UDC: 542.91 + 632.954

USSR

DOVLATYAN, V. V., and ELIYAZYAN, K. A., Armenian Agricultural Institute, Yerevan, Ministry of Agriculture USSR

"Synthesis of Herbicides. Ethyl Esters of Dihalomethoxybenzoylglycolic Acids"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 4, 1970, pp 365-368

Abstract: Reaction of sodium 2(4)-hydroxybenzoates with ethylchloroacetates yielded ethyl esters of O-2(4)-hydroxybenzoylglycolic acids, which were then halogenated and methylated to yield ethyl esters of 3,5(6)-dihalo-2(4)-methoxybenzoylglycolic acids. Among them the ethyl esters of 2-methoxy-3,5-dichloro- and 2-methoxy-3,6-dichlorobenzoylglycolic acid exhibited highest herbicidal activity against dicotyledons.

1/1

UNCLASSIFIED           PROCESSING DATE--13NOV70

1/3    015
TITLE--SYNTHESIS OF PESTICIDES. XXVI. SYNTHESIS OF ALPHA CYANOALKYL
   ARYLCARBAMATES -U-
AUTHOR-(02)-DOVLATYAN, V.V., AMBARTSUMYAN, YE.N.

COUNTRY OF INFO--USSR

SOURCE--ARM. KHIM. ZH. 1970, 23(1), 49-53

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHEMICAL SYNTHESIS, CARBAMATE, PESTICIDE, UREA DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1893          STEP NO--UR/0426/70/023/001/0049/0053

CIRC ACCESSION NO--AP0123681
                          UNCLASSIFIED

2/3    015
CIRC ACCESSION NO--AP0123681
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.  THE REACTION OF ARYL ISOCYANATES
WITH CYANOHYDRINS OF ALDEHYDES AND KETONES IN THE PRESENCE OF PYRIDINE
(I) GIVES ALPHA CYANOALKYL ARYLCARBAMATES.  TO A STIRRED MIXT. OF 2.38 G
PHNCO AND 1.25 G GLYCOLONITRILE (II), 0.025 G I WAS ADDED TO GIVE
75PERCENT PHNHCO SUB2 CH SUB2 CN, M. 92-3DEGREES.  SIMILARLY PREPD. WERE
THE FOLLOWING (PRODUCT, PERCENT, YIELD, AND M.P. GIVEN):    P-CLC SUB6 H
SUB4 NHCO SUB2 CH SUB2 CN, 90.4, 98-100DEGREES (PHME); PHNHCO SUB2
CH(CN)ME, 99, 77-8DEGREES (C SUB8 H SUB18); -CLC SUB6 H SUB4 NHCO SUB2
CH(CN)ME, 90.5, 92-4DEGREES (C SUB8 H SUB18).  A MIXT. OF 2.38 G PHNCO,
1.9 G ME SUB2 C(OH)CN (III), AND 0.025 G I WAS KEPT AT ROOM TEMP. 3-4
DAYS TO GIVE 92PERCENT PHNHCO SUB2 C(CN)ME SUB2, M. 136-7DEGREES (FROM
PHME).    SIMILARLY PREPD. WAS 70.6PERCENT P-CLC SUB6 H SUB4 NHCO SUB2
C(CN)ME SUB2, M. 117-19DEGREES.  A MIXT. OF 3 G M-CLC SUB6 H SUB4 NCO,
1.25 G II, AND 0.025 G I WAS LEFT OVERNIGHT AT ROOM TEMP., 7-8 ML C SUB6
H SUB6 WAS ADDED, AND THE MIXT. HEATED TO 80-90DEGREES FOR 3-4 HR TO
GIVE 80.9PERCENT M-CLC SUB6 H SUB4 NHCO SUB2 CH SUB2 CN, M.
112-13DEGREES.  THE WORK OF I. G. KHASKIN AND V. I. KONDRATENKO (1966)
HAS REPEATED; AND THE PRODUCTS ARE OXAZOLINE AND OXAZOLIDINE DERIVS.
RATHER THAN ALPHA CYANOPROPYL ESTERS OF CHLOROFORMIC AND PHENYLCARBAMIC
ACIDS.    THUS, COCL SUB2 WITH III GAVE
2,OXO,4,CHLORO,5,5,DIMETHYL,3,OXAZOLINE (IV), M. 70-2DEGREES, WHICH ON
HYDROLYSIS GAVE 2,4,DIOXO,5,5,DIMETHYLOXAZOLIDINE, M. 75-6DEGREES.  THE
REACTION OF IV WITH PHNH SUB2 AFFORDED
2,OXO,4,ANILINO,5,5,DIMETHYL,3,OXAZOLINE, M. 262-4DEGREES.

3/3    015
CIRC ACCESSION NO--AP0123681
ABSTRACT/EXTRACT--HEATING ARYL ISOCYANATES WITH CYANOHYDRINS IN PHME AT
90DEGREES GIVES MAINLY N,N',DIARYLUREAS AND NOT ALPHA CYANOALKYL
PHENYLCARBAMATES AS STATED BY K. D. SHVEITSOVA=SHILOVSKAYA, N. N.
MEL'NIKOV, Z. I. MAKSIMOVA, T. S. ZAKHAROVA, AND L. P. BOCHAROVA (1962).
    THE IR SPECTRA WERE DISCUSSED.          FACILITY:   ARM. SEL'SKUKHOZ.
INST., EREVAN, USSR.

(dialkyl) amino-symm-triazines are obtained.  The experimental procedures for
obtaining the mentioned compounds, their formulas, yields and physical and
chemical properties are presented.
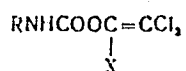
2/2

USSR.                                        UDC 547.495.1+632.938

DOVLATYAN, V. V., and AMBARTSUMYAN, E. N., Armenian Agricultural
Institute, Yerevan, Ministry of Agriculture USSR

"Synthesis of Pesticides.  XXVII.  The Problem of Dehydrochlorina-
tion of $\alpha$-Cyano(carbethoxy)- $\beta$, $\beta$, $\beta$-trichloroethyl-N-aryl
(benzoyl, methyl)carbamates"

Abstract:  The paper is a report on synthesis of $\alpha$-cyano(or $\alpha$-
carbethoxy)- $\beta$, $\beta$-dichlorovinyl-N-substituted carbamates with the
general formula

$$RNHCOOC = CCl_2$$
$$|$$
$$X$$

$$X - CN, \quad COOC_2H_5, \quad R - CH_3, \quad C_6H_5CO, \quad ClC_6H_4.$$

Synthesis was achieved by interacting chloral cyanohydrin or ethyl
trichlorolactate with isocyanates in the presence of traces of
.......... as a catalyst.  It is shown that interaction of $\alpha$-cyano-
$\beta$, $\beta$, $\beta$ .......... trichloroethyl-N-arylcarbamates with dehydrochlorinating
agents, ......... 2-oxo-3-aryl-4-imino-5-dichloromethylenoxazolidines.
1/2

USSR

DOVLATYAN, V. V., et al., Armyanskiy Khimicheskiy Zhurnal, Vol 23,
No 3, 1970, pp 295-296

Potash dehydrochlorination of  -cyano- ,  , -trichloroethyl-N-
methylcarbamate produces  -cyano-  ,  -dichlorovinyl-N-methyl-
carbamate, while sodium cyanide as the dehydrochlorinating agent
givew 2-oxo-3-methyl-4-imino-5-diethloromethylenoxazolidine.
Dissolution of 2-oxo-3-aryl(methyl)-4-imino-5-dichloromethylenoxazo-
lidine  chlorohydrates in water produces the corresponding
2,4-dioxo-3-aryl(methyl)-5,5-dichloromethylenoxazolidines.

USSR

UDC: 542.91 + 547.495.1-
632.913

DOVLATYAN, V. V., and AMBARTSUMYAN, E. N., Armenian Agricultural Institute, Yerevan, Ministry of Agriculture USSR

"Pesticide Synthesis. XXVIII. Intramolecular Cyclization of α-Cyanoalkyl-N-arylcarbanates"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 2, 1970, pp 175-179

Abstract: Heating α-cyanoalkyl-N-aryl(or methyl)carbamates, especially in the presence of pyridine or red mercury oxide, yields oxazolidine derivatives which form by intramolecular cyclization. This reaction may also take place in some cases on standing at room temperature for 10-20 days and in all cases where the ether solution is saturated with dry hydrogen chloride. The position of a substituent on the phenyl ring has a substantial effect on the rate of cyclization. The hydrochlorides of these compounds hydroly easily in water, yielding 2,4-diketo-3-aryl-5-alkyloxazolidines. The presence of an aryl group directly attached to nitrogen was found necessary for cyclization, since α-cyanoalkyl-N-benzoylcarbamates failed to give cyclic products.

1/1

USSR

UDC:   547.495.1 ÷ o32.938

DOVLATYAN, V. V., and AMBARTSUMYAN, E. N., Armenian Agricultural Institute, Yerevan, Ministry of Agriculture USSR

"Synthesis of Pesticides.  XXVI.  Synthesis of α-cyanoalkyl-N-arylcarbamates"

Abstract:  To a mixture of 2.38 g phenylisocyanate and 1.25 g glyconitrile, 0.025 g pyridine was added with stirring and cooling, and the mixture was then left standing overnight.  The reaction product was dissolved in ether, filtered, washed, dried, and evaporated to yield 2.3 g of α-cyanomethyl ester of phenylcarbamic acid, m.p. 82-83°.  Analogously, the α-cyanomethyl ester of p-chlorophenylcarbamic acid, m.p. 98-100°, and α-cyanomethyl esters of phenyl- (m.p. 77-78°) and p-chlorophenylcarbamic acids (m.p. 92-94°) were obtained.  The α-cyano-α-methylethyl ester of phenyl carbamic acid, m.p. 136-137°, was obtained by mixing phenylisocyanate, acetone cyanohydrine and pyridine, and letting the mixture stand at room temperature for 3-4 days. Analogously, this type ester of p-chlorophenylcarbamic acid, m.p. 117-119°, was obtained.  To obtain the α-cyanomethyl ester of m-chlorophenylcarbamic

1/2

USSR

acid, m.p. 112-113$^{\circ}$, a mixture of m-chlorophenylisocyanate, glyconitrile and
pyridine was left standing at room temperature overnight, the benzene was
added and the mixture heated for 3-4 hrs at 80-90$^{\circ}$. The authors showed that
the products described by I. G. KHASKIN and K. D. SHVYEYTSOVA-SHILOVSKAYA
et al., did not correspond to the claimed structures.

