scientific Research Institute of Plant Protection

"Heptachlor Residues in Plants and Soil in Relation to the Application Method"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 3, 1972, pp 32-34

Abstract: No residue of heptachlor was found in the harvest of corn, wheat, or sugar beets, regardless of the method of application: pretreatment of the seeds, soil treatment, or spraying of the young plants. Depending on the method of application heptachlor residue was found for varying periods in the leaves and roots of the plants, but cleared rapidly and did not accumulate in soil.

1/1

USSR

VOLKOV, N. I., ZATSIORSKIY, V. M., KRYLATYKH, Yu. G., MAKSIMOV, N. M., NEVERKOVICH, S. D., SARSANIYA, S. K., CHEREMISINOV, V. N., and SHIRKOVETS, Ye. A., State Order of Lenin Central Institute of Physical Culture

"Physiological Characteristics of Repeated Exercise Done at Different Heart Rates"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 5, 1971, pp 23-28

Abstract: Lung ventilation, oxygen consumption, and release of "excess" CO_2 were measured in 3 skilled cyclists after repeated exertions on a bicycle ergometer with different lengths of work and rest periods. Each subject performed 5 variations of the experiment at 3 heart rates - 150, 165, and 180 beats/min. The periods of exertion were 1.5, 3, 7.5, 15, and 30 min. The nature of the physiological reactions to the repeated exercise varied considerably with the length of the work and rest periods. Oxygen consumption was highest when the repeated exercise was done at a heart rate of 180 beats/min with work periods of up to 3 min. Lung function was most efficient when the heart rate was over 150 beats/min and the exercise period was less than 7.5 min. Repeated exercise at 165 beats/min for about 7.5 min had the greatest effect on tissue utilization of oxygen.
1/1

UDC 666.11.01:620.171.5

USSR

VIDRO, L. I., MAKHNAVETSKIY, A. S., ZATSMAN, I. R., TROSHIN, N. N., KHAYKINA, M. A., MIKHAYLOVA, Z. G.

"Installation for Measurement of Stresses in Sheet Glass in Reflected Light"

Moscow, Steklo i Keramika, No 11, 1972, pp 19-20.

Abstract: The Saratov Affiliate of the State Glass Institute has developed a laser installation for measurement of stresses in sheet glass. A helium-neon laser is used as a light source, the beam of light of which is polarized, then transmitted through the glass, reflected on the second surface of the glass, focussed, compensated and converted to an electric current, measured by an ammeter. The use of the reflection of the light from the second surface of the glass allows all parts of the installation to be located on the same side of the sheet of glass, in many cases the only possible arrangement. The use of the laser allows the light beams reflected from the first and second surfaces of the glass to be fully separated.

1/2 019 UNCLASSIFIED PROCESSING DATE--090CT70

TITLE--COSMIC NEUTRINOS OF SUPERHIGH ENERGY -U-

AUTHOR-(02)-BEREZINSKIY, V.S., ZATSPIN, G.T.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(1), 200-5

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, METHODS AND EQUIPMENT

TOPIC TAGS--COSMIC RAY MEASUREMENT, NEUTRINO, COSMIC RAY SHOWER, ENERGY SPECTRUM, HIGH ENERGY PARTICLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0183 STEP NO--UR/0367/70/011/001/0200/0205

CIRC ACCESSION NO--AP0048475

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0048475

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECTRUM IS CALCD. OF PRIMARY COSMIC NEUTRINOS PRODUCED IN COLLISIONS OF P WITH RELIC PHOTONS. BY ASSUMING A LINEAR INCREASE OF THE NEUTRINO N CROSS SECTION WITH THE NEUTRINO ENERGY UP TO THE GEOMETRICAL N CROSS SECTION (SIMILAR TO 3 TIMES 10 PRIME NEGATIVE16 CM PRIME2) THE COSMIC RAY SPECTRUM MEASURED FROM EXTENSIVE AIR SHOWERS MAY WELL HAVE NO CUT OFF IN THE ENERGY REGION E LARGER THAN OR SIMILAR TO 3 TIMES 10 PRIME19 EV. FACILITY: FIX. INST. IM. LEBEDEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

REZNIK, S. R., and ZATULA, D. G., Institute of Microbiology and Virology, Academy of Sciences Ukrainian SSR

"Toxic Characteristics of Some Bacteria of the subtilis-mesentericus Group"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 748-750

Abstract: Some strains of bacteria of the group subtilis-mesentericus form toxic metabolites that may produce specific lesions of the central nervous system in animals. These strains were present in the intestine of 5 percent of rabbits and other laboratory animals. A study of nine strains of subtilis-mesentericus bacteria isolated from the environment and from intestinal flora showed that these strains were toxicogenic to a greater or lesser degree, depending on the strain, under diverse conditions of cultivation. The toxic filtrates from the bacterial cultures produced a form of encephalomyelitis in animals that resembled allergic encephalomyelitis. It is possible that in connection with the preparation of antirabies vaccine, bacterial toxins of this type are transferred into the brain of the animals that are used (specifically, the brains of rabbits) and then into the vaccine. A study of 800 sera of healthy persons, persons who had received injections of nerve tissue antirabies vaccine, and persons who developed encephalomyelitis after treatment

1/2

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720020-3"

USSR

REZNIK, S. R., and ZATULA, D. G., Mikrobiologicheskiy Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 748-750

with vaccine of this type, showed that the sera of healthy, untreated persons did not contain precipitins that reacted with the toxic bacterial metabolites in question, while the sera of persons who had been treated with antirabies vaccine contained such precipitins. Reznik and A. I. Kutoviy established that the culture liquids of the bacteria studied contained at least two toxic substances, a protein and a substance of the acetylcholine type that was possibly bound to a protein. Small amounts of the lyophilized toxic filtrate stimulated the formation of hemagglutinins and increased the amount of properdin, while large doses of the toxin suppressed immunogenesis, as shown by comparison of the immunity indexes with those of controls.

USSR

ZATULA, D. G.

"Possibilities for the Utilization of Microbiological Objects and Methods in Oncological Research"

Kiev, Visnyk Akademiyi Nauk Ukrayinskoy RSR, No 1, 1972, pp 17-25

Abstract: Antigenic similarity between a bacterial spore culture of Bac. megatherium H and malignant tumor cells has been established. This was supported by the agglutination reaction with antisera obtained against tumors, normal cells and bacterial antigens. The antisera to Bac. megatherium H agglutinated tumor cells, especially those of Ehrlich's, and conversely the antitumor sera agglutinated only that bacterial culture and none of the others. Bac. megatherium H could possibly be considered an excellent model for cancer cells. For example, 237 out of 274 patient sera studied, were histologically proven to be cancers, and 218 showed lytic reaction against Bac. megatherium H. Actually several non-malignant conditions, notably of kidney, liver or gastro-intestinal origin can also show positive reactions. In another experiment animals immunized with Bac. megatherium H culture rejected transplanted tumors. On the basis of work with other strains, the author appears optimistic concerning the possibilities of utilizing Bac. megatherium H in effective antitumor autovaccination or even chemotherapy.

1/1

USSR

UDC 576.851.5:616.006-097

ZATULA, D. G., RYEZNIK, S. R., SLABOSPYTS'KA, A. T., and MARKOVA, N. B., Institute of Microbiology and Virology, Academy of Sciences UkrSSR

"The Effect of Different Doses of Bacillus subtilis 572 Toxin on Some Immunological Reactions and Tumor Growth in Animals"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 2, Mar/Apr 71, pp 201-205

Anstract: Experimental data are reported from study of the toxic or stimulating effect of the metabolic products of saprophytic bacteria. Toxic metabolites were obtained by growing Bacillus subtilis strain 572 on synthetic Gauze medium No 2 for 10 days at 24°C, followed by filtration and lyophilization. Material was stored dry and diluted just before actual use. After the animals were injected, the following parameters were studied: hemagglutinin production in mice, properdin level in rabbits, and the resistance to tumor growth in mice. LD_{50} was determined and the material was administered in the range of 0.05-1.5 LD_{50}. It was determined that the effect of dry toxic filtrate is dose-dependent: at dose ranges 1/10-1/5 ID_{50} hemagglutination processes are activated, the properdin level in blood is increased, and the

1/2

USSR

ZATULA, D. G., et al., Mikrobiologicheskiy Zhurnal, Vol 33, No 2, Mar/Apr 71, pp 201-205

resistance of an organism to tumor growth is intensified. When the dose is increased to .5 LD_{50} and higher, the protective forces of the organism are weakened and tumor growth is intensified.

2/2

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--LEVEL OF IRON IMPURITIES IN MEDICINAL RAW MATERIALS AND INJECTION SOLUTIONS -U-

AUTHOR-(02)-BUGRIM, N.A., ZATULA, YE.I.

COUNTRY OF INFO--USSR

SOURCE--FARM. ZH. (KIEV) 1970, 25(1), 54-6

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--DRUG ANALYSIS, IRON COMPOUND, COLORIMETRY/(U)FEK M COLORIMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0665 STEP NO--UR/0491/70/025/001/0054/0056

CIRC ACCESSION NO--AP0131270

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720020-3"

2/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0131270

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FE CONTENT OF DISTD. WATER AND DRUGS SOLNS. WAS DETD. AS FOLLOWS: ADD TO A 50 ML VOLUMETRIC FLASK 5 ML 5PERCENT NA H TARTRATE TO MASK INTERFERING IONS, 5 ML 2PERCENT NH SUB2 OH.HCL TO REDUCE FE PRIME3 POSITIVE, 5 ML 25PERCENT ACOH, 1.5 ML 6N HCL (A CORRESPONDINGLY LARGER VOL. WHEN ANALYZING INJECTION SOLNS.) TO ADJUST PH TO 3-4, 0.2PERCENT O PHENANTHROLINE (I), AND DIL. TO THE MARK WITH WATER TO BE ANALYZED. AFTER 15 MIN, MEASURE THE ABSORPTION OF A FE PRIME2 POSITIVE I COMPLEX USING THE FEK M PHOTOELECTROCOLORIMETER, A BLUE FILTER, AND 30 MM CELLS. TAKE THE RESULT FROM A CALIBRATION GRAPH CONSTRUCTED FOR THE CONCN. RANGE 0.01-1.0 MU G-ML FE. THE PROCEDURE WAS SUITABLE FOR DETG. LARGER THAN 0.001 MG PERCENT FE. THE FE CONTENT OF DISTD. WATER, MEDICINAL PREPNS., AND INJECTION SOLNS. MANUFD. BY DIFFERENT PLANTS RANGED FROM 0.002 TO 0.025, 0.04 TO 0.9, AND SMALLER THAN OR EQUAL TO 0.001 TO 0.62 MG PERCENT, RESP. FACILITY: KHARKOV SCI. RES. CHEM. PHARM. INST., KHARKOV, USSR.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--USE OF THE FORMATION OF OXIMES FOR DETERMINING THE MOLECULAR WEIGHT OF SOME CARDENOLIDES WITH A CARBONYL GROUP AT C,10 -U-