2/2

USSR                    P                    UDC: 542.91 + 632.954

DOVLATYAN, V. V., and ELIYAZYAN, K. A., Armenian Agricultural Institute, Yerevan, Ministry of Agriculture USSR

"Synthesis of Herbicides. Ethyl Esters of Dihalomethoxybenzoylglycolic Acids"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 4, 1970, pp 365-368

Abstract: Reaction of sodium 2(4)-hydroxybenzoates with ethylchloroacetates yielded ethyl esters of 0-2(4)-hydroxybenzoylglycolic acids, which were then halogenated and methylated to yield ethyl esters of 3,5(6)-dihalo-2(4)-methoxybenzoylglycolic acids. Among them the ethyl esters of 2-methoxy-3,5-dichloro- and 2-methoxy-3,6-dichlorobenzoylglycolic acid exhibited highest herbicidal activity against dicotyledons.

1/1

- 60 -

1/3    015               UNCLASSIFIED        PROCESSING DATE--13NOV70
TITLE--SYNTHESIS OF PESTICIDES. XXVI. SYNTHESIS OF ALPHA CYANOALKYL
   ARYLCARBAMATES -U-
AUTHOR-(02)-DOVLATYAN, V.V., AMBARTSUMYAN, YE.N.

COUNTRY OF INFO--USSR

SOURCE--ARM. KHIM. ZH. 1970, 23(1), 49-53

DATE PUBLISHED-------70


SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHEMICAL SYNTHESIS, CARBAMATE, PESTICIDE, UREA DERIVATIVE


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1893       STEP NO--UR/0426/70/023/001/0049/0053

CIRC ACCESSION NO--AP0123681
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0123681
ABSTRACT/EXTRACT--(U) GP-0--  ABSTRACT.  THE REACTION OF ARYL ISOCYANATES
WITH CYANOHYDRINS OF ALDEHYDES AND KETONES IN THE PRESENCE OF PYRIDINE
(I) GIVES ALPHA CYANOALKYL ARYLCARBAMATES.  TO A STIRRED MIXT. OF 2.38 G
PHNCO AND 1.25 G GLYCOLONITRILE (II), 0.025 G I WAS ADDED TO GIVE
75PERCENT PHNHCO SUB2 CH SUB2 CN, M. 82-3DEGREES.  SIMILARLY PREPD. WERE
THE FOLLOWING (PRODUCT, PERCENT, YIELD, AND M.P. GIVEN):    P-CLC SUB6 H
SUB4 NHCO SUB2 CH SUB2 CN, 90.4, 98-100DEGREES (PHME); PHNHCO SUB2
CH(CN)ME, 99, 77-8DEGREES (C SUB8 H SUB18); -CLC SUB6 H SUB4 NHCO SUB2
CH(CN)ME, 90.5, 92-4DEGREES (C SUB8 H SUB18).  A MIXT. OF 2.38 G PHNCO,
1.9 G ME SUB2 C(OH)CN (III), AND 0.025 G I WAS KEPT AT ROOM TEMP. 3-4
DAYS TO GIVE 92PERCENT PHNHCO SUB2 C(CN)ME SUB2, M. 136-7DEGREES (FROM
PHME).    SIMILAPLY PREPD. WAS 70.6PERCENT P-CLC SUB6 H SUB4 NHCO SUB2
C(CN)ME SUB2, M. 117-19DEGREES.  A MIXT. OF 3 G M-CLC SUB6 H SUB4 NCO,
1.25 G II, AND 0.025 G I WAS LEFT OVERNIGHT AT ROOM TEMP., 7-8 ML C SUB6
H SUB6 WAS ADDED, AND THE MIXT. HEATED TO 80-90DEGREES FOR 3-4 HR TO
GIVE 80.9PERCENT M-CLC SUB6 H SUB4 NHCO SUB2 CH SUB2 CN, M.
112-13DEGREES.  THE WORK OF I. G. KHASKIN AND V. I. KONDRATENKO (1966)
WAS REPEATED; AND THE PRODUCTS ARE OXAZOLINE AND OXAZOLIDINE DERIVS.
RATHER THAN ALPHA CYANOPROPYL ESTERS OF CHLOROFORMIC AND PHENYLCARBAMIC
ACIDS.  THUS, COCL SUB2 WITH III GAVE
2,OXO,4,CHLORO,5,5,DIMETHYL,3,OXAZOLINE (IV), M. 70-2DEGREES, WHICH ON
HYDROLYSIS GAVE 2,4,DIOXO,5,5,DIMETHYLOXAZOLIDINE, M. 75-6DEGREES.  THE
REACTION OF IV WITH PHNH SUB2 AFFORDED
2,OXO,4,ANILINO,5,5,DIMETHYL,3,OXAZOLINE, M. 262-4DEGREES.

CIRC ACCESSION NO--AP0123681
ABSTRACT/EXTRACT--HEATING ARYL ISOCYANATES WITH CYANOHYDRINS IN PHME AT
90DEGREES GIVES MAINLY N,N',DIARYLUREAS AND NOT ALPHA CYANOALKYL
PHENYLCARBAMATES AS STATED BY K. D. SHVEITSOVA=SHILOVSKAYA, N. N.
MEL'NIKOV, Z. I. MAKSIMOVA, T. S. ZAKHAROVA, AND L. P. BOCHAROVA (1962).
THE IR SPECTRA WERE DISCUSSED.          FACILITY:  ARM. SEL'SKUKHOZ.
INST., EREVAN, USSR.

UNCLASSIFIED

USSR

UDC 632.95

DOVLATYAN, V. V., METSBURYAN, D. A., SENEKERIMYAN, Ya. A., APRESYAN, M. A.

"Method of Producing α-oxy- or α-alkoxy- β,β,β-trichloroethylamino Derivatives of 1, 3, 5-triazine"

USSR Author's Certificate No 265112, filed 25/12/67, published 28/04/72 (Translated from Referativnyy Zhurnal Khimiya, No 24(II), 1972, Abstract No 24N625, by T. A. B.)

Translation: Derivatives of 1, 3, 5-triazine (I) having herbicidal and fungicidal properties are produced by the reaction of 2-Cl-4,6-$(NH_2)_2$-I (II) or 2-Cl-4-RNH-6-$NH_2$-I (R-alkyl) with $CCl_3CHO$ (III) in the presence of an alkaline catalyst in an organic solvent with boiling, with subsequent treatment with $SOCl_2$ in an organic solvent with boiling, and treatment of the reaction products with ethanol in the presence of a base with boiling of the reaction mass. Example. To 1.3 g II and 0.32 g $K_2CO_3$, with water cooling, add 9.4 g III and 20 ml $CCl_4$, heat in a water bath six hours, separate the sediment, wash with water, dry in air, treat with boiling hexane and filter off 3.8 g 2-Cl-4.6-$[CCl_3CH(OH)NH]_2$-I m. p. >350°. To 4.81 g 2-Cl-4-EtNH-6-$[CCl_3$-CH(OH)NH]-I in 15 ml $CCl_4$, with water cooling, add a solution of 2 g $SOCl_2$ in 10 ml $CCl_4$, heat in a water bath ten hours, evaporate, treat the residue

1/2

USSR

DOVLATYAN, V. V., et al., USSR Author's Certificate No 265112, filed 25/12/67, published 28/04/72

with hexane, filter, producing 4.6 g 2-Cl-4-EtNH-6-($CCl_3$CHClNH)-I, m.p. 164-6°. To 16.27 g 2-Cl-4-MeNH-6-($CCl_3$CHClNH)-I in 5 ml ethanol, with cooling, add 3.95 g pyridine by drops, heat the reaction mass in a water bath six hours and let stand over night, evaporate, treat with water and filter off 13 g 2-Cl-4-MeNH-6-[$CCl_3$CH(OEt)NH]-I, t. decomp. 226°.

2/2

- 39 -

USSR                                                    UDC 632.95

DOVLATYAN, V. V., and AMBARTSUMYAN, E. N., Armenian Agricultural Institute

"Synthesis of α,N-Acyl(azoyl)amino-β,β-dichloracrylonitriles"

Translation:  Compounds $RCONHC(CN) = CCl_2$ (I) (R = alkyl, chloralkyl, phenyl)
which serve as intermediate products for the synthesis of pesticides and high-
molecular weight compounds, are synthesized in the reaction of $RCONHCH(Cl)CCl_3$
(II) with MCN (M = Na, K).  Example.  To solution containing 10.8 g NaCN in
35 ml of water, 22.5 g of II (R = Me), m.p. 127-128°C, is added during con-
tinuous mixing and cooling of the solution with ice and $NH_4Cl$.  The reaction
mixture is stirred for 8-10 hrs, the residue is filtered, and dried in air.
The yield of I is 16.1 g (R = Me), m.p. 134-135°C (PhMe).  In a similar way
I was prepared (R, yield in %, m.p. in °C are given in that order):  $ClCH_2$,
70, 124-125; $CCl_3$, 63.8, 132-133; PhNH, 64.8, 184-186; $ClC_6H_4NH$, 77.8, 216-217.
Infrared absorption bands for the synthesized compounds are presented.