AUTHOR-(02)-ZATULA, V.V., KAZARINOV, N.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. FARM ZH. 1970, 4(2), 52-5

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARDIOVASCULAL DRUG, CARBOL COMPOUND, MOLECULAR WEIGHT, ORGANIC OXIME COMPOUND, CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0540 STEP NO--UR/0450/70/004/002/0052/0055

CIRC ACCESSION NO--AP0113431

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--090CT70
CIRC ACCESSION NO--AP0113431
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MOL. WT. OF SECURIGENIN, SECURIZIDE, AND SECURIDAZIDE WAS DETD. AS FOLLOWS: DISSOLVE 0.01-0.03 G OF A COMPD. IN 5 ML MEOH, ADD 5 ML OF A SOLN. PREPD. BY DISSOLVING 3.5 G NH SUB2 OH.HCL AND 0.12 G ET SUB2 NH (HCL ACCEPTOR) IN 100 ML MEOH TO FORM THE OXIME, AND LEAVE THE SOLN. FOR 3 HR. THEN BACK TITRATE AN EXCESS OF ET SUB2 NH WITH0.02 N HCLO SUB4 USING A 0.3PERCENT THYMOL BLUE SOLN. IN MEOH AS INDICATOR. CARRY OUT A PARALLEL BLANK DETN. WITHOUT GLYCOSIDE AND 3 HR KEEPING. CALC. THE MOL. WT. FROM THE FORMULA: G TIME 1000 TIME NO. OF CO GROUPS-(V SUBK MINUS V SUBR) TIMES 0.02, WHERE G IS SAMPLE WT. IN G, V SUBK AND V SUBR VOLS. IN ML OF 0.002 N HCLO SUB4 CONSUMED FOR TITRN. OF THE BLANK AND ANALYZED SAMPLE, RESP. WITH CARDENOLIDES OF CIS CONFIGURATION OF THE TWO RINGS, SUCH AS CIHARIN, CONVALLATOXIN, AND ERICHROZIDE, THE REACTION IS COMPLETED WITHIN 3-4 HR. WITH THOSE OF TRANS CONFIGURATION THE REACTION DOES NOT GO TO COMPLETION. FACILITY: KHAR'KOV. NAUCH. ISSLED. KHIM. FARM. INST. KHARKOV, USSR.

UNCLASSIFIED

172 018 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ODORIFEROUS SUBSTANCES OF HYDROGENATED FATS -U-

AUTHOR-(05)-LOPATIN, B.V., SHMIDT, A.A., ZATULOVSKAYA, K.F., KONCHALOVSKAYA, M.YE., GROMOVICH, YU.I.

COUNTRY OF INFO--USSR

SOURCE--MASLO-ZHIR. PROM. 1970, 36(2), 13-18

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IR SPECTRUM, UV SPECTRUM, CARBONYL COMPOUND, HYDROGENATION, VEGETABLE OIL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0537 STEP NO--UR/9085/70/036/002/0013/0018

CIRC ACCESSION NO--AP0119456

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119456

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COMPLEX MIXT. OF ODORIFEROUS SUBSTANCES OF HYDROGENATED FATS WAS SEPD. FROM FATS BY MOL. DISTN. IN LAB. EQUIPMENT AND ANALYZED BY SPECTROPHOTOMETRY WITHOUT SEPN. OF THE MIXTS. INTO FRACTIONS. THIS SIMPLIFIED METHOD GAVE SATISFACTORY RESULTS. PRODUCTION DEODORIZING OF HYDROGENATED SUNFLOWER OIL MADE BY A BATCH OR CONTINUOUS METHOD SHOWED THAT IN CONTINUOUS PROCESSING, UNSATD. CARBONYLS WERE REMOVED MORE EFFECTIVELY THAN IN BATCH PROCESSING. THE IR AND UV SPECTRA OF THE PRODUCTS INVESTIGATED SHOW THAT CONTINUOUS DEODORIZING REMOVES UNSATD. CARBONYL COMPDS. MORE COMPLETELY.

FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

Epidemiology

UDC 616.981.717-036.22(477)

USSR

ZATULOVSKIY, B. G., SHKOL'NIK, L. YA., ANISHCHENKO, G. A., MUKHOPAD, V. A., and FONBERG, M. M., Kiev Institute of Epidemiology, Microbiology, and Parasitology, Donetskaya Oblast Sanitary Epidemiological Station, and Donetskiy Medical Institute

"Vesicular Rickettsiosis in the Ukrainian SSR"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 1, 1973, pp 124-128

Abstract: Since the outbreak of vesicular rickettsiosis in Donetskaya Oblast in 1948-1950, with the peak number of 394 rickettsiosis patients recorded in 1950, comprehensive therapeutic and preventive measures have been applied and epidemiological, clinical, etiological, and laboratory data regularly recorded. Statistical analysis of the data indicates a steady decline in the frequency of the disease to 189 cases in 1955, 41 in 1960, 6 in 1964, 3 in 1968, and none in 1969 and 1970. According to serological tests performed on a large number of healthy individuals and patients with various febrile diseases, there are no population contingents with immunity to vesicular rickettsiosis, suggesting that the number of undiagnosed cases is small if not zero. Surveys performed in Zhitomir, Kiev, and a number of regions in Kiev Oblast indicate absence of rickettsiosis in those areas.

1/1

UDC: 537.31

USSR

OKUN', L. S., KAGANOVSKIY, I. P., LEPIKHOVA, Ye. Ye., ZATULOVSKIY, L. M., CHAYKIN, P. M., LEVINZON, D. I., All-Union Scientific Research Institute of Electrothermal Equipment

"Investigation of Resistivity Distribution in a Single Crystal Germanium Strip by the Single-Probe Method"

Moscow, Izv. AN SSSR: Ser. Fizicheskaya, Vol 36, No 3, Mar 72, pp 614-618

Abstract: The distribution of resistivity is studied by single-probe measurements on a single crystal germanium strip with spacing down to 10 μ. The strips were grown by the Stepanov method in directions <110> and <112>, the plane of the strip being (111). The specimens were doped with Ga and Sb for *p*- and *n*-conductivity respectively. It was found that the longitudinal nonhomogeneity is greater than the transverse nonhomogeneity, and that both types of nonhomogeneity increase with a reduction in the discrete measurement step. The distribution of nonhomogeneity in the resistivity of longitudinal specimens is basically periodic with a periodicity of 150-400 μ, depending on the conditions of growth. In transverse specimens the distribution was found to be more random with a periodicity of

1/2

USSR

OKUN', L. S. et al., IAN SSSR: Ser. Fiz., V 36, 1972, pp 614-618

100-125 μ. Fine impurity bands of about 10 μ were observed which are apparently due to the periodicity of the crystallization process occasioned by liberation of the latent heat of fusion. The higher homogeneity observed in p-germanium is attributed to the weaker relation between the effective coefficient of distribution of Ga and periodic fluctuations in growth rate.

2/2

UDC: 53.082.52

USSR

ARTYSHEVSKIY, P. P., ZADDE, V. V., ZAYTSEVA, A. K., ZATULOVSKIY, L. M., KRAVETSKIY, D. Ya., STREL'TSOVA, V. I., CHAYKIN, P. M., All-Union Scientific Research Institute of Electrothermal Equipment

"Photovoltaic Cells Made From Silicon Crystals With Special Cross Sectional Shapes Grown by the Stepanov Method"

Moscow, Izv. AN SSSR: Ser. Fizicheskaya, Vol 36, No 3, Mar 72, pp 522-524

Abstract: A previously described method (Artyshevskiy, P. P. et al., Izv. AN SSSR: Ser. Fiz., Vol 35, 1971, p 469) was used for growing noncylindrical silicon crystals to be tested in solar batteries. Polycrystal and single crystal specimens of *p*-conductivity with resistivity ranging from 0.1 to 15 Ω·cm were grown, cut transversely into thin plates and polished on one face. The *pn* junction was made by phosphorus diffusion. The finished cells had an area of 0.8-1.2 sq. cm. Cells made from polycrystals had higher efficiency than Czochralski cells. The shunt resistance of the polycrystals was high, showing high purity of the semiconductor material. The load characteristics of cells made from single crystals were not as good as those of the polycrystal cells, which was attributed

USSR

ARTYSHEVSKIY, P. P. et al., IAN SSSR: Ser. Fiz., V 36, 1972, pp 522-524

to the low purity of the single crystal material as evidenced by low shunt resistance. This same index shows that contamination is a random factor rather than being due to the method of crystal growing. On the whole, the results show that photovoltaic cells made from noncylindrical crystal rods are at least as good as cells made from Czochralski crystals.

2/2

USSR UDC: 621.315.592

MEN'SHIKOVA, V. A., OKUN', L. S., ZATULOVSKIY, L. M., CHAYKIN, P. M., FRIMER, A. I., All-Union Scientific Research Institute of Electrothermal Equipment

"Feasibility of Making Photodiodes Based on Single Crystal Germanium Strips Grown by the Stepanov Method"

Moscow, Izv. AN SSSR, Ser. Fizicheskaya, Vol 36, No 3, Mar 72, pp 525-528

Abstract: A study is made of the possibility of growing gallium arsenide epitaxially on germanium single crystal strips, and producing photodiodes from the resultant structures. The single crystal germanium strip was grown by the Stepanov method, using a floating shaper and a seed holder on a flexible suspension. A gas-transport reaction in an open tube was used for growing the epitaxial layer of gallium arsenide. The *pn* junction was formed by arsenic diffusion. Mesa photodiodes were made by photolithography. It was found that the integral sensitivity of photodiodes based on single crystal strips is greater than that of diodes based on ordinary germanium. This is attributed to the thinner epitaxial layer of GaAs since losses of light are proportional to the thickness of this layer. This is confirmed by spectral characteristics.

1/1

USSR UDC 621.771.073.001.5

NIKOLAYEV, V. A., ZAUGOL'NIKOV, D. N., and POLUKHIN, V. P.

"Stress Condition in the Contact Zones of Working Rolls in Passing a Weld Joint"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 225-232

Translation: A method is proposed for calculating the optimal shape of a weld joint which compensates for the increased yield point at this place. In order to check the calculations, the polarization-optical method was used. It confirmed the correctness of this technique for determining the optimal shape of the weld. Three figures and one table.

1/1

ZAUGOL'NIKOV, S. D.

SO: JPRS 53615

16 July 1971

SO: JPRS 53615
16 JUL 71

UDC 615.21:577.153

CHOLINESTERASE REACTIVATORS

6/11/70

Translation of Russian-language book by S. N. Golikov and S. D. Zaugol'nikov: Reaktivatory Kholinesteraz; Leningrad, 1970 [redacted] Meditsina Publishing House, 2500 copies, signed to press 3 September 1970, 164 pages.

CONTENTS

[I - USSR - C]

CONTENTS (Continued)

UDC 614.72:613.155.3

USSR

LOYT, A. O., KOCHANOV, M. M., and ZAUGOL'NIKOV, S. D., Institute of Biophysics, Ministry of Health USSR

"Correlation Between the Maximum Permissible Concentrations of Some Chemical Substances in the Air of Industrial Plants and in the Atmosphere of Residential Areas"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 5, 1971
pp 15-17

Abstract: On the assumption of a mathematical relationship between the toxicity and maximum permissible concentrations (MPC) of chemical compounds in the air of industrial plants and in the atmosphere of residential areas, the author worked out the following equations for use in determining the MPC of 40 different substances (hydorcarbons, phenols, ketones, alcohols, etc.):

$$\lg x = 2.32 + 1.16 \lg y \quad r = +0.65$$

$$\lg y = -2.00 + 0.86 \lg x \quad r = +0.65$$

where x is the MPC in the air of an industrial plant, y is the mean daily MPC (in milligrams per m3) in the atmosphere of a residential area, and r is the correlation factor. The following equations were derived from a comparison of the mean daily (x) and maximum single (y) MPC in the atmosphere of a resi-

1/2

USSR

LOYT, A. O., et al., Gigiyena Truda i Professional'nyye Zabolevaniya, No 5, 1971, pp 15-17

dential area

$$\lg x = 0.54 + 1.16 \lg y \quad r = +0.88$$
$$\lg y = 0.47 + 0.84 \lg x \quad r = +0.55$$

The calculated MPC were found to deviate from the experimentally determined MPC by 2 orders in only 3 substances and by 1 order in all the others.

2/2

UDC 614.78

USSR

KOCHANOV, M. M., and ZAUGOL'NIKOV, S. D., Moscow

"Hygienic Aspects of the Substantiation and Organization of Sanitary-Protective Zones"

Moscow, Gigiyena i Sanitariya, No 10, Oct 70, pp 62-64

Abstract: A review is presented of studies on the reduction or elimination of contamination from the biosphere, an important problem in planning for improved sanitation facilities. In this connection, the Soviet Union has been divided into the following meteoreological zones according to the number of days that stagnant air was observed: 1) a large part of Eastern Siberia, where up to 25 days per winter month are considered to be stagnant or dead periods; 2) the western regions of the European part of the Soviet Union and the western and eastern foothills of the Ural mountains with measurable air pollution; 3) the northeast portion of the European part of the Soviet Union and the forest regions of Western Siberia, where stagnant air is observed in spring or winter, 4) Kazakhstan, the Volga area, the northern part of Western Siberia, and the coastal regions, where practically no polluted air has been observed. Control measures must be

USSR

KOCHANOV, M. M., and ZAUGOL'NIKOV, S. D., Gigiyena i Sanitariya, No 10, Oct 70, pp 62-64

taken, particularly in the most critical region (the first one listed). The cultivation of certain plants (fruits and vegetables, for instance) which can serve as biological indicators of air pollution will be of great value. It is noted that deposition of fluorides on the ground in the vicinity of aluminum plants, for example, may lead to increased fluoride concentrations in the milk of cows grazing there. Such findings must be used to establish danger areas and protective zones.

2/2

USSR

UDC 576.851.48.095.5:576.858.9]:576.851.48.098

AMIROV, E. Ya. and ZAUKIN, V. L., Second Moscow Medical Institute imeni Pirogov

"Induction of λPhage and Transduction in Bacterial Forms With Altered Synthesis of the Cell Wall"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, 1971, pp 80-83

Abstract: Study of the lon⁻ and lon⁻ B mutants of E. coli 3RL (λ) and E. coli 3RL-2 (λ) revealed that they are highly sensitive to ultraviolet radiation. Acriflavin increased the mortality rate of the irradiated 3RL-2 mutant, but not to the same extent as that of the original HfrC strain. Both the mutant and the original strain were able to reactivate irradiated phage T7. The kinetics of induction of phage λ in the lon⁻ mutants differed from the kinetics of induction in the E. coli K-12 (λ) and HfrC (λ) strains. The latter strains had a higher initial degree of induction and a smaller optimum dose. The higher spontaneous yield of the phage, compared with the other strains, was probably related to the lon⁻ B mutation. Lysates of phage λ obtained from the lon⁻ mutants were able to effect the transduction of the gal⁺ marker to gal⁻ recipients with the usual frequency.

1/1

USSR

UDC 536/244:532.517.4

LEONT'EV, A. I., ZAULICHNYY, E. G. (Institute of Thermal Physic, AN SSSR Siberian Branch Novosibirsk)

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

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol 19, No 4, Oct 70, pp 737-741

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

1/2 066 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INTERACTION BETWEEN A GRAPHITE SURFACE AND A TURBULENT GAS FLOW UNDER CONDITIONS OF SUBSTANTIAL NONISOTHERMALITY AND IN THE PRESENCE OF

AUTHOR-(04)-VOTCHKOV, E.P., ZAULICHNYY, YE.G., LEONTYEV, A.I., SINAYKO, YE.I.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZIKA VYSOKIKH TEMPERATUR, VOL. 8, JAN.-FEB. 1970, P. 116-122

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, PROPULSION AND FUELS

TOPIC TAGS--TURBULENT FLOW, GAS FLOW, GRAPHITE, EXHAUST GAS COOLING, THERMAL INSULATION, NITROGEN, COMBUSTION RATE, REYNOLDS NUMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0384 STEP NO--UR/0294/70/008/000/0116/0122

CIRC ACCESSION NO--AP0111577

UNCLASSIFIED

2/2 005 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0111577

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

UNCLASSIFIED

USSR

UDC 621.396.6-186.5

SMOLKO, G. G., SAGNYSLOV, Yu. V., ZHELOV, V. N.,

"Electron-Ion Technology of Making Integrated Circuits"

Elektron. prom-st', Nauchno-tekhn. sb. (The Electronics Industry, Scientific and Technical Collection), 1970, No 1, pp 89-91 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V177)

Translation: The authors discuss the principal areas of work on electron-ion technology ("Elionics") in microelectronics, and the advantages of this technology over other methods, particularly in the making of hybrid microcircuits. Comparative characteristics of masking and elionic technology are given from the standpoint of the equipment and personnel required. It is shown that only the use of elionics will make it possible to solve a number of problems in the future development of microelectronics. Two tables, bibliography of five titles. N. S.

1/1

Acc. Nr: AP0038117 Ref. Code: UR 0326

PRIMARY SOURCE: Fiziologiya Rastenii, 1970, Vol 17, Nr 1, pp 162-168

COLLOID-CHEMICAL PROPERTIES OF NECTARY CELLS AND SECRETION OF NECTAR

O. A. ZAURALOV, R. P. ZAURALOVA

Scientific Research Institute of Apiculture, Rybnoye, Ryazan Region

The effect of the cellular poisons fluoride and n-nitrophenol and also succinic acid on sugar secretion in nectar, respiration rate of the nectaries, pH of the secretory tissue, permeability and viscosity of cell protoplasm was studied in milkweed and pumpkin nectaries of various age. Cellular poisons inhibit secretion at lower concentrations than those required for inhibition of the respiratory rate. Cellular poisons shift the pH in the secretory tissue towards alkinity, lower the permeability and increase the plasma viscosity. Succinic acid which stimulates nectar excretion evokes opposite changes. It is concluded that a low intracellular pH, high permeability and low plasma viscosity in the secretory cells are favorable for intense secretion. It is suggested that nectar secretion is more closely related to the colloid-chemical properties of the plasma than to the respiration rate.

1/1

REEL/FRAME

19731170

02

Acc. Nr: AP0038117 Ref. Code: UR 0326

PRIMARY SOURCE: Fiziologiya Rastenly, 1970, Vol 17, Nr 1, pp 162-168

COLLOID-CHEMICAL PROPERTIES OF NECTARY CELLS AND SECRETION OF NECTAR

O. A. ZAURALOV, R. F. ZAURALOVA

Scientific Research Institute of Apiculture, Rybnoye, Ryazan Region

The effect of the cellular poisons fluoride and n-nitrophenol and also succinic acid on sugar secretion in nectar, respiration rate of the nectaries, pH of the secretory tissue, permeability and viscosity of cell protoplasm was studied in milkweed and pumpkin nectaries of various age. Cellular poisons inhibit secretion at lower concentrations than those required for inhibition of the respiratory rate. Cellular poisons shift the pH in the secretory tissue towards alkinity, lower the permeability and increase the plasma viscosity. Succinic acid which stimulates nectar excretion evokes opposite changes. It is concluded that a low intracellular pH, high permeability and low plasma viscosity in the secretory cells are favorable for intense secretion. It is suggested that nectar secretion is more closely related to the colloid-chemical properties of the plasma than to the respiration rate.