1/1

- 32 -

USSR

UDC 632.95

DOVLATYAN, V. V., and ELIAZYAN, K. A., Armenian Agricultural Institute

"Synthesis of Ethyl Esters of o-Dihalomethoxybenzoylglycolic Acids"

Translation: The title compounds possess herbicidal properties and are synthesized in the reaction of 2(4)-HOC$_6$H$_4$COONa with CH$_2$ClCOOEt (I) at 100-150°C in the presence of pyridine catalyst. Example. Thirty-two g 2-HOC$_6$H$_4$COONa, 36.75 g I and 0.6 g pyridine are stirred at 145-150°C for 4.5 hrs, filtered, extracted with ether, the extract is dried over MgSO$_4$, concentrated by evaporation. The reaction yields 35.5 g 2-HOC$_6$H$_4$COCH(OH)COOEt (II), b.p. 149-150°C, n$^{20}$D 1, 5188, d$_4^{20}$ 1,2145. When HCl (gas) is passed through 10.3 g II in the presence of I$_2$ traces at 100°C, 12.9 g 2-HO-3,5-Cl$_2$C$_6$H$_2$COCHOHCOOEt (III), m.p. 60°C (hexane) is obtained. 0.05 mole K$_2$CO$_3$ is added to 0.1 mole III in 50 ml acetone, the reaction mixture is heated to ~100°C, 0.1 mole Me$_2$SO$_4$ is added by drops, heated for 12 hrs, filtered and concentrated by evaporation. The reaction yields 72% 2-MeO-3,5-Cl$_2$C$_6$H$_2$COCHOHCOOEt, b.p. 192-194°C/4, n$^{20}$D 1,5342, d$_4^{20}$ 1,3615. 1/1

- 28 -

*DoVLETMUZADoU, Ch.*

SPRS 59908
6.73

(1)

VI-3.   OBTAINING SINGLE CRYSTALS OF CdSnAs₂ ALLOYED WITH A³B⁵ COMPOUNDS

A resurvey is made of the basic difficulties encountered when growing single crystals of ternary compounds of the A²B⁴C⁵₂ type.  A procedure is described for obtaining single CdSnAs₂ crystals alloyed with A³B⁵ compounds to 0.1-0.5 atomic percent.  The CdSnAs₂ crystals were alloyed directly in the growth processes.  The single crystals of the given compound with A³B⁵ admixtures (GaAs, GaSb, InAs, InSb) were obtained by the methods of zone recrystallization and the Bridgman method.  After the zone melting, the crystals obtained were electrically uniform with respect to length of the bar.  It was detected that the properties of the alloyed crystals depend both on the chemical nature and on the introduced quantity of the selected admixture.  Single crystals alloyed with GaAs and GaSb have both n and p-type conductivity with a charge carrier concentration of 8·10¹⁷-2·10¹⁸ cm⁻³.  The basic parameters defining the crystallization process and their interrelation are presented.

A study was made of the effect of the characteristic pinholes of the lattice on the electrical properties of single CdSnAs₂ crystals.  The annealing of the crystals in arsenic vapor leads to a decrease in the concentration of the charge carriers from 2·10¹⁸ cm⁻³ to 2·10¹⁷ cm⁻³.  It is proposed that this variation of the electrical properties of the single crystals of CdSnAs₂ can be connected with the formation of vacancies in one sublattice or another.

The results of the electrical properties of the alloyed single crystals of CdSnAs₂ obtained by different methods are compared.

- 70 -

Plant Pathology

USSR                                                        UDC 632

BEKKER, E. E., DOVLETMURADOV, I. D., PUSHKAREVA, I. D., POLETAYEVA, V. F.,
SHILINA, S. G., and YASAKOVA, E. I., Institute of Botany, Academy of Sciences
Turkmen SSR

"The Nature and Biosynthesis of the Toxin of Fusarium Wilt Pathogen, the
Mechanism of Its Action, and Its Possible Transformation in the Cotton
Plant"

Abstract:  Analysis of purified extracts of Fusarium oxysporum f. vasinfectum
culture liquid confirmed that the toxin of fusarium wilt of the fine-
fibered cotton plant is fusaric acid.  The severity of wilt depends mainly
on the rate of production of fusaric acid by the pathogen.  Biosynthesis of
this toxin appears to proceed through formation of tryptophan and is inhibited
by substances participating in transmethylation, such as cobalt or methionine.
Plant resistance is augmented in the presence of cobalt, vitamin P, and
pyridine alkaloids, and is considerably reduced in the presence of thiamine.
The mechanism of action of fusaric acid probably involves competition between
the product of its decarboxylation, 3-n-butylpyridine, and dehydrogenase co-
factors.  Immunity may be due to detoxification of fusaric acid through its
transformation into methylamide
1/1

USSR

DOVLETOV, DZH.

"Calculating a Solar Absorption Lithium-Bromine Air Conditioning Unit"

Abstract:  A study is made of the problem of applying solar energy to drive an absorption lithium-bromine plate air conditioning unit for summer cooling and winter heating of a two-apartment house with a usable area of $100m^2$ in Ashkhabad.  A graph is presented of the variation of the cooling and heating efficiency as a function of the outside air temperature and the duration of the loads on the air conditioning unit and heat pump.  The parameters of the process and the heat transfer surfaces of the unit are tabulated.  Comparison of the technical-economic indexes of the absorption and compression air conditioning units shows that compression units are cheaper with respect to capital investments, but absorption units are more advantageous with respect to operating costs.  The absorption units provide savings of about 20,000 kilowatt-hours of electric power per year.  The surface of the parabolic-    drical solar energy concentrator was calculated at $43.5m^2$ for a solar radiation intensity of 700 $kcal/m^2$-hr and a cooling load of 15,000 kcal/hr.
1/1

USSR                                                  UDC:  8.74

DOVNAR, N. A.

"Using Algorithmic Languages to Solve Economic Problems"

Vychisl. tekhn. v mashinostr. Nauch.-tekhn. sb. (Computer Tech-
nology in Machine Building. Scientific and Technical Collec-
tion), 1970, Dec, pp 183-188 (from RZh-Kibernetika, No 8, Aug
72, Abstract No 8V633)

Translation:  Questions of using the MAT-5 programming auto-
mation system for solving problems of an economic nature are
considered.  Author's resumé.

1/1

USSR                                                    UDC: 8.74

DOVNAR   N   A

"Using Algorithmic Languages for Solving Problems in Economics"

Vychisl. tekhn. v mashinostr. Nauch.-tekhn. sb. (Computer Tech-
niques in Machine Design, Scientific-Technical Collection) Dec.
1970, pp 183-188 (from RZh--Matematika, No 8, 1972, Abstract No
8V633)

Translation: The author considers problems in the use of the MAT-5
system of programming automation for solving problems of an econom-
ic nature.

1/1

USSR                                                        UDC 539.4

LEVINSKIY, YU. V., TREFILOV, B. F., and DOVYCHENKOVA, L. V., Moscow, All-Union Scientific Research Institute of Aviation Materials

"Brittleness of Coated Tungsten Wire"

Kiev, Problemy Prochnosti, No 6, 1973, pp 57-59

Abstract: The effect of the nature and thickness of specially grown brittle layers on tungsten wire was examined along with their behavior during fracture. The brittle layers were formed by recrystallization or carbonization. A mechanism of brittle fracture of a ductile material is proposed during the transition from a brittle coating to a crack. It is shown that the nature of fracture depends on the plastic properties and thickness of the coating. The produced experimental data correspond qualitatively with the proposed fracture mechanism. Three figures, seven bibliographic references.

1/1

- 5 -

1/2    018                    UNCLASSIFIED           PROCESSING DATE--13NOV70
TITLE--ON SKIN MANIFESTATIONS OF RHEUMATISM -U-

AUTHOR-(02)-SHIKHOVA, N.M., DOVZHANSKIY, S.I.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 38-41

DATE PUBLISHED-------70


SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RHEUMATIC DISEASE, SKIN EFFECT



CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1710          STEP NO--UR/0475/70/000/004/0038/0041

CIRC ACCESSION NO--AP0129080
                           UNCLASSIFIED

CIRC ACCESSION NO--AP0129080

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY IS PRESENTED OF 43
  PATIENTS WITH RHEUMATISM SHOWING VARIOUS CUTANEOUS MANIFESTATIONS OF THE
  SYSTEMIC DISEASE. SKIN MANIFESTATIONS OCCURED IN THE ACTIVE AND NON
  ACTIVE PHASES OF RHEUMATISM. THE MOST FREQUENT WERE : ANNULAR
  ERYTHEMA, ERYTHEMA NODOSUM, URTICARIA AND RHEUMATIC PURPURA. SKIN
  INVOLVEMENT APPEARED AS A RULE DURING EXACERBATION OF THE RUHEUMATIC
  PROCESS. EFFICIENT TREATMENT OF RHEUMATISM RESULTED IN EXTINCTION OF
  THE SKIN CHANGES. SKIN MANIFESTATIONS OF RHEUMATISM HAVE A CHRONIC
  RELAPSING CHARACTER.        FACILITY: SOCHINSKIY NAUCHNO-ISSLED.
INSTITUT KURORTOLOGII I FIZIOTERAPII, MZ RSFSR.

UNCLASSIFIED

USSR

DOVZHENKO, A. S.

"Potential Danger of Embrittlement in Type-22K Steel Structures"

Abstract: The development of fatigue cracks in structures under conditions of cyclical loading may be interrupted by a fast-moving destructive embrittlement that pervades the rest of the structure. The condition may be aggravated by cold hydrostatic tests before regular operation, and in special cases by neutron bombardment. The article investigates this condition in 22K and ChSN13030 steels, examining distortion stresses through which the connection between durability and plasticity, and between cross-section dimensions and destruction temperature can be estimated. Photographs of specimens showing such deformations are given. The effect of temperature on the destruction characteristics of 22K steel is presented in the form of a curve. Also plotted is a curve showing that the critical temperature of the embrittlement is significantly heightened by neutron irradiation at a temperature below 230°C. The author suggests that there is a need for more information on radiation and neutron damage in reactor structure.
1/1

USSR

UDC 535.231.2:551.521.463.5

RVACHEV, V. P., DOVZHENKO, F. P., VASILEVSKIY, L. S.