1/1

REEL/FRAME
19731170

02

USSR

UDC 666.1:542.65:539.23:543.422.8

(2)

DYMCHENKO, N. P., SHISHLYANNIKOVA, L. M., YERMAKOV, N. I., URAZALIYEV, U. S., ZAUMYSLOV, YU. V., and MOCHALOV, A. I., Moscow State Pedagogical Institute imeni V.I. Lenin and Moscow Oblast Pedagogical Institute imeni N. K. Krupskaya

"X-Ray Diffractometric Study of Grade St-50-1 Sital Substrate Phase Composition"

Moscow, Neorganicheskiye Materialy, Vol 9, No 10, Oct 73, pp 1791-1793

Abstract: Three batches of grade ST-50-1 sital substrates from industrial production were investigated as to reproducibility of phase composition from point to point on one substrate for each of the three batches, then on reproducibility of phase composition from substrate to substrate in the first, second, and third batches, respectively. Sital ST-50-1 is an oxide composition containing (in %): 60 SiO_3, 13 Al_2O_3, 9.5 MgO, 7.5 CaO, and 9.0 TiO_2. Careful analysis of the x-ray diffractograms revealed that, in addition to an amorphous phase, the ST-50-1 sital substrate has two other phases: TiO_2 in the form of rutile and $MgSiO_3$ (clinoenstatite). Reproducibility fron substrate to substrate in a batch and from batch to batch was good. Three-hour heat treatments at 200, 400, and 600°C had no effect on sital substrate composition. One figure, one table, three bibliographic references.
1/1

Acc. Nr.: AR0105401 Ref. Code: UR0000

USSR

JPRS: 50676

ZAUZOLKOVA, I. V.

"Dynamics of Changes in Lysosomes and Their Phosphatase Activity in the Myocardium during Foot-and-Mouth Disease"

Uch. zap. Kazansk. vet. in-ta (Scientific Notes of the Kazan Veterinary Institute), 1969, 102, pp 127-130 (from RZh-Zhivotnovodstvo i Veterinariya, No 1, Jan 70, Abstract No 1.58.393)

Translation: Forty-five guinea pigs were used in the experiment, with five serving as controls. The animals were inoculated in the soles of the hind paws with a 10% suspension of standard foot-and-mouth disease virus (strain A_5 and O) prepared from guinea pig aphthae in a dose of 0.3 ml. The animals were sacrificed 3, 6, 9, 12, 18, 24, 48, 70, 96, 120, and 144 hours after inoculation. Small slices of myocardium from the left ventricle were fixed in cold formalin-calcium solution by Baker's method. Acid phosphatase activity was studied in frozen sections by Gomori's method. Control samples and experimental material were

Reel/Frame
19880354

Acc. Nr.: AR 0105401

treated under identical conditions. The extent of acid phosphatase activity was assessed from the rate of sedimentation of lead sulfide in the myocardial lysosomes. Experimental results showed that within an hour or two of inoculation, acid phosphatase activity in the myocardium became inhibited and remained that way throughout the first day. Thereafter (24, 48, and 70 hours) acid phosphatase activity intensified, as manifested by an increase in the total number of lysosomes and in their phosphatase activity. The peak of enzymatic activity in the myocardium occurred 96 hours after inoculation. A tendency toward morphological and functional restoration of the lysosomes in the myocardium, as reflected in a normalization of their number and decrease in acid phosphatase activity, was noted after 120 and 144 hours.

LD

REEL/FRAME
19880355

USSR

ZAUZOLKOVA, I. V.

"Dynamics of Changes in Lysosomes and Their Phosphatase Activity in the Myocardium during Foot-and-Mouth Disease"

Uch. zap. Kazansk. vet. in-ta (Scientific Notes of the Kazan Veterinary Institute), 1969, 102, pp 127-130 (from RZh-Zhivotnovodstvo i Veterinariya, No 1, Jan 70, Abstract No 1.58.393)

Translation: Forty-five guinea pigs were used in the experiment, with five serving as controls. The animals were inoculated in the soles of the hind paws with a 10% suspension of standard foot-and-mouth disease virus (strain A_5 and O) prepared from guinea pig aphthae in a dose of 0.3 ml. The animals were sacrificed 3, 6, 9, 12, 18, 24, 48, 70, 96, 120, and 144 hours after inoculation. Small slices of myocardium from the left ventricle were fixed in cold formalin-calcium solution by Baker's method. Acid phosphatase activity was studied in frozen sections by Gomori's method. Control samples and experimental material were treated under identical conditions. The extent of acid phosphatase activity was assessed from the rate of sedimentation of lead sulfide in the myocardial lysosomes. Experimental results showed that within an hour or two of inoculation, acid phosphatase activity in the myocardium became inhibited and remained that

1/2

USSR

ZAUZOLKOVA, I. V., Uch. zap. Kazansk. vet. in-ta, 1969, 102, pp 127-130
(from RZh-Zhivotnovodstvo i Veterinariya, No 1, Jan 70, Abstract No 1.58.393)

way throughout the first day. Thereafter (24, 48, and 70 hours) acid phosphatase activity intensified, as manifested by an increase in the total number of lysosomes and in their phosphatase activity. The peak of enzymatic activity in the myocardium occurred 96 hours after inoculation. A tendency toward morphological and functional restoration of the lysosomes in the myocardium, as reflected in a normalization of their number and decrease in acid phosphatase activity, was noted after 120 and 144 hours.

2/2

UNCLASSIFIED PROCESSING DATE--17JUL70

TITLE--A CHANGE OF ANTIPLASMIN ACTIVITY IN PATIENTS SUFFERING FROM TUMOUR OF THE URINARY BLADDER -U-

AUTHOR--ZAVADICH, I.B., KOTOVSHCHIKOV, M.A., FEDOROVA, Z.D.

COUNTRY OF INFO--USSR

SOURCE--UROLOGIYA I NEFROLOGIYA, 1970, NR 1, PP 45-47

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MEDICAL PATIENT, TUMOR, UROLOGY, FIBRINOGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1979/0761 STEP NO--UR/0606/70/000/001/0045/0047

CIRC ACCESSION NO--AP0047254

UNCLASSIFIED

Acc. Nr: AP0047254 Ref. Code: UR 0606

PRIMARY SOURCE: Urologiya i Nefrologiya, 1970, Nr 1, pp 45-47

A CHANGE OF ANTIPLASMIN ACTIVITY IN PATIENTS SUFFERING FROM TUMOUR OF THE URINARY BLADDER

Zavadich, I.B.; Kotovshchikova, M.A.; Fedorova, Z.D.

Summary

Antiplasmin activity was studied on thromboelastograph in 32 patients suffering from tumour of the urinary bladder; the data obtained were compared with the data of fibrinolytic activity of the blood and concentration of fibrinogen. It was shown that there was a distinct shift in the direction of hypercoagulation in these patients, especially with malignant tumours. Surgical intervention and chemotherapy reduced the activity of antiplasmin. There was noted no correlation with the concentration of fibrinogen or negative correlation with the fibrinolytic activity of the blood.

1/1

DI 2

REEL/FRAME
19790761

USSR

UDC 669.083.4

REZNYAKOV, A. A., ISAKOVA, R. A., YESYUTIN, V. S., NESTEROV, V. N., NECHIPORENKO, G. I., MOROZOV, I. F., ZHUKOV, P. I., ZAVADSKAYA, N. F., and KALININ, V. Ya.

"Increasing the Effectiveness of Vacuum Refining of Selenium"

Moscow, Tsvetnyye Metally, No 1, Jan 70, pp 54-57

Abstract: Data were obtained which confirm the results of previously conducted laboratory investigations regarding the possibility of producing high-quality commercial Se in a single operation. At 450° and a vacuum of 0.6 mm Hg, the output of the apparatus was 2 t/m² per day. The yield of high-quality Se was 80%; highly volatile fractions and mother liquor accounted for 15 and 5%, respectively. During prolonged operation of the apparatus the disks overgrown with shelliness, which formed as the result of the precipitation of metal selenides suspended in Se. An investigation of the filtration of fusion and vapors of Se showed that it is possible to produce high-quality commercial Se in a single operation. The process has been introduced into Se production.

1/1

USSR

UDC 669.295.054.79

5

GALITSKIY, N. V., BAYBEKOV, M. K., DROZHZHEV, V. I., CHEPRASOV, I. M., MEDVEDCHIKOV, E. P., BARKOVA, N. P., ZAVADOVSKAYA, V. N., SELEDTSOV, D. K., and KORENDYASEV, M. I.

"Reprocessing Waste Titanium and Its Alloys in a Chloride Melt"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 135-140

Translation: Results are given of experimental-industrial research on the reprocessing of ungraded waste mixtures of chips from different titanium alloys by chlorinating in a chloride melt. An experimental batch of marketable titanium sponge was obtained. The characteristics of the raw material used, the chlorine gas, the coke, and the working fusion are given, along with a description of the technological conditions, the chart for preparing chips for chlorination, and the technological equipment charts for the chlorination and cleaning conversions. An analysis is made of the distribution of alloying elements in the products of chlorination. Basic expenditure coefficients, calculated per ton of industrial titanium tetrachloride, are deduced, and data are given on the quality of the $TiCl_4$ and the sponge titanium obtained. Three illustrations and one table.

1/1

USSR

UDC 669.295.046.43

GALITSKIY, N. V., DROZHZHEV, V. I., and ZAVADOVSKAYA, V. N.

"Interaction of Metallic Titanium With Chlorine in a Madium of Molten Chlorides"

Sb. tr. Vses. n.-i. i proyektn. in-t titana (Collection of Works of the All-Union Scientific Research and Design Institute of Titanium), 1970, 5, pp 33-36 (from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G150)

Translation: A study is made of the interaction of Cl with metallic Ti sponge and Ti shavings in molten Na, K, Mg chlorides and their mixtures at temperatures of 650-900° and Cl consumption of 0.96-3 l/min. The interaction occurs in two stages. The composition of the melt has the following effect on the process: in the presence of $MgCl_2$ the reaction rate is slower than in pure K and Na chlorides and the start of the interaction is retarded owing to Ti passivation. The chlorination rate is independent of the grain size of the material and the temperature under the conditions outlined. Dilution of Cl with air changes the nature of interaction; Ti oxides appear in the melt, while free Cl appears in the flue gases. 3 ill.

Authors' abstract

1/1

UDC 669.295.046.43

USSR

GALITSKIY, N. V., ZAVADOVSKAYA, V. N., and DROZHZHEV, V. L.

"The Solubility of Molybdenum Pentachloride in Titanium Tetrachloride"

Sb. tr. Vses. n.-i. i proyektn. in-t titana, [Collected Works of All-Union Scientific-Research and Planning Institute for Titanium], 6, 1970, 34-36, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No. G177 by the authors).

Translation: The saturation method is used to determine the solubility of $MoCl_5$ in $TiCl_4$ at temperatures of 4, 25, 65, and 100°. In this temperature interval, the solubility varies from 0.002 to 0.034 mol portions. The heat of dissolution of $MoCl_5$ in $TiCl_4$ ΔH_{sol}° = 6.82 ± 0.2 kcal/mol.

4 figures; 1 table; 6 biblio. refs.

1/1

USSR

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

ZAVADOVSKAYA, YE. K., DZHAPAROV, R. D., ASANBAYEVA, D. A.

"Dielectric Losses in Nonequilibrium Alkali-Halide Solid Solutions"

Izv. Tomsk. politekhn. in-ta (News of Tomsk Polytechnical Institute), 1970, Vol. 180, pp 149-153 (from RZh Fizika, No 12, Dec 71, Abstract No 12Ye1148)

Translation: The effect of the decay of ionic solid solutions of NaCl-KCl and NaBr-KBr on their dielectric losses and electrical conductivity is explained. The absorption spectra are measured in the region of F-center absorption.

1/1

USSR

UDC 539.294

ZAVADOVSKAYA, YE. K., BORISOVSKIY, V. V., and GOLOVCHANSKIY, YE. M., Tomsk Polytechnic Institute imeni S. M. Kirov

"Investigation of Stored Energy in Alkali Halide Crystals"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 6, 1971, pp 127-129

Abstract: Changes in the properties of a solid at the moment of irradiation are determined by the amount of energy absorbed. Permanent changes in the properties following irradiation are characterized by the amount of energy stored, which in turn is determined by the concentration of radiation defects and their energy of formation. Stored energy is a more complete characteristic than are the changes in optical, electrical and other properties of the solid which take place under the influence of radiation. Stored energy as a characteristic of integral defects in a solid is of interest in the field of large irradiation doses when the concentration of defects can not be determined, for example, from the spectra of optical absorption. Stored energy has been most thoroughly studied in alkali-halide crystals, and considerable attention has been given to investigating the kinetics of accumulating stored energy in NaCl crystals. The kinetics of accumulating stored energy have been obtained as a function of the chemical composition for crystals of NaCl.
1/2

USSR

ZAVADOVSKAYA, YE. K., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 6, 1971, pp 127-129

KCl, KBr in a very narrow range of doses. The authors in this article study the kinetics of accumulating stored energy in these crystals as a function of chemical composition in a wider range of doses. They determined the stored energy using the method of diffusion. The authors describe their experiment and discuss it fully using graphs. They find that in the investigated crystals the rate of accumulating stored energy and its maximal value are greater as the energy of the lattice is greater, thus confirming the previous assumptions that the properties of solids are a function of the energy of the lattice. The article contains 2 figures and 11 bibliographic entries.

2/2

USSR UDC: 535.34

ZAVADOVSKAYA, Ye. K., LISITSYN, V. M., BARANOV, A. I., FEDOROV, V. A., STEPANOV, V. G., Tomsk Polytechnical Institute imeni S. M. Kirov

"Radiation-Induced Transformation of Defects in CaF_2, SrF_2, and BaF_2"

Tomsk, Izvestiya VUZov: Fizika, No 2(129), 1973, pp 110-112

Abstract: The paper presents the results of an investigation of radiation-stimulated processes of transformation of defects in fluorides of alkali-earth metals. The crystals were grown from purified natural fluorides and also from synthesized, chemically pure salts. The crystals were subjected to electron bombardment at 1-1.8 MeV at room temperature and also in a stream of low-temperature plasma at an air pressure of 1-2 mm Hg. The EPR spectra were measured at room temperature on a Thomson-251 spectrometer. It is found that radiation in these crystals converts simple electron defects with active participation of holes to radiation-stable and heat-stable defects. The greatest effect of the radiation-stimulated processes is observed in CaF_2.

1/1

UDC 621.375.443

USSR

ZAVADOVSKIY, A.Z., KRYUKOV, YU.G. [Members, Scientific-Technical Society Of Radio Engineering, Electronics, And Communication imeni A.S. Popov]

"Computation Of The Scattering Of Transistor Parameters During Design Of Transistorized IF Amplifiers With Pairs Of Staggered Stages"

Radiotekhnika, Vol 27, No 4, Apr 1972, pp 70-77

Abstract: In a previous work by the authors (Radiotekhnika, Vol 24, 1969, No 5), the effect is analyzed of the scattering of the reactive and active constituent parameters of transistors on the indices of intermediate frequency amplifiers with tuned circuits. The present work considers an IF amplifier with pairs of staggered stages using the common emitter circuit most often employed in practice. Relationships are obtained characteristic of the effect of the scattering of transistor parameters on the principal indices of such an amplifier. Recommendations are made concerned with the use of these relationships during engineering design of IF amplifiers. 2 ill. 5 ref. Received, 17 Dec 1969; after further improvement, 9 Dec 1970.

1/1

UDC: 621.391.8

USSR

ZAVADOVSKIY, A. Z., KOZHUKHAR', S. V., and RYZHOV, V. P.

"Optimal Bandwidth for FM Pulse Reception on a Reverberational Noise Background"

Kiev, Izvestiya VUZ -- Radioelektronika, Vol. 13, No. 9, 1970, pp 1156-1158

Abstract: Since the realization of optimal filters is technically difficult, nonoptimal systems for processing complex signals in the form of a "band filter, detector, and low-frequency filter" strip are often used. The width of the band filter is then usually chosen equal to the width of the signal spectrum. This article, however, demonstrates that in this type of receiver, the optimal bandwidth should be less than the signal spectrum width. The authors take, as the index of the noise immunity, the improvement in signal-to-noise ratio with the passage of signal and noise through the band filter. The signal at the receiver input is taken to be

1/2

a pulse of rectangular envelope with a definite amplitude, duration, and a linearly varying filling frequency having a specified deviation. For a signal in which the product of the pulse duration and the frequency deviation is greater than one, it may be assumed that the envelope of the signal spectrum is square-shaped and the spectral width is equal to the frequency deviation. It is assumed also that the band filter is in the form of a single oscillatory circuit. The authors derive an expression for the change in the ratio of the maximum signal amplitude to the effective noise value when the signal and noise pass through the filter circuit. Since this expression is also the value of the improvement in the signal-to-noise ratio noted above, it is investigated for an extremum and found to have a maximum. The optimum band width is thus derived. This result was experimentally verified using an FM pulse oscillator with a pulse duration of about 1 to 20 microseconds and a frequency deviation of up to 10 kHz for an average filling frequency of 50 kHz. The FM nonlinearity was no more than 5%, and the band filter oscillatory circuit had a resonant frequency of 50 kHz and a Q of 120.

2/2

Receivers and Transmitters

USSR

ZAVADOVSKIY, A. Z., KOZHUKHAR', S. V., RYZHOV, V. P.

"Optimal Passband of a Linear-FM Pulse Receiver in the Presence of Reverberation Noise"

Kiev, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp 1156-1158

Translation: The use of complex signals not only improves the resolution capacity of a system but also increases its immunity to reverberation noise [1]. However, great technical difficulties are involved in the use of optimal filters for complex signals. Nonoptimal systems, in the form of a band-filter--detector--LF-filter channel, are hence often used for processing complex signals. The passband of the band filter is then selected usually equal to the width of the signal spectrum [2]. We will show that with this receiver structure and with the use of linear-FM pulses, the optimal passband must be narrower than the width of the signal spectrum.

We will take an improved signal-to-noise ratio as the means of noise suppression in the passage of a signal and noise through a band filter.

1/8

USSR

ZAVADOVSKIY, A. Z., et al, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp 1156-1158

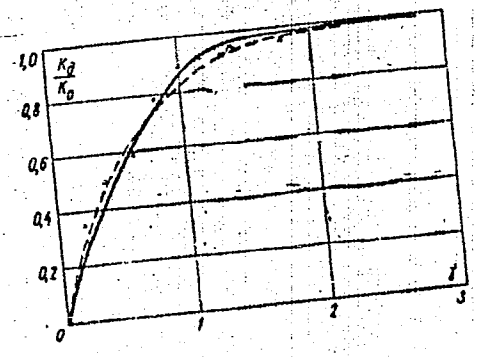


Fig.1

We will examine the signal at the receiver output in the form of a pulse with a rectangular envelope with an amplitude U_c, duration T, and a linearly varying occupant frequency with deviation F. With a signal base m = FT $\gg$ 1; we may consider that the signal spectrum envelope is rectangular and that the width of the spectrum is equal to the frequency deviation.

2/8

USSR

ZAVADOVSKIY, A. Z., et al, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp 1156-1158

We will assume that the band filter is in the form of a single oscillation network with an energy bandpass Δf. To determine the maximum amplitude value of the signal at the filter output, we will use the dependency of the maximum of the network dynamic transfer factor K_A on the value $\gamma = \frac{2}{\sqrt{\pi}} \frac{\Delta f}{F} \sqrt{m}$, cited in [3].

Because the function $K_A(\gamma)$ is very complex, we will approximate it with the following expression:

$$K_A \approx K_0(1-e^{-1,7\gamma}). \qquad (1)$$

The function $K_A(\gamma)$ computed with precise formulas [3] and its approximate curve are given in figure 1.

If we regard reverberation interference as the result of superimposition of signals reflected from a multitude of diffusers, we can consider [1] its random process with a distribution close to the normal and with a power spectral density of practically rectangular shape (with $m \gg 1$) and equal to:

USSR

ZAVADOVSKIY, A. Z., et al, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp 1156-1158

$$S=\frac{pU_c^2}{F}, \qquad (2)$$

where p - const.

Problems connected with the instability of reverberation noise are not discussed in this article.

We will use the following formula to determine the noise voltage at the network output:

$$U_{ш}=K_0\sqrt{S\Delta f}=K_0U_c\sqrt{p\frac{\Delta f}{F}}. \qquad (3)$$

Using (1), (2), and (3), we will find the change in the relationship of the maximum signal amplitude to the effective value of the noise during the passage of the signal and the noise through the circuit (bettering of the signal-to-noise ratio)

$$n=\sqrt{\frac{F}{\Delta f}}\left(1-e^{-1.9\frac{\Delta f}{F}\sqrt{m}}\right). \qquad (4)$$

4/8

USSR

ZAVADOVSKIY, A. Z., et al, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp 1156-1158

The results of calculation with formula (4) are shown in figure 2 for m = 50, 100, and 200.