"Brightness Distribution in Atmosphere Model With Continuous and Broken Cloudiness"

Tomsk, Izvestiya VUZ -- Fizika, No 1, 1972, pp 34-42

Abstract: The study of angular and depth distribution of brightness in light-scattering media is important in atmospherical and marine optics, synoptics, and the spectroscopy of light-scattering media. The present article describes experiments performed to determine an adequate model for such a study and a physical model of the field of radiation inside the light-dispersing medium at an arbitrary optical depth, with minimal distortion introduced by the measuring equipment. The authors find that their modeling method can be used for creating experimental situations required for the solution of a broad range of optical and spectroscopic problems in this area. Through it, horizontal nonuniformities and vertically stratified media can be modeled, an achievement not hitherto attained. The authors are associated with the Odessa Engineering-Construction Institute.
1/1

## Powder Metallurgy

USSR                                                    UDC 621.762.2.001

DOVZHENKO, L. D., BORISOV, V. T., RADOMYSEL'SKIY, I. D.

"Study of the Homogenization Kinetics when Obtaining Alloyed Powders"

Translation: The homogenization process when obtaining alloyed powders is determined by the gas phase composition, the surface reaction rates, and the diffusion of the element in the solid particles. A system of equations was compiled which describes the course of homogenization of the powder mixture. Investigation of the homogenization of a Fe-Ti powder mixture in various media demonstrated that the limiting saturation stage is the surface process kinetics. Three illustrations.

1/1

USSR

UDC 621.375.4

BROVCHENKO, Ye. N., REYNBOT, A. Ye., DOVZHENKO, V. N.

"An Active Low-Frequency RC-Filter"

Abstract:  An active low-frequency RC-filter is described which realizes
a fourth-order transfer function by using identical low-Q elements.  The
frequency response of the filter approximates a fourth-order Butterworth
function which has a maximum Q at the poles of 1.31.  The filter can be
used in the frequency band up to 20 kHz.  Nonuniformity of the frequency
response in the passband of the filter is no greater than 3 dB, attenua-
tion when tuned an octave off from the cutoff frequency is at least 20 dB,
input impedance is at least 20 kΩ, output impedance is no more than 500 Ω,
and the maximum input signal is 2V.  The transfer function is given along
with the coordinates of its poles.  A schematic circuit of one possible
realization of the filter is presented incorporating three MP15A tran-
sistors and a D814D diode.  The sequence to be followed in tuning the
filter is described.  One figure, bibliography of one title.

1/1

USSR                                           UDC 632.936.2

PRISTAVKO, V. P., NESTERENKO, L. P., and DOVZHENOK,   Ukrainian Scientific
Research Institute of Plant Protection        .

"Study of the Activity of the Sexual Attractant of the Codling Moth"

Moscow, Khimiya v Sel'skom Khozyaystve, No 9, 1971, pp 37-40

Abstract:  The present work is devoted to isolating the sexual attractant
of the codling moth and testing its activity under laboratory and field
conditions.  The research has been performed since 1968 at the Laboratory of
Biophysical Methods of Controlling Harmful Insects of the Ukrainian Scientific
Research Institute of Plant Protection.  Solvents suitable for extracting the
sexual attractant of the female coddling moths and the concentrations to which
the males react were investigated.

Methylene chloride, ethyl alcohol and ethyl ether were the most advantageous
solvents for extracting the sexual attractant from the glands of female
codling moths.  The biological material had to be ground before extraction.
When testing extracts containing 5-10 female-equivalents of attractant,
5 to 10 minute exposure was sufficient.  With a lower concentration the
exposure time had to be increased.  The minimum attractant concentration
1/2

USSR

PRISTAVKO, V. P., et al., Khimiya v Sel'skom Khozyaystve, No 9, 1971, pp 37-40

to which the male codling moths reacted was 0.001 female-equivalent per milliliter of solvent. When testing the attraction of live females in an orchard, the largest number of males were caught by traps with three-day old females. The optimal number of females in a trap was 10. The traps were most effective when placed in the upper part of the crown.

2/2

USSR                                                                                          UDC 538.56

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

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

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

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

1/2

USSR

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

of practical applications of solid state plasma effects in the superhigh fre-quency range.

2/2

Acc. Nr: AP0047115

Ref. Code: UR0504

PRIMARY SOURCE:  Terapevticheskiy Arkhiv, 1970, Vol 42, Nr 1 ,
pp 58-61

## HISTOLOGICAL, ENZYMATIC AND ELECTRON MICROSCOPIC CHANGES IN THE MUCOSA OF THE STOMACH AND SMALL INTESTINE IN PATIENTS WITH CHRONIC HEPATITIS AND LIVER CIRRHOSIS

*N. P. Nikolov,*  A. G. Boyadzhiyeva,  D. D.Doychinov

### Summary

A total of 73 patients with chronic hepatitis and liver cirrhosis were examined. Besides histological study of biopsy material, in 16 patients the authors determined phosphatase, and in 10 — electron microscopic investigation was conducted. Normal and almost normal gastric mucosa was found in 36.8% of the patients, superficial gastritis in 33.4%, initial atrophic gastritis in 13% and protracted atrophic gastritis in 16.6%. The principal and parietal cells were in the condition of high activity, as much expressed as renal decompensation. Normal mucosa of the small intestine was established in 42% of the cases, partial atrophy in 40.9% and subtotal atrophy in 17.1%. Electron microscopic resorbtive cells in cases with subtotal atrophy did not differ from those in sprue. There was established a relation between the degree of steatorrhea and changes of the small intestine.

//1

REEL/FRAME
19790607

DOYEV, A. K.

# SEVERAL PROBLEMS IN ECONOMIC REFORM AT NONFERROUS METALLURGICAL ENTERPRISES

UDC 658.1:669.3

[Article by A. K. Doyev, I. A. Biryukov, North Caucasian Mining and Metallurgical Institute, Department of Organization of Production and Industrial Economics, Pobedit Plant; Ordzhonikidze, Izvestiya VUZ; Tsvetnaya Metallurgiya, Russian, No 6, 1971, signed to press 6 February 1970, pp 153-158]

The decisions of the September (1965) Plenum of the Central Committee of the Communist Part of the Soviet Union directed that the staffs of the industrial enterprises become interested in the development of maximally stepped-up, mobilizable plans for implementation and total utilization of industrial reserves. Accomplishment of these decisions will permit increasing the quality of the plans and accelerate their development and approval.

Successful conversion to economic reform involves solving the most important methodological and organizational questions, one of which is the construction of a valid system of economic incentives and their utilization at maximal efficiency for increasing the productivity of labor, improving the quality of the manufactured products, increasing the profitability of production, etcetera.

The basic sources for establishing types of economic incentives are wage funds and economic incentive funds, as well as prizes for mastering new techniques, for suggestions on efficiency and invention, for scrap metal delivery, and on results of socialist competition, etcetera.

The four-year experiment in working at the Pobedit plant under the new conditions of planning and economic incentive shows fantastic possibilities.

A system was designed at the plant for intra-plant cost accounting, for which the indices of gain, profit,

JPRS 55880

4 May 72

- 42 -

DOYEV, A. K.

SEVERAL PROBLEMS IN ECONOMIC REFORM AT NONFERROUS METALLURGICAL
ENTERPRISES

UDC 658.1:669.3

[Article by A. K. Doyev, I. A. Biryukov, North Caucasian Mining and
Metallurgical Institute, Department of Organization of Production
and Industrial Economics. Pobedit Plant; Ordzhonikidze, Izvestiya
VUZ; Tsvetnaya Metallurgiya, Russian, No 6, 1971, signed to press
6 February 1970, pp 153-158]

The decisions of the September (1965) Plenum of the
Central Committee of the Communist Part of the Soviet Union
directed that the staffs of the industrial enterprises be-
come interested in the development of maximally stepped-up,
mobilizable plans for implementation and total utilization
of industrial reserves. Accomplishment of these decisions
will permit increasing the quality of the plans and accele-
rate their development and approval.

Successful conversion to economic reform involves
solving the most important methodological and organizational
questions, one of which is the construction of a valid sys-
tem of economic incentives and their utilization at maximal
efficiency for increasing the productivity of labor, improv-
ing the quality of the manufactured products, increasing the
profitability of production, etcetera.

The basic sources for establishing types of economic
incentives are wage funds and economic incentive funds, as
well as prizes for mastering new techniques, for suggestions
on efficiency and invention, for scrap metal delivery, and
on results of socialist competition, etcetera.

The four-year experiment in working at the Pobedit
plant under the new conditions of planning and economic in-
centive shows fantastic possibilities.

A system was designed at the plant for intra-plant
cost accounting, for which the indices of gain, profit,

- 42 -

Glass and Ceramics

USSR

DOYNIKOV, L. T., MIKHAILOV, V. M., and KOLEVA, [...], Leningrad State University
[...] A. Zhdanov

"The Thermal Stability of AsSe$_x$I$_y$ Glasses"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, [...] 1, No 6,
Jun 70, pp 1177-1178

Abstract: An investigation was made of the microhardness and thermal stability
of AsSe$_x$I$_y$ glass-like alloys with x = 0.8; 1.0; 1.5; 2.5; 4.0; 8.0; and 20.0.
The alloys were synthesized by vibration vacuum melting at 700°C with subsequent
air hardening. The introduction of iodine lowered considerably the microhardness
and thermal stability of the investigated alloys. The effect of iodine depends
on the ratio of the As and Se content, with alloys in which Se/As= 1.5 possessing
the maximum hardness.

1/1

DOYNIKOV, N. I.

SOME CALCULATED AND EXPERIMENTAL DATA CONCERNING THE DEVELOPMENT
OF SYNCHROTRONS WITH A STEADY-STATE FIELD IN THE RANGE
OF 35-300 GIGAELECTRON-VOLTS

Calculation data and considerations are given on the construction of synchrotrons with rotating superconducting electromagnets with steady-state (fixed) fields, as well as the results of experimental investigations of models of the elements of the accelerators.

In reference [1, 2] the possibility of the development of proton synchrotrons on the basis of superconducting electromagnets with a steady-state field was considered, with these devices rotating synchronously relative to an equilibrium orbit. Such a system makes it possible to change the average field in the orbit when the superconducting windings are supplied by direct current. In this case it is no longer necessary to have a powerful excitation system for the magnetic field, losses of alternating current in the superconductors are excluded, the design of the windings and cryostats is simplified, heat input are decreased, and the capacity of the refrigerators and liquefiers is reduced. Among the number of the most important problems to be solved in the development of such synchrotrons is provision for stability of motion of the particles near the equilibrium orbit of devices of curvature and precise synchrotron rotation of the superconducting electromagnets.

Some problems of the dynamics of the particles are considered below, and also problems associated with the accomplishment of synchronous rotation of the electromagnets. On the basis of this consideration, two variations of the basic parameters of possible accelerators for an energy of tens or hundreds of gigaelectron-volts are given.

- 1 -

[i - USSR - E]

USSR                                    UDC   620.171.3.531.781.2.087-92.62-974

LESHCHENKO, V. M., DOZLOV, I. A., NOVIKOV, N. V., POTAFOVA, V. F., SENIN, A. M.
and GORODYSKIY, N. I. Institute of Strength Problems, Ukrainian SSR Academy
of Sciences (Kiev, Kaliningrad, Moskovskaya oblast)

"Investigation of the Work Capability of Series-Produced Tensoresistors Under
Temperature Conditions to -269°C"

Abstract:  On the basis of experimental research, it is established that series-
produced tensoresistors, with the use of constantan for the sensitive element
and vinyflex lacquer as the base and adhesive, may be used for the measurement
of deformations at static and dynamic loads under low-temperature conditions
(to -269°C). An evaluation is made of the influence of low temperatures upon
the coefficient of tensoresistor sensitivity, and consideration is given to the
origination of apparent deformations and to the possibilities of taking them
into account.
      It was found that tensoresistors made in the manner described above are
capable of functioning to a relative deformation of $\mathcal{E} \approx 2.5\%$, and that with
dynamic loading at a temperature of -269°C and with symmetric loading to a
relative deformation of $\mathcal{E} = \pm 0.434\%$ these tensoresistors are capable of
1/2

- 140 -

USSR

LESHCHENKO, V. M., et al., Problemy Prochnosti, No 11, Nov 73, pp 101-105

functioning for up to $(2.4-3.1) \times 10^6$ cycles.  The stressed and deformed state
of tubular specimens from various materials was investigated during cooling of
the specimens from 20 to $-269^\circ C$.

For measuring deformations brought about by temperature gradients or due
to inhomogeneity of the material of the components, tensoresistors with identi-
cal temperature characteristics should be used, and the tensoresistors should
be selected and grouped on the basis of the apparent deformations in the given
temperature interval.

7 figures. 6 references.

2/2

TITLE--PIGMENTARY AND EXCRETORY FUNCTION OF THE LIVER IN CHRONIC LEUKEMIA
   -U-

AUTHOR-(04)-DOZORETS, YU.L., GURIN, N.G., KOZLOV, L.M., EYDEL, I.I.

CCUNTRY OF INFO--USSR

SCURCE--TERAPEVTITCHESKIY ARKHIV, 1970, VOL 42, NR 6, PP 32-35

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD SERUM, LEUKEMIA, LIVER FUNCTION, EXCRETION, BILIRUBIN

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1922        STEP NO--UR/0504/70/042/006/0032/0035

CIRC ACCESSICN NO--AP0129271
                            UNCLASSIFIED

CIRC ACCESSION NO--AP0129271
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE AUTHORS DETERMINED BILIRUBIN
   IN THE BLOOD SERUM AFTER HIMANS VAN DEN BERG IN 219 PATIENTS WITH
   CHRONIC LEUKEMIA AND ITS FRACTION, AFTER EBERLEIN IN 91 PATIENTS.
   QUANTITATIVE STUDY OF URINE UROBILIN WAS MADE IN 109 PERSONS AND
   CAPACITY OF THE LIVER TO EXCRETE ASORUBIN STAIN IN 107 PATIENTS.
   INCREASE OF FREE AND MONOGLUCURONID BILIRUBIN AND CHANGES OF
   DIGLUCURONIOBILIRUBIN IN THE BLOOD SERUM WERE FOUND.   THESE CHANGES WERE
   MAINLY ASSOCIATED WITH A DISORDER OF THE CONJUGATING FUNCTION OF THE
   LIVER DUE TO A REDUCTION OF GLUCURONIL, TRANSFERASE ACTIVITY OF
   MICROSOMES OF HEPATOCYTES.   IN THE TERMINAL PERIOD THE BILIRUBIN
   EXCRETORY FUNCTION OF THE LIVER WAS DISTURBED MOST OF ALL.
   UROBILINSORBTIVE FUNCTION OF THE LIVER WAS CONSTANTLY DISTURBED AND
   EXCRETORY, REMAINED UNCHANGED.          FACILITY:   KAFEDRA GOSPITAL'NOY
   TERAPII VITEBSKOGO MEDITSINSKOGO INSTITUT. .

TITLE--ON THE DISSOCIATION CROSS SECTION FOR SLOW COLLIDING EXCITED
   MOLECULES -U-

AUTHOR-(03)-DOZOROV, A.A., KUDRIN, L.P., NOVIKOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
   NR 6, PP 1955-1958

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EXCITED ELECTRON STATE, MOLECULAR INTERACTION, EXCITATION
   CROSS SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2243        STEP NO--UR/0056/70/058/006/1955/1958

CIRC ACCESSION NO--AP0125821
                            UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0125821                              PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE CROSS SECTION FOR THE PROCESS
   (AB) PLUS M YIELDS A PLUS B PLUS M IS CALCULATED; HERE (AB) AND M ARE
   MOLECULES IN THE EXCITED ELECTRON STATES.   THE CROSS SECTION CAN BE
   EXPRESSED IN TERMS OF WELL KNOWN EFFECTIVE CROSS SECTIONS FOR
   PHOTODISSOCIATION OF MOLECULES; AT THERMAL ENERGIES IT IS OF THE ORDER
   OF 10 PRIME NEGATIVE14 CM PRIME2.

UNCLASSIFIED

USSR                                    UDC 911.3.616.981.455(470.333)

ADAMOVICH, V. L., STRUTINSKIY, V. M., and DOZORTSEVA, A. A.

"Elimination of Tularemia in the Desna Flood Plain in Relation to the River Irrigation Project"

V sb. Kompleksn. probl. Desny (Complex Problems of the Desna -- collection of works), Tula, 1970, pp 196-202 (from RZh-36. Meditsinskaya geografiya, No 1, Jan 71, Abstract No 1.36.122 by V. Maslovskaya)

Translation:  From 1948 to 1963 there were 1,417 recorded cases of tularemia in Bryanskaya Oblast, and morbidity was gradually increasing.  The high incidence in 1963 can be explained by the abrupt intensification of the epizootic process in tularemia foci and the absence of appropriate vaccination for the population.  After 1963 the morbidity sharply decreased:  in 1964 -- 7 cases (in the environs of Bransk); in 1965 -- 2; and in 1966 -- 12 cases (in the Desna flood plain).  In the Desna flood plain there are two dangerous epidemiological areas:  from the mouth of the Bolva river to Pil'-shino village and from Radutino to Belaya Berezka village.  Tularemia study in Bryanskaya Oblast showed that elementary foci of infection are associated with the distribution of Ixodes apronophorus ticks and are found in alder

1/2

USSR

ADAMOVICH, V. L., et al, V sb. Kompleksn. probl. Desny (Complex Problems of the Desna — collection of Works), Tula, 1970, pp 196-202 (from RZh-36. Meditsinskaya geografiya, No 1, Jan 71, Abstract No 1.36.122 by V. Maslov-skaya)

groves.  Cartographic data shows that tularemia foci in 1963 were associated with areas of land reclamation.  These conditions are causing Ixodes ticks and rodents to inhabit the shores of drainage canals.  Microfoci emerge, from which infection spreads into the flood plain with subsequent increased incidence of tularemia in the population.  The morbidity probability has increased for tularemia, hemorrhagic fever with a renal syndrome, Q fever, and other diseases.

2/2

1/2    020                    UNCLASSIFIED          PROCESSING DATE--30OCT70
TITLE--CHROMOSOME MUTATIONS INDUCED BY SPACE FLIGHT FACTORS IN BARLEY
  SEEDS DURING THE FLIGHT OF THE AUTOMATIC STATIONS ZOND-5 AND ZOND-6
AUTHOR-(05)-NUZHDIN, N.I., DOZORTSEVA, R.L., PASTUSHENKOSTRELETS, N.A.,
. SAMOKHVALOVA, N.S., CHUDINOVSKAYA, G.A.
COUNTRY OF INFO--USSR

SOURCE--ZH. ABSHCH. BIOL. 1970, 31(1), 72-83

DATE PUBLISHED-------70


SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIATION INDUCED MUTATION, AGRICULTURE CROP SEED/(U)ZOND 5
  CIRCUMLUNAR PROBE, (U)ZOND 6 CIRCUMLUNAR PROBE



CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1962        STEP NO--UR/0321/70/031/001/0072/0083