Investigating expression (4) at the extremum reveals that n has a maximum in the region

$$\Delta f_{опт} = \frac{0{,}66\,F}{\sqrt{m}}. \qquad (5)$$

$$n_{макс} = 0{,}88\sqrt[4]{m}. \qquad (6)$$

equal to

Let us compare the signal-to-noise ratio at the circuit output with the corresponding ratio at the output of the optimal filter

$$\frac{n}{n_{опт}} = \frac{n}{\sqrt{m}} = \left(1 - e^{-1{,}9\frac{\Delta f}{F}\sqrt{m}}\right)\sqrt{\frac{F}{\Delta f m}} \qquad (7)$$

USSR

ZAVADOVSKIY, A. Z., et al, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp 1156-1158

We will now determine the relation between the duration of the signal at the input of the circuit using the principle of frequency equivalency and the time changes in the signal as it passes through the linear circuit [4]

$$t_{вых}=T\frac{\Delta f_{д}}{F}, \tag{8}$$

where $\Delta f_{д}$ is the dynamic passband of the circuit; $t_{вых}$ is the output pulse duration determined at the same level (0.707) as the passband.

In determining $\Delta f_{д}$ we will use the dependencies $\frac{\Delta f_{д}}{\Delta f_{дмин}}=\varphi(\gamma)$ adduced in [3],

where $$\Delta f_{дмин}=0{,}8\frac{\sqrt{m}}{T}. \tag{9}$$

Calculated with formulas (8) and (9), the dependency of $\frac{F}{\Delta f}$ on $\frac{t_{вых}}{T}$ is demonstrated in figure 3 for m = 50, 100, and 200. The minimum value for the duration of the output pulse is equal to $t_{вых\,мин}=\frac{T}{\sqrt{m}}$ and is located in the region of the maximum of the curves $n\left(\frac{F}{\Delta f}\right)$.

6/8

USSR

ZAVADOVSKIY, A. Z., et al, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp 1156-1158

For an experimental check of the derived relation, a linear-FM pulse generator was used with controlled pulse duration (from one to 20 msec) and with a frequency deviation of up to 10 kHz, with the center frequency occupying 50 kHz, and with FM nonlinearity not exceeding 5%. The investigated oscillating circuit had a resonance frequency of 50 kHz and a Q factor of 120. The dynamic transfer factor of the network and the duration of the pulse at the output with a constant passband (for m = 100) was investigated. An oscilloscope was used to do the measurements. The experimental values are shown in figures 1 and 3 with crosses.

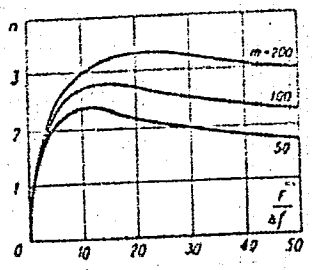


Fig. 2

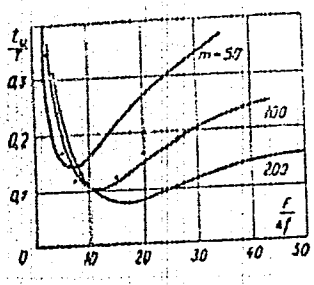


Fig. 3

7/8

USSR

ZAVADOVSKIY, A. Z., et al, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp 1156-1158

Thus, using formula (5) to select the circuit passband, minimal duration of the output pulse and a maximum signal-to-noise ratio are provided. In this case, the signal-to-noise ratio and the duration of the output pulse are worse than when using the optimal filter approximating the factor $\sqrt{m}$. However, the discussed system is designed considerably simpler than the optimal.

Bibliography:

1. Ol'shevskiy, V. V., Statistical Properties of Sea Reverberation. Izd-vo "Nauka," 1966.
2. Malyarevskiy, N. M., Krukovskiy-Sinevich, K. B., Comparative Noise Immunity of a Nonoptimal Detection System in the Presence of Signals with Noise and FM Content, Izvestiya VUZ SSSR Radioelektronika, 1969, Vol 12, No 1, p 51
3. Martynov, V. A., Selikhov, Yu. I., Panoramic Receivers and Spectrum Analyzers, Izd-vo, "Sovetskoye radio," 1964.
4. Tikhonov, V. I., Statistical Radio Engineering, Izd-vo "Sovetskoye radio," 1966.

8/8

USSR

UDC 621.396.679:621.372.852.1(008.8)

KUZMINYKH, YE. S., ZAVADOVSKIY, B. D., SELEZNEV, G. YE.

"Separating Transmission and Reception Filter"

USSR Author's Certificate No 248859, Filed 3 Apr 67, Published 22 Jan 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B85P)

Translation: The proposed separating filter consists of a basic transmission line, an auxiliary transmission line with a ballast load on the end and traveling wave resonators connecting them with a ring length equal to an even number of halfwaves of the receiver and an odd number of halfwaves of the transmitter. In order to insure the given decoupling between the cross arms, the loaded end of the auxiliary line is connected to the basic line by a directional coupler through which part of the transmitter signal coming to the filter is shunted. There is one illustration.

1/1

Acc. Nr: AP0055995 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code: 4R0368

Z

116317z Integrated intensities of carbonyl bands in the ir spectra of some aromatic aldehydes. Zavadskaya, M. I.; Chizhevskaya, I. I. (USSR). *Zh. Prikl. Spektrosk.* 1970, 12(1), 159–60 (Russ). The frequencies were measured and the abs. integrated intensities were calcd. of the ν(C:O) absorption bands in the spectra of $CHCl_3$ solns. (0.075–0.3 mole/l.) of PhCHO as well as of its *p*-dimethylamino, *p*-*N*,*N*-bis(β-chloroethyl)amino, *p*-*N*,*N*-bis(β-fluoroethyl)amino, *o*-methyl-*p*-*N*,*N*-bis(β-chloroethyl)amino, *p*-nitro, and *m*-nitro derivs. The integrated intensity value can be used as a criterion of the degree of polarization the C:O bond. Vaclav Sarh

pc

1

1/1

REEL/FRAME
19841324

UDC 538.2:539.2

USSR

GALKIN, A. A., ZAVADSKIY, E. A., MOROZOV, Ye. M., Donetsk Physicotechnical Institute, Academy of Sciences, Ukrainian SSR

"Magnetic and Structural Transformations in the $Mn_{2-x}A_xB_ySb_{1-y}$ System"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, No 9, September 1970, pp 1440-1445

Abstract: On the basis of results of numerous measurements it is shown that magnetic transformations observed in various subsystems of the $Mn_{2-x}A_xB_ySb_{1-y}$ system are qualitatively identical. In this system can be stabilized not only various magnetic structures with identical lattice symmetry but also a weakly ferromagnetic structure connected with a change of the lattice symmetry. A common model of spin orientations is presented for an undistorted lattice of the system; this model includes a ferrimagnetic structure, an antiferromagnetic structure, and two intermediate magnetic structures that are close to spiral ones. By changing the concentration of alloying elements A or B, the temperature of transition from one structure to another can be changed, and one or several of the magnetic structures can also be excluded. On the basis of analysis of the lattice symmetry is proved the possibility of the formation of a weakly ferromagnetic structure, while by means of magnetic measurements on the basis

1/2

USSR

GALKIN, A. A., et al, Ukrainskiy Fizicheskiy Zhurnal, No 9, September 1970, pp 1440-1445

of polycrystalline and textured samples in a wide range of magnetic fields (up to 300 kiloersted) and by means of electrical measurements, it is shown that such a structure is actually realized in the $Mn_2Ge_ySb_{1-y}$ subsystem. 4 figures, 16 bibliographic entries.

2/2

1/2 041 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--MAGNETIC TRANSFORMATIONS IN THE MN SUB2 GE SUBY SB SUB1 NEGATIVE SYSTEM IN STRONG MAGNETIC FIELDS UNDER HIGH PRESSURE -U-

AUTHOR-(03)-GALKIN, A.A., ZAVADSKIY, E.A., MOROZOV, E.M.

COUNTRY OF INFO--USSR

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 37, NR 2, PP 851-856

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETIC TRANSFORMATION, TRANSITION TEMPERATURE, STRONG MAGNETIC FIELD, PRESSURE EFFECT, MAGNETIC STRUCTURE, ENTROPY, SPIN SYSTEM, HIGH PRESSURE, MANGANESE COMPOUND, GERMANIUM COMPOUND, ANTIMONIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1071 STEP NO--GE/0030/70/017/002/0851/0856

CIRC ACCESSION NO--AP0107580

UNCLASSIFIED

2/2 041 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0107580

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT TEMPERATURE CHANGES SOME MAGNETIC PHASE TRANSFORMATIONS ARE OBSERVED IN THE MN SUB2 GE SUBY SB SUB1-Y SYSTEM, WHICH ARE ACCOMPANIED BY MAGNETIC STRUCTURE CHANGES. THE MAIN CHARACTERISTICS OF SUCH TRANSFORMATIONS, MAGNETIZATION CHANGE, CHANGE OF THE ENTROPY OF THE SPIN SYSTEM, AND TRANSITION HEAT, WERE DETERMINED ON THE BASIS OF MAGNETIC MEASUREMENTS OVER A WIDE RANGE OF MAGNETIC FIELDS. THE EFFECT OF PRESSURE ON THE MAGNETIC TRANSFORMATION TEMPERATURE WAS ALSO STUDIED. AN ANALYSIS OF THE EXPERIMENTAL RESULTS IS MADE ON THE BASIS OF KITTEL'S EXCHANGE INVERSION THEORY.

FACILITY: PHYSICO-TECHNICAL INSTITUTE OF THE UKRAINIAN ACADEMY OF SCIENCES, DONETSK.

UNCLASSIFIED

USSR

GALKIN, A. A.; ZAVADSKIY, E. A. (Donetsk Physics-Engineering Institute, Ukrainian Academy of Sciences)

"Nonequivalence of Atoms in Ferrites"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya; May, 1970; pp 940-2

ABSTRACT: The authors offer the hypothesis that the magnetic moment of ions located in crystalographically nonequivalent lattice points must be different if the splitting of the 3d-electron levels not only in the crystalline field but also in the effective Weiss molecular field is taken into account.

A comparison of the experimental values for the magnetization with the theoretical, an analysis of the fields in the nuclei of ferrospinels and garnets, as well as the presence of compensation points in $LiFeTiO_4$ allow one to hypothesize that the magnetic moment of the Fe^{3+} ion at a tetrahedral point is somewhat less than the magnetic moment of the same ion in an octahedral situation. The calculations made for $LiFeTiO_4$ showed that this difference must be close to 0.2 μ_B.

The article includes a figure and two tables. There are four bibliographic references.

1/1

ZAVADSKIY, V.A.