CIRC ACCESSION NO--AP0123743
                        UNCLASSIFIED

2/2     020                    UNCLASSIFIED              PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0123743
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  SEEDS OF 2 VARIETIES OF BARLEY
  (RADIORESISTANT, AND RADIOSENSITIVE), IRRADIATED WITH 5 OR 10 KR AND
  PRIME137 CS GAMMA RAYS, OR NONIRRADIATED, DURING THEIR DORMANT AND
  RESTING STATE, WERE PLACED IN THE ZOND-5 AND ZOND-6 SPACESHIPS, WHICH
  FLEW AROUND THE MOON.  AFTER THE FLIGHT, THEY WERE THOROUGHLY ANALYZED.
  THE CYTOL. STUDIES SHOWED SIGNIFICANT DIFFERENCES BETWEEN THE EXPTL. AND
  CONTROL SERIES IN THE AMTS. OF ABERRANT CELLS DUE TO CHROMOSOMAL
  MUTATIONS CAUSED BY THE SPACE FLIGHT FACTOR (SFF).  SFF CAUSED
  CHROMOSOMAL MUTATIONS IN THE SEEDS.  THE GENETIC EFFECT OF THE COMBINED
  INFLUENCE OF SSF AND GAMMA IRRADN. DEPENDED ON THE PHYSIOL. STATE OF THE
  IRRADIATED SEEDS, AND ON THE DOSES OF IRRADN.  DORMANT SEEDS WITH A HIGH
  RADIORESISTANCE, AFTER IRRADN. WITH LOW GAMMA RAYS DOSES, WERE MORE
  AFFECTED BY THE COMBINED INFLUENCE OF SFF AND GAMMA IRRADN.  SEEDS IN
  THE RESTING STATE WITH HIGH RADIOSENSITIVITY SHOWED A SHARP INCREASE OF
  THE EFFECT OF SFF.  THE ADDITIVE AND SENSITIZING EFFECTS OF GAMMA
  IRRADN. AND SFF WERE OBSD. IN THE SEEDS FROM THE SPACE SHIPS.
  FACILITY:  INST. BIOL. PHYS., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 632.95

TRUKHLIK, S., DRABEK, I., KOVACH, I., and GAGER, S.

"Metathion -- New Low-Toxicity Organophosphorus Insecticide"

V sb. Khimiya i primeneniya fosfororgan. soyedin. (Chemistry and Application of Organophosphorus Compounds -- Collection of Works), Moscow, "Nauka," 1972, pp 477-483 (from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14N440 by T. A. BELYAYEVA)

Translation: The article presents physical and chemical properties and methods of producing metathion (I), data on the hydrolysis of I in various media, and toxicity of the preparation for warm-blooded animals. Compound I con-sumption norms for various crops are indicated. Compound I can be used in fruit and vegetable growing and in viticulture to control the pests of orna-mental plants and agricultural crops.

1/1

USSR

UDC 621.396.674.3

DRABKIN, A. D.

"Elementary Radiators in a Conducting Medium"

Moscow, Radiotekhnika i elektronika, Vol XVII, No 2, 1972, pp 264-267

Abstract: A study was made of the problem of transmitting electromagnetic energy by elementary radiators -- electric and magnetic -- in a semiconducting medium. Simple formulas were obtained for the active resistance of such radiators. Near the dipoles, on going away from the radiation sources, the power leaving the electric dipole decreases appreciably faster than in the case of the magnetic dipole. The conducting medium around the loop antenna has a significant effect on the active component of its input impedance. This effect on the reactive component of the input impedance is appreciably less and it can be approximately determined by means of the known expressions for the medium without losses. The method of induced emf's and the concept of a complex dielectric constant of the medium was used to obtain the expression for the power supplied to the insulated loop (without considering losses in the loop conductor).

1/1

USSR

UDC  621.371

DRABKIN, A. L. and STETSENKO, V. A.

"Electromagnetic Energy Distribution of the Simplest Radiators in a Semiconducting Medium"

Translation: The change in energy of an electromagnetic wave close to the radiator (a short electrical vibrator or frame) displaced in a uniform limitless semiconducting medium (SM) is investigated. Two possibilities are considered: 1) the radiator is placed directly in the SM; 2) the radiator is surrounded by a dielectric sphere beyond the limits of which is a uniform isotropic SM. It is shown that, for frame radiators, the power attenuates with the distance at a lower rate than for electrical vibrators; the presence of the dielectric shell affects them to a lesser extent. Two illustrations, bibliography of one. N. S.
1/1

- 56 -

1/2     010
TITLE--WORK QUALITY AND BONUSES -U-                UNCLASSIFIED          PROCESSING DATE--18SEP70

AUTHOR--DRABKIN, G.M.

COUNTRY OF INFO--USSR

SOURCE--STANDARTY I KACHESTVO, 1970, NR 2, PP 71-74

DATE PUBLISHED-------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--BONUS, QUALITY CONTROL, INDUSTRIAL MANAGEMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/2025          STEP NO--UR/0422/70/000/002/0071/0074

CIRC ACCESSION NO--AP0100590
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0100590     UNCLASSIFIED     PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DESCRIBES THE WORK OF AN ENTERPRISE IN IMPROVING THE QUALITY OF THEIR PRODUCTS. CERTAIN SOURCES ARE RECOMMENDED FOR THE BONUSES TO BE AWARDED NOT ONLY FOR THE HIGH QUALIY OF THE ITEMS PRODUCED, BUT ALSO FOR THE HIGH QUALITY WORK OF THE EMPLOYEES.

UNCLASSIFIED                                              89

USSR                                                    UDC: 621.315.592

DRABKIN, I. A. and NEL'SON, I. V., Semiconductor Institute, Acad. Sci.USSR
Leningrad
"Infrared Absorption by p-Type Pb$_{1-x}$Sn$_x$Te Alloys"

Leningrad, Fizika i tekhnika poluprovodnikov, vol 6, No 6, 1972,
pp 1046-1049

Abstract: The results of experimental investigations into the in-
frared absorption characteristics of n-type and p-type Pb$_{1-x}$Sn$_x$Te
solid solutions, where x = 0.02, 0.05, 0.1, and 0.2, are given in
this paper.  Specimens for the experiments were prepared from al-
loys of the original components in evacuated ampoules, the compo-
nents being heated by pressing and consequent homogenization by
annealing.  X-ray and metallographic analysis was used to verify
that the specimen was single-phased.  The absorption measurements
were made with the IKS-21 infrared spectrometer, the temperature
tests of the spectra being made in a special vessel to permit di-
rect measurement of the absorption in a micro-attachment, type
PMO-2M, in the 110-300° K interval.  The authors find that their
results agree closely with the data obtained by other researchers.

1/1

1/2    024                  UNCLASSIFIED          PROCESSING DATE--18SEP70
TITLE--INCREASE IN THE PHOTOELECTRIC SENSITIVITY OF POLYMERS WITH A
   CONJUGATION SYSTEM. I.  PHOTOSENSITIVITY OF A POLYMERLOW MOLECULAR
AUTHOR-(05)-DRABKIN, I.A., TSARYUK, V.I., CHERKASHIN, M.I., CHAUSER, M.G.,
   KISILITSA, P.P.
COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(1), 65-9

DATE PUBLISHED-------70


SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CONJUGATED POLYMER,   MOLECULAR WEIGHT,    PLASTIC FILM,
   PHOTOSENSITIVITY,    BENZENE DERIVATIVE,    ACETYLENE,    IODINATED ORGANIC
   COMPOUND,    CHLORINATED ORGANIC COMPOUND,    ORGANIC AZINE COMPOUND,
   PROTON


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/1814        STEP NO--UR/0364/70/006/001/0065/0069

CIRC ACCESSION NO--AP0100388
                      UNCLASSIFIED

UNCLASSIFIED         PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100338
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE ADDN. OF LOW MOL. WT. PHOTON
   ACCEPTORS (BROMANIL, CHLORANIL, TETRACYANOQUINODIMETHAN,
   TETRACYANOETHYLENE, TETRACYANOBENZENE, ALCL SUB3, OR PHTHALIC ANHYDRIDE)
   TO CONJUGATED POLYMERS (POLY(PHENYLACETYLENE), POLY(BETA
   IODOPHENYLACETYLENE), POLY(DIPHENYLBUTADIYNE), POLY(1
   CHLOROCYCLOPENTENE), OR POLYAZINE) INCREASED THE PHOTO COND. (SIGMA) OF
   THE POLYMERS LESSTHANOREQUALTO10PRIME8 TIMES.  THERE IS AN INCREASE OF
   SIGMA WITH THE POLYMER FILM THICKNESS, BUT NOT WITH INCREASED LAYER
   THICKNESS OF THE ACCEPTOR.  THE MOST IMPORTANT FACTOR IN CHANGING SIGMA
   IS THE TYPE OF THE ACCEPTOR POLYMER INTERFACE.  THE ADDN. OF THE
   ACCEPTORS ALSO INCREASES THE DARK COND. OF THE POLYMERS SLIGHTLY.

UNCLASSIFIED

USSR

UDC: 621.315.592

VINOGRADOVA, M. N., DRABKIN, I. A., YELISEYEVA, Yu. Ya., and NEL'SON, I. V.

"Optical Characteristics of p-Type $Pb_{1-x}Mn_xTe$ Solid Solutions"

Leningrad, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1478-1482

Abstract: The work described by this paper is the investigation of infrared reflection and absorption spectra in solid solutions of $Pb_{1-x}Mn_xTe$, with the purpose of explaining the energy structure of these alloys. The reflection spectra were measured with specimens having various carrier concentrations and with an Mn concentration of up to 9% at $300°$ K, and such spectra are plotted for alloys in which $x = 0.03$, $0.06$, $0.09$ with identical Hall concentrations. The absorption spectra were obtained for polycrystalline specimens of $Pb_{0.95}Mn_{0.05}Te$ and $Pb_{0.9}Mn_{0.1}Te$ and are reproduced as well. It is found that the introduction of Mn into $Pb_{1-x}Mn_xTe$ alloys leads to a change in the respective positions of light and heavy hole zones, and that the structure of the alloys' valent zones differs substantially from those of PbTe.
1/1

USSR

DRABKIN, I. A., MORGOVSKIY, L. Ya., NEL'SON, I. V., and RAVICH, Yu. I., Semiconductor Institute, Leningrad

"Characteristic Light Absorption in Nonparabolic Regions of PbTe and Solid PbTe-SnTe Solutions"

Abstract: A comparison is made between the experimental data for the absorption coefficient of PbTe and compounds of similar zonal structure on the one hand, and the theoretical expressions derived on the basis of the two-zone model on the other. Computation of the characteristic absorption coefficient is made in the framework of the two-zone model by computing the matrix elements of the dipole junctions through the use of wave functions found by the $\overline{kp}$ method. Such calculations show that the absorption coefficient in the nonparabolic zone increases because of the faster growth of the density of the compounds as a function of the energy. Experiments to determine the absorption of epitaxial films of PbTe, $Pb_{0.9}Sn_{0.1}Te$ and $Pb_{0.8}Sn_{0.2}Te$ are described. The results of these

1/2

USSR

· DRABKIN, I. A., et al, Fizika i tekhnika poluprovodnikov. No 7, 1972, pp 1323-1326

experiments are given in the form of curves showing the absorption coefficient and the coefficient squared as functions of the light energy. For the sake of comparison, the theoretical and experimental results are plotted on the same axes.