JPRS 59268
6-73

4

XIV-14. DEFECTS OF LAYERS DURING EPITAXY FROM A SOLUTION IN A MELT

[Article by V. A. Zavadskiy, A. I. Kazakov, V. I. Kuznetsov, V. A. Mokritskiy, Odessa; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 206]

The structural perfection of monocrystalline layers of semiconducting materials is one of the basic properties determining their quality and further use in the manufacture of instruments.

In this paper a study was made of the formation and the types of structural defects in the monocrystalline layers of germanium, gallium arsenide and phosphide obtained from a solution in melts of different metals depending on the conditions of obtaining them.

It was demonstrated that the structural perfection of the monocrystalline layers depend on the state of the substrate surface before the epitaxy process, the selection of the metal solvent and the nature of variation of the thermal field in the crystallization zone. Some causes of the variation of the defect distribution with respect to thickness of the epitaxial layer were discovered.

USSR

UDC 536.46 + 662.222.2

KSANDOPULO, G. I., KOLESNIKOV, B. Ya., ZAVADSKIY, V. A., ODNOROG, D. S., YELOVSKAYA, T. P., Alma-Ata

"Mechanism of Inhibition of Combustion of Hydrocarbon-Air Mixtures by Finely Dispersed Particles"

Fizika Goreniya i Vzryva, No 1, Mar 71, pp 92-99.

ABSTRACT: Inhibited atmospheric propane flames were studied by the method of sampling from the flame using a quartz microtube to take samples for mass-spectrometer analysis. The reaction was quenched in the samples taken in less than 50 μ sec by the adiabatic expansion of the stream of sampled gases moving through the capillary into the sample chamber. Analysis of the concentration profiles formed in the reaction zone of the flame indicate that the first summary process is that of fractionation of the initial fuel molecules. As the concentration of propane decreases, the concentration of its fragments increases. The process of inhibition by solid particles is reduced on the one hand to accelerated formation of formaldehyde and on the other hand to inhibition of its loss by recombination of the OH radical on the surface of the solid particles. The change in the effectiveness of inhibition is in proportion to the total surface area of particles and depends on their nature. This proves the heterogeneous mechanism of inhibition of combustion.

1/1

UDC: 621.315.592

USSR

ALEKSANDROVA, G. A., ZAVADSKIY, Yu. I., KORNILOV, B. V., and SKVORTSOV, I. M.

"The Predominating Contribution of Oxygen to the Compensation of High-Resistance GaAs Films"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1340-1344

Abstract: In an earlier paper coauthored by some of the writers named above (B. V. Kornilov, et al, Fizika i tekhnika poluprovodnikov, 5, 1971, p 144) it was reported that deep-level impurities may participate in the compensation of high-resistance GaAs films obtained by gaseous epitaxy when the reaction volume contains oxygen. Although the mechanism of compensation remained unclarified in that article, new experimental evidence is adduced in the present paper to provide a clearer picture of the mechanism and to establish definitely the involvement of oxygen. The specimens for the experiments were epitaxial layers of n-type GaAs obtained from the gas phase of the Ga-AsCl3-H2 system at T = 750° C, with oxygen brought into the system. The resultant material, with a resistivity of up to 10^5 ohm·cm, was deposited on semi-insulating

USSR

ALEKSANDROVA, G. A., et al, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1340-1344

GaAs substrates doped with Cr and oriented along the (110) plane. Curves are plotted for the dark current in the films as a function of the temperature, and for typical spectra of photoconductivity and cathode luminescence, which show that the films contain centers with activation energy levels of 0.35, 0.56-0.62, 0.8, and 1.01 ev. A full explanation of the compensation mechanism as modified by the data of the present article is given.

2/2

USSR

ZAVADSKIY, YU. I., KORNILOV, B. V., PELEVIN, O. V.

"Induced Impurity Photoconduction and Optical Properties of Semi-insulating Chromium-Doped Gallium Arsenide"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 5, 1972, pp 993

Abstract: A study was made of the spectral dependence of the impurity photoconductivity stimulated by natural illumination, optical absorption, cathode luminescence and photoconductivity of semi-insulating chromium-doped gallium arsenide. Along with the chromium level of E_c = 0.795 electron volts, in the GaAs lattice there is a center with an activation energy of 0.62 electron volts. The phenomenon of induced impurity photoconductivity with a threshold of ~0.37 electron volts was detected under the conditions of constant natural illumination. The magnitude of the activation energy of chromium determined by the peak cathode luminescence band at T = 77°K is 0.795 electron volts. The experimentally determined spectral dependence of the impurity absorption coefficient proportional to the chromium concentration is compared with the theoretical model of photoionization using an approximation of a strong bond. The explanation of the experimental data is presented in terms of local levels

1/2

USSR

ZAVADSKIY, UY. I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 5, 1972, pp 993

without using the impurity band model.

The complete text of this report can be obtained by requesting report number 3333-71 Dep., 19 August, 1971 from the following address: Moscow, A-219, Baltiyskaya, 14, Division of Scientific Papers and Reference Information of the All Union Institute of Scientific and Technical Information.

2/2

USSR

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

ZAVADSKIY, YU. I., KORNILOV, B. V., and PELEVIN, O. V.

"Induced Impurity Photoconductivity and Optical Properties of Semi-Insulating Chromium-Doped Gallium Arsenide"

Indutsirovannaya primesnaya fotoprovodimost' i opticheskiye svoystva poluizoliruyushchego arsenida galliya, legirovannogo khromom (cf. English above, Editorial Board of the Journal, Fiz. i tekhn. poluprovodnikov (Semiconductor Physics and Technology), Academy of Sciences USSR), Leningrad, 1971, 20 pp, ill., bibliography with 17 titles, No 3333-71 Dep (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1504Dep by authors)

Translation: A study was made of the spectral dependence of impurity photoconductivity, stimulated by self-illumination, optical absorption, and cathodoluminescence of semi-insulating Cr-doped GaAs. It was established that, besides the Cr level of $E_c = 0.795$ ev, there is in the GaAs lattice a center with activation energy of 0.62 ev. The authors found the phenomenon of induced impurity photoconductivity with a threshold of ~ 0.37 ev under conditions of steady self-illumination. The magnitude of Cr activation energy, determined from the maximum of the cathodoluminescence band, given $T = 77^{\circ}K$, equals 0.795 ev. The experimentally determined spectral dependence of the impurity absorption coefficient, which is proportional to Cr concentration, is compared with

1/2

USSR

ZAVADSKIY, YU. I., et al., Indutsirovannaya primesnaya fotoprovodimost' i opticheskiye svoystva poluizoliruyushchego arsenida galliya, legirovannogo khromom, 1971, No 3333-71 Dep

the theoretical model of photoionization using strong bond approximation. An explanation of the experimental data is made in terms of local levels without drawing on the impurity band model.

2/2

1/2 034 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EXISTENCE OF SPATIALLY SEPARATED ACTIVE REGIONS GENERATING DIFFERENT HARMONICS OF CURRENT AUTOOSCILLATIONS IN ZINCDOPED SILICON -U-

AUTHOR-(02)-ZAVADSKIY, YU.I., KORNILOV, B.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1545-7

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--ZINC, METAL COATING, SILICON, THERMAL EFFECT, ELECTRIC PROPERTY, HARMONIC OSCILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0162 STEP NO--UR/0181/70/012/005/1545/1547

CIRC ACCESSION NO--AP0129418

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 034

CIRC ACCESSION NO--AP0129418

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NEW EXPTL. DATA ARE GIVEN ON SOME PECULIARITIES OF CURRENT AUTOOSCILLATIONS IN SI PLATES DOPED WITH ZN. VIBRATIONS WERE OBSD. AT TEMPS. CLOSE TO ROOM TEMP. VOLT AMPERE CHARACTERISTICS ARE GIVEN. AT 19DEGREES WITH INCREASED VOLTAGE, A LOW FREQUENCY HARMONIC APPEARS FIRST, AND THEN A HIGH FREQUENCY HARMONIC. AT GREATER THAN 19DEGREES, THE HIGH FREQUENCY HARMONIC APPEARS FIRST. TWO INDEPENDENT ACTIVE CENTERS ARE FORMED IN THE CRYSTAL. THE 1ST CENTER IS LOCALIZED IN A REGION OF HIGH SP. RESISTANCE CLOSE TO THE CATHODE, 200 MU ACROSS. ON ILLUMINATION OF THIS REGION, ONLY THE HIGH FREQUENCY HARMONIC APPEARS. THE ACTIVE REGION RESPONSIBLE FOR THE LOW FREQUENCY HARMONIC IS LOCATED IN THE REGION OF THE MAX. ON THE DISTRIBUTION CRUVE OF RESISTANCE.

UNCLASSIFIED

USSR

ZAVADSKIY, YU. I., KORNILOV, B. V.

"On the Existence of Spatially Separated Active Regions Generating Different Harmonics of Current Autooscillations of Zinc-Doped Silicon"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 5, May 1970, pp 1545-1547

Abstract: New experimental data are presented on current oscillations in zinc-doped silicon plates observed near room temperature in sequentially connected series consisting of a battery, load resistance, and sample. The experiments indicated the presence of two or more spatially separated active regions in the crystal which generate oscillations independently. A light probe method described previously by the authors (FTT, 11, 1969, 1494) was used to measure the current-voltage characteristics of the sample at different temperatures and the position of the threshold for each harmonic. For $T < 19^{\circ}C$ the lower frequency harmonic first appears with an increase in screen voltage and then a higher frequency harmonic is added to it. The high-frequency harmonic first appears at $T > 19^{\circ}C$. The appearance of active regions was determined by studying the effect of an

1/3

USSR

ZAVADSKIY, YU. I., Fizika Tverdogo Tela, Vol 12, No 5, May 1970, pp 1545-1547

unmodulated light probe on the frequency and amplitude of the oscillations. The action of the probe on each harmonic individually could be determined because of the good selectivity of the voltmeter. Results showed that two independent active centers are formed in the crystal which are so far separated from one another that they act practically independently. The first center is localized in the region of increased specific resistance close to the cathode at a distance of ~200 μ. The frequency and amplitude of only the higher-frequency harmonic is changed upon illumination of this region. The active region responsible for the low-frequency harmonic is located in the neighborhood of the maximum of the resistance distribution curve. The maximum change in the amplitude and frequency of the low-frequency harmonic occurs at the position of the probe close to this maximum. Since the active region responsible for the low-frequency harmonic is located far from the cathode in the plate, it is concluded that although contact phenomena may strongly effect the char-

2/3

USSR

ZAVADSKIY, YU. I., et al, Fizika Tverdogo Tela, Vol 12, No 5, May 1970, pp 1545-1547

acteristics of oscillations of the recombination wave type, they are nevertheless a necessary condition for their existence. The authors feel this assertion is still in conformity with the theory of recombination waves.