2/2

- 81 -

USSR

UDC: 620.179.152.5

GRUZIN, P.L., DRABKIN, L.A. and KOSAREV, L.I.

"Scattering of $\gamma$ -Radiation by $Cs_{137}$ Steel Cylindrical Barrier"

Sb. Radioizotop. sredstva Kontrolya i automatiz. tekhnol. protsessov v prom-sti (Symposium on Radioisotope as Means of Control and Automation of Manufacturing Processes in Industry) Moscow, Atomizdat Publishing House, 1972, pp 523-527 (from Referativnyy Zhurnal- Metrologiya i Izmeritel'naya Tekhnika, No 8, 1972, Abstract No 8.32.255)

Translation: Angular spectrum of once scattered radiation is obtained for the case of narrow beam of $\gamma$ -ray falling on $Cs_{137}$ steel cylindrical barriers of various thickness and curvature. It is shown that data on scattering of $\gamma$ -quantums in parallel plane barriers with scattering angle of $30^\circ$ can be used in this case with sufficient accuracy. The effect of cylindrical barrier thickness on the scattered radiation flux was investigated. The obtained relations have maximums. With the wall thickness greater than the one corresponding to the maximum flux the relation between flux and thickness is linear (3 illustrations, 1 reference).
1/1

- 117 -

USSR

UDC 621.397

SOLOVEYCHIK, I.YE., DRABKIN, R.I., YARMARKIN, K.K., LEUSSKAYA, G.V.,
SHARGORODSKAYA, F.M., KORNITENKO, G.G., TSEDIK, A.S.

"Electronic Device For Information Display"

Abstract:  The paper describes an information display device of the desk type,
intended for operation with an electronic computer through a telegraph communi-
cation channel. A block diagram of the device and the basic parameters of the
unit are presented. The authors report that a new information display device
was developed on the basis of the unit described, but few details are given.
(An exterior view of the device is shown on the journal cover.)  In the new de-
vice it is possible to reproduce 512 symbols (16 lines, 32 symbols to the line)
of an ELT23LK9B screen. The set of reproducible symbols includes the Russian
alphabet, figures, and special symbols--altogether 64 symbols. With an indi-
vidual keyboard which has 47 figure-letter keys and 21 functional, it is
possible to feed information into an electronic computer and to accomplish
complete editing of the text with the aid of an electronic carriage (marker).
The device contains a special exchange unit which makes it possible to operate
with an electronic computer in GOST 10859-64 code and in code MTK-2. In
addition, this unit provides coupling with the "Minsk-32" computer for the slow
channel. 5 fig. 1 tab.
1/1

USSR

UDC 547.397+595.7

DRABKINA, A. A., YEFIMOVA, O. V., TSIZIN, Yu. S., GAMPER, N. M., and PRIDANTSEVA, Ye. A., Institute of Chemical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy; All-Union Institute of Plant Protection

"Compounds Which Simulate the Effect of the Juvenile Insect Hormone. III. Synthesis of 3,11-Dimethyl-11-chlorodecen-2-oic Acid Ethyl Ester"
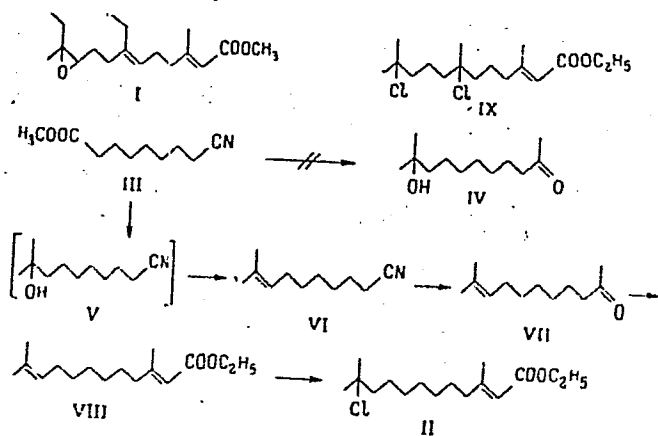
Abstract:  3-11-Dimethyl-11-chlorododecen-2-oic acid ethyl ester (II) was synthesized for biological tests.  Compound (II) shows the groups typical of the active analogs of insect juvenile hormone of (I).

1/3

- 53 -

USSR

2/3

USSR

DRABKINA, A. A., et al., Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72
pp 457-459

The synthesis is based on methyl 8-cyanooctanoate (III). It was assumed at
first that ester (III) could be converted to hydroxy ketone (IV) with excess
methylmagnesium iodide. However, even a reagent ratio of 1:10 failed to give
the desired result. Careful selection of reaction conditions showed that
ester (III) reacts with three moles of methylmagnesium iodide to form hydroxy
nitrile (V) which is converted to unsaturated nitrile (VI) after dehydration
without filtering. Reaction of (VI) with four moles of methylmagnesium iodide
yields ketone (VII) which is converted to the diene ester (VIII) by the
Whittig reaction. Compound (II) is obtained by bubbling hydrogen chloride
through an alcohol solution of diene ester (VIII). Tests on mosquito larvae
showed that (II) is as active physiologically as compound (IX), which is
called "synthetic juvenile hormone."

3/3

Entomology

USSR

UDC 591.147:595.7

ISIZIN, Yu. S., DRABKINA, A. A., Institute of the Chemistry of Natural Compounds, Moscow, Academy of Sciences USSR

"Juvenile Hormone of Insects and Its Analogs"

Moscow, Uspekhi Khimii, Vol 39, No 6, 1970, pp 1074-1129

Abstract:  The survey covers the chemistry of the juvenile hormone of insects and its analogs.  Literature data are cited on the isolation, structure determination, and synthesis of the juvenile hormone and natural compounds mimicking its action. Synthetic compounds showing hormonal activity are described and the relationship between their structure and physiological activity is discussed.

1/1

USSR

UDC 547.963.3

DRABKINA, L. Ye. and MOSEVITSKIY, M. I., Physico-Technical Institute imeni
A. F. Joffe, Academy of Sciences USSR, Leningrad

"Influence of Metabolic Toxins on the Formation of the Helical Ring Form of
Lambda Phage DNA"

Abstract:  A study was made of the effect of metabolic toxins on the formation
of the helical ring form of DNA (obtained from a lambda phage) under conditions
of superinfection.  It was determined that chloramphenicol ($100 \mu g/ml$), as well
as actinomycin D and proflavin (in doses up to $5 \mu g/ml$), did not have any real
effect on the formation of helical molecules of lambda-DNA.  However, in much
larger doses (up to $10-15 \mu g/ml$), both actinomycin D and proflavin almost com-
pletely inhibited formation of helical lambda-DNA.

1/1

- 13 -

Optics and Spectroscopy

USSR

AKHMANOV, S. A., BOL'SHOV, M. A., DRABOVICH, K. N., SUKHORUKOV, A. P., Physics Faculty of Moscow State University imeni M. V. Lomonosov

"Suppression of Induced Raman Scattering in Dispersive Media With a Nonlinear Refractive Index"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No. 11, 5 Dec 70, pp 547-551

Abstract: A theoretical and experimental study of induced Raman scattering of intense picosecond and nanosecond light pulses in self-focusing liquids is presented. The anomalous broadening of the pulse spectra caused by the nonlinearity of the refractive index is accompanied by a considerable decrease in the intensity of the induced Raman scattering and, in many cases, to its complete suppression. It was established that this effect is caused by the simultaneous action of fast phase modulation of the pumping arising due to nonlinearity of the medium and of dispersion of the medium. A generalization of the nonstationary theory of induced Raman scattering yielded quantitative relationships for this mode which had not been

1/2

USSR

AKHMANOV, S. A., et al, Pis'ma v Zhurnal eksperimental'noy i teoreticheskoy fiziki, No. 11, 5 Dec 70, pp 547-551

investigated previously. The experiments on induced Raman scattering in self-focusing media were made with the second harmonic of a neodymium laser in single-mode and synchronization mode operation.                    Anomalous broadening of the spectrum reaching $1000$ cm$^{-1}$ in nanosecond pulses and more than $1000$ cm$^{-1}$ in picosecond pulses were observed in carbon bisulfide in a collimated beam. It is shown that the broadening of the spectrum of picosecond pulses in these experiments was directly associated with phase self-modulation of the pulse in a nonlinear medium.