3/3

USSR

GALKIN, A. A., ZAVADSKIY, Z. A., SINEL'NIKOV, B. Ya., Donetsk Physicotechnical Institute, Academy of Sciences UkrSSR

"Characteristics of Magnetic Transformation in Chromium Telluride"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 1, Jan 72, pp 157-162

Abstract: The electrical and magnetic properties and the lattice parameters of single-crystal samples of chromium telluride were investigated using magnetic fields up to 12 ke and hydrostatic pressures up to 12 kbar over the temperature range 67-400°K. It is noted that the thermodynamic theory developed by Bean and Rodbell indicates that the transition from the ferromagnetic state to the paramagnetic state may be a first-order phase transition in a ferromagnetic if the compressibility is sufficiently great and the Curie temperature is strongly dependent on pressure. It follows from this theory that this transition should have certain characteristics of a first-order transition; in particular, anomalies in the thermal expansion in the Curie temperature region should be observed and deviations in the temperature dependence of the magnetization from Brillouin should be observed that are caused by the change in the interatomic distance. These deviations should intensify with the growth of temperature and it can be stated that in any ferromagnetic

1/2

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720020-3"

USSR

GALKIN, A. A., et al., Fizika Tverdogo Tela, Vol 14, No 1, Jan 72, pp 157-162

under a pressure exceeding a certain critical value the transition from ferromagnetism to paramagnetism will be a first-order transition. It was found that anomalies in the crystal lattice parameters, the specific volume, and the coefficient of temperature expansion and compressibility are observed at all pressures in the region of the Curie temperature. These anomalies are more clearly evident with the growth in temperature. The Curie temperature T_c varies linearly with pressure so that $\partial T_c/\partial P = -6$ deg/kbar. Analysis of the experimental results on the basis of the thermodynamic theory of Bean and Rodbell shows that the transition from ferromagnetism to paramagnetism in CrTe at a pressure of the order of 32 kbar must be a first-order phase transition. It is noted that even in a ferromagnetic with a relatively low phase transition coefficient there arise very considerable distortions in the lattice that lead to a deviation of this transition from second-order phase transformations. These deviations are accompanied by changes in the temperature dependence of spontaneous magnetization which are quite considerable, but they need not be considered in any ferromagnetic with a known dependence of the Curie temperature on pressure.

2/2

USSR UDC 621:382.002

RUBASHKIN, B.L., PERSHINA, YE.I., DOMNITSKAYA, M.A., ZAVALISHIN, A.A.

"Activation Of Palladium Filters For Cleaning Of Hydrogen"

Elektron. tekhnika. Nauch.-tekhn.sb. Tekhnol. i organiz. proiz-va (Electronics Technology. Scientific-Technical Collection. Technology And Organization Of Production), 1971, No 5(45), pp 81-85 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A123)

Translation: A procedure is developed for deposition of titanium hydride on palladium plates, with the object of assuring their hydrogen permeability at reduced temperatures. It is established that a positive effect gives the only method of deposition which assures a porous covering, with the thickness of the covering not affecting the performance of the membrane. 8 ref. A.F.

1/1

UDC 621.372.061:538.56

USSR

GONOKHOV, L. A., ZAVALISHIN, M. A., SHULZHENKO, K. M.

"Discrete Phase Band Oscillator"

Tr. Tomskogo in-ta radioelektron. i elektron. tekhn. (Works of Tomsk Radioelectronics and Electronic Engineering Institute), No 16, 1970, pp 9-10, 11-12 and 13, (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A175)

Translation: When developing phase engineering equipment operating at 1-100 megahertz, the equipment for reproduction of the phase difference with high accuracy is used. This article contains a description of a discrete phase band oscillator permitting us to obtain two amplitude-regulated coherent sinusoidal voltages with a discretely controlled phase difference between them. The instrument includes two fixed-frequency 18-megahertz and 32-megahertz generators and a frequency converter. The discrete phase shifts are obtained by means of electronically controlled frequency dividers with several stable states fed from a common quartz oscillator. The output frequencies of the regenerative dividers are added by mixers with corresponding addition of the phase signal. The control of the output phase of the divider is achieved by the effect of short pulses on varicaps included in the low-frequency circuits. This permits manual and automatic phase changing using an external oscillator. The phase difference is

1/2

1/2 022 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--FEATURES OF MUSCULAR HYPERTONUS (SAPSTICITY) IN CASES OF LATERAL AMYOTROPHICAL SCLEROSIS AND DISSEMINATED SCLEROSIS (A CLINICO

AUTHOR--ZAVALISHIN, I.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII S. S. KORSAKOVA, 1970, VOL 70, NR 3, PP 351-357

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NEUROPATHOLOGY, CLINICAL MEDICINE, MAN, ELECTROMYOGRAPHY, MUSCULAR DISORDER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0832 STEP NO--UR/0246/70/070/003/0351/0357

CIRC ACCESSION NO--AP0052268

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0052268

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR CONDUCTED A COMPARITIVE CLINICO,EMG STUDY OF SPASTICITY IN 36 PATIENT WITH LATERAL AMYOTROPHICAL SCLEROSIS AND IN 34 PATIENTS WITH DISSEMINATED SCLEROSIS. A CLINICA AND EMG ANALYSIS DEMONSTRATED A DIFFERENCE IN THE DISTRIBUTION, DEGREE OF EXPRESSUIB ABD ELECTROGRAPHIC CHARACTERISTICS OF THE SPASTICITY IN THESE 2 DISEASES. SOME QUESTIONS OF THE PATHO PHYSIOLOGICAL MECHANISMS OF SPASTICITY AND THEIR INFLUENCE ARE BEING DISCUSSED. THE AUTHOR SHOWS THE TYPES OF AFFECTION OF THE SPINAL ANTERIOR HORN STRUCTURES IN LATERAL AMYOTROPHICAL SCLEROSIS AND THE CEREBRAL AFFECTION IN DISSEMINATED SCLEROSIS.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720020-3"

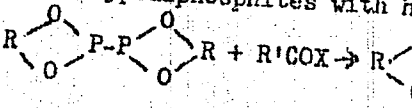
USSR

UDC 547.26'118

NIFANT'YEV, E. Ye., KOMLEV, I. V., KONYAYEVA, I. P., ZAVALISHINA, A. I., and TUL'CHINSKIY, V. M.

"Reactions of Hypodiphosphites with Acid Chlorides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2368-2373

Abstract: The reaction of neutral hypodiphosphites with halides of carboxylic acids proceeded according to   /R = C_6H_4 , $CH_2CH(CH_3)CH_2$; R' = Me, Ph; X = Cl, Br/. Upon the reaction of hypodiphosphites with benzylsulfenyl chloride $PhCH_2SCl$, benzyl thiol esters  of alkylenephosphorous acids /e.g., R = $CH_2CH(CH_3)CH_2$/ and chlorophosphites  were obtained. By reacting the hypodiphosphites with chlorophosphites or chlorophosphines, unsymmetric structures connected over a P-P group were synthesized.

1/1

USSR

UDC 547.26'118

NIFANT'YEV, E. YE., ZAVALISHIN, A. I., SOROKINA, S. F. and CHERNYAK, S. M.
Moscow State University imeni M. V. Lomonosov

"The 1,3-Alkylenedithiolophosphites"

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 3, 1972, pp 593-595

Abstract: Double-substituted phosphorus acid esters comprise an important and widely studied class of organophosphorus compounds. Their dithiole analogs -- not to mention being the source of information on the electron effects in the —S—P<—O tried--are valuable raw materials for synthesis of many useful organophosphorus-sulfur compounds. But unfortunately this model dithiolophosphites are virtually unstudied, either as regards synthesis or properties. To a benzene solution of 1,3-alkylenedithiolochlorophosphite were added equimolecular amounts of water and triethylamine, in tetrahydrofuran solution. This yielded six different 1-3-alkylenedithiophosphites, these being crystalline substances with unexpectedly high melting points which were weakly soluble in organic solvents. Yields, melting points, compositions, formulas, and, in the case of 1,3-propylenedithiolophosphite, some additional information, were determined.

1/1

USSR

UDC 547.26'118

IVANOVA, N. L., ZAVALISHINA, A. I., FURSENKO, I. V., NASONOVSKIY, I. S., KONYAYEVA, I. P., KOMLEV, I. V., NIFANT'YEV, E. YE.

"Chromatography of Organic Compounds of Trivalent Phosphorus in a Thin Sorbent Layer. II"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 91-93

Abstract: Some acids of phosphorus and their esters can be identified by the method of thin layer chromatography, but the chromatograms of such substances are not always sufficiently clear and the method of thin layer chromatography was not successful heretofore for analysis of the amides and other important types of derivatives of the acids of trivalent phosphorus [E. Ye. Nifant'yev, ZhOKh, No 35, 1980, 1965]. Here, a more detailed study has been made of the conditions of thin-layer chromatography of some of the most useful types of substances of this class. As a rule, aluminum oxide of second degree Brockman activity was used as the sorbent, but silica gel, polyvinyl alcohol and chlorated polyethylenes were also investigated. They gave worse results. The presented method of thin layer chromatography proved to be useful for analysis of medium and acid phosphites, thiophosphites, amides of phosphoric acid and amidophosphites and esters of hypodiphosphoric acid.

1/1

UDC 547.26'118

USSR

SOROKINA, S. F., ZAVALISHINA, A. I., and NIFANT'YEV, E. Ye., Moscow State University Imeni M. V. Lomonosov

"Dialkyldithiolophosphites"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 750-753

Abstract: The novel dialkyldithiolophosphites (I) were synthesized by controlled hydrolysis of dialkyldithiochlorophosphites in presence of hydrogen chloride acceptors. Upon distillation in high vacuum at 95-100°, (I) disproportionated into trialkyltrithiophosphites. These new compounds were found to be quite reactive: diisopropyldithiolophosphite undergoes alcoholysis at 80-90° yielding marcaptan and dialkylphosphites. Acid dithiolophosphites add to the double bond of butyl acrylate in presence of sodium mercaptide yielding dithiolophosphonates. Reaction of acid esters of dithiolophosphorous acid with sulfuryl chloride gave dialkyldithiolochlorophosphates.

1/1