2/2

1/2      046                    UNCLASSIFIED          PROCESSING DATE--23OCT70
TITLE--THEORY OF GENERATION OF GIANT PULSES OF STOKES RADIATION DURING
  STIMULATED COMBINATION SCATTERING -U-
AUTHOR--DRABOVICH, K.N.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL PRIKLADNOI SPEKTROSKOPII, VOL. 12, MAR. 1970, P. 411-418

DATE PUBLISHED-------70


SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER PUMPING, LASER PULSE, PULSE SHAPE, COMBINATION
  SCATTERING, IR EMISSION



CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1026          STEP NO--UR/0368/70/012/000/0411/0418

CIRC ACCESSION NO--AP0107540
                    UNCLASSIFIED

.UNCLASSIFIED          PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0107540
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  ANALYSIS OF THE PROCESS OF
  GENERATION OF GIANT STOKES PULSES DURING STIMULATED COMBINATION
  SCATTERING ON THE BASIS OF THE EQUATIONS FOR THE DENSITY MATRIX AND
  SLOWLY VARYING FIELD AMPLITUDES.   PARTICULAR ATTENTION IS DEVOTED TO
  PULSES TRAVELING COUNTER TO THE PUMPING WAVE.   THE CHARACTERISTIC
  SPATIAL SCALES OF THE FORMATION OF STOKES PULSES ARE DETERMINED FROM THE
  SOLUTION TO THE VELOCITY EQUATIONS.   IT IS SHOWN THAT AT FAIRLY LARGE
  WAVELENGTHS A STOKES PULSE ACQUIRES A STEADY SHAPE, AND ITS PARAMETERS
  (DURATION, POWER, AND ENERGY) ATTAIN LIMITING VALUES.   FROM THE
  RESPECTIVE FORMULAS IT FOLLOWS THAT THE PULSE DURATION IN THE PRESENCE.
  OF LARGE AMPLIFICATIONS MAY BE CONSIDERABLY LESS THAN THE TRANSVERSE
  RELAXATION TIME.   IT IS ALSO SHOWN THAT, GIVEN A HIGH PUMPING RADIATION
  POWER AND A LOW SCATTERING PARTICLE DENSITY, AN INVERSE STOKES PULSE
  BECOMES A PI PULSE.   THE POSSIBILITY OF THEN OBSERVING TWO PHOTON ANTI
  STOKES STIMULATED COMBINATION SCATTERING AND STIMULATED INFRARED
  RADIATION IS INDICATED.

UNCLASSIFIED

UDC 621.375.82

USSR

AKHMANOV, S. A., DRABOVICH, K. N., SUKHORUKOV, A. P., SHCHEDNOVA, A. K.

"Combined Effects of Molecular Relaxation and Dispersion of the Medium in the Case of Induced Scattering of Supershort Light Pulses"

V sb. Nelineyn. protsessy v optike. (Nonlinear Processes in Optics--collection of works), Vyp. 2, Novosibirsk, 1972, pp 3-16 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D865)

Translation: A theoretical analysis was made of the effect of the local non-stationarity and dispersion of a medium on the development of the pulse of the first Stokes component of induced Raman emission excited by picosecond pulses of laser radiation as a function of the relation between their dura-tion and the longitudinal and transverse relaxation times of the medium. It is demonstrated that under conditions of group synchrony the pulse build-up coefficient of the first Stokes component can be reduced by comparison with the stationary value; in the case of strong nonstationarity, broadening of the spectrum is possible, and the phase modulation of the pumping radiation has no effect on the amplification. In media with anomalous dispersion in the case of inverse induced Raman emission the amplification saturation always takes place on a quasistationary length. The phase modulation of the pumping radiation in the dispersing medium can have a significant effect on the

1/2

USSR

AKHMANOV, S. A., et al., Nelineyn. protsessy v optike. (Nonlinear Processes in Optics--collection of works), Vyp. 2, Novosibirsk, 1972, pp 3-16

amplification of the first Stokes component. In the absence of group synchrony and in the presence of inverse induced Raman emission, the formation of gigantic first Stokes component pulses is possible with a power exceeding its pumping power and a duration $\tau_c = 2T_2/\Gamma_0\delta-1 - 1$, where $T_2$ is the transverse relaxation time, $\Gamma_0$ is the stationary amplification coefficient, $\delta$ is the linear loss coefficient. The shift of the level populations in the medium was analyzed. Prospective problems were indicated for further study: in particular, consideration of non-uniform broadening of the levels, analysis of resonance induced Raman emission in equilibrium and excited media, and so on. The bibliography has 34 entries.

2/2

USSR

AKHMANOV, S. A., DRABOVICH, K. N., SUKHORUKOV, A. P., and SHCHELNOVA, A. K.,
Moscow State University imeni M. V. Lomonosov

"Combined Effects of Molecular Relaxation and Dispersion of Medium in Induced
Raman Emission of Ultrashort Light Pulses"

Abstract:  The article develops a consistent nonstationary theory for induced
Raman emission (IRE) which simultaneously considers the effect of molecular
relaxation and dispersion of the medium.  Broad assumptions are made with
respect to pumping modulation (a short rectangular and a bell-shaped pulse
without phase modulation,  continuous phase-modulated pumping,  short pulses
experiencing rapid phase modulation).  Different relations between the group
velocities of interacting waves are considered (forward scattering in the case
of normal and anomalous dispersion, backscattering).  The most interesting re-
sult of the authors' analysis is the fact that, under conditions when inertia
of molecular vibrations and dispersion of the medium appear simultaneously,
qualitatively new effects arise.  The most important of these is the appearance
of a mode of exponential amplification of Stokes radiation excited by pumping
1/2

- (2) -

USSR

AKHMANOV, S. A., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 62, No 2, Feb 72, pp 525-540

pulses with a duration of $\mathcal{T}_p < T_2$ at $z < L_\nu$, accompanied by stabilization of the Stokes pulse shape and width. Another important effect is the suppression of IRE as a result of rapid pumping phase modulation (at $\nu = 0$ phase modulation has practically no effect on Stokes amplification). There is competition between the effect of stationary mode formation and IRE suppression due to phase modulation. Estimates show that these effects play an important role in the IRE of picosecond pulses in liquids and crystals and IRE in self-focused beams. They may also appear in other types of stimulated scattering.

The theory developed can be used to analyze characteristics of higher Stokes and anti-Stokes components in nonstationary scattering. An interesting question is nonstationary scattering by polaritons. The use of the calculation method described enabled A. G. GOLGER to establish that the spectral line width of infrared vibrations under nonstationary conditions has the order of the corresponding spontaneous line width, regardless of the width of the pumping spectrum.

2/2

USSR

DRACH, B. S., and SVIRIDOV, E. P., Institute of Organic Chemistry, Academy of Sciences, Ukrainian SSR

"Reaction of Diethylamine With the Diethyl Ester of 1-Benzamido-2,2-dichlorovinylphosphonic Acid"

Abstract:  Heating triethyl phosphite with N-1,2,2,3-tetrachloroethyl-benzamide yields the normal Arbuzov rearrangement product which in the presence of triethylamine is convereted to the diethyl ester of 1-benzamido-2,2-dichlorovinylphosphonic acids.  The latter reacts easily with primary and secondary amines; so that in case of dimethylamine, for example, a good yield of 2-phenyl-4-diethoxyphosphonyl-5-dimethylaminooxazole is obtained.

1/1

USSR

UDC 547.288 → 547.495

DRACH, B. S., and SVIRIDOV, E. P., Institute of Organic Chemistry, Academy of Sciences UkrSSR

"Reaction of the Condensation Product of Bromal and Methylurethane with Phosphorus Pentachloride"

Abstract: The condensation product of bromal with methylurethane -- the methyl ester of N-1-hydroxy-2,2,2-tribromethylcarbamic acid (I) reacts easily with phosphorus pentachloride yielding with the 1:1 ratio of the reagents the methyl ester of N-1-chloro-2,2,2-tribromcethylcarbanic acid (II). With a 1:2 ratio, the product is 1-chloro-2,2,2-tribromethylisocyanate (III). Treatment of (II) with triethylamine yields N-carbomethoxybromalimine (IV). Both (III) and (IV) react exothermally with methanol yielding the same product -- N-1-methoxy-2,2,2-tribromethylcarbamic acid.
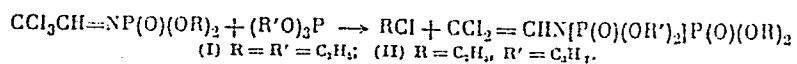
1/1

- 53 -

USSR

SINITSA, A. D., and DRACH, B. S.

"Interaction of N-dialkoxy Phosphonyl Chloroalimines with Trialkyl Phsophites"

Abstract:  The N-dialkoxy phosphonyl chloralimines react easily with trialkyl phosphites and give with high yields tetraalkyl esters of N- $\beta$., $\beta$ -dichloro-vinylimido diphosphoric acid (I, II).

$$CCl_3CH=NP(O)(OR)_2 + (R'O)_3P \longrightarrow RCl + CCl_2 = CHN[P(O)(OR')_2]P(O)(OR)_2$$
$$\text{(I) } R = R' = C_2H_5; \text{ (II) } R = C_2H_5, R' = C_3H_7.$$

N-benzoyl chloralimine interacts with trimethyl phosphite differently:
phosphorylation proceeds not with respect to the nitrogen atom but with res-
pect to the carbon atom / K. Burger, et al., Angew. Chem., No 84, 258 1972/.
An experimental procedure is presented for obtaining comppund (I) with a yield
of 82% and compound (II) with a yield of 88%.  Compound (II) was obtained
by two procedures -- under the effect of the tripropyl phosphite cn the
N-diethoxy phosphonyl chloralimine and also under the effect of triethyl
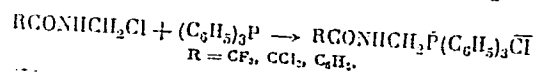phosphite on N-dipropoxy phosphonyl chloralimine.

1/1

- 32 -

USSR

DRACH, B. S., SVIRIDOV, E. P., and KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences, Ukraine SSR

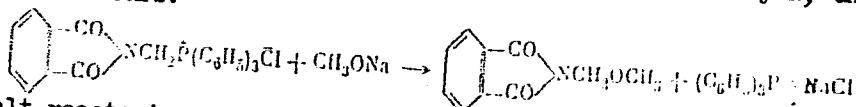"Reaction of the N-chloromethylamides of Acids With Triphenylphosphines"

Abstract:  N-chloromethylamides reacts with triphenylphosphines according to the following reaction:

$$RCONHCH_2Cl + (C_6H_5)_3P \longrightarrow RCONHCH_2\overset{+}{P}(C_6H_5)_3\overline{Cl}$$
$$R = CF_3, \ CCl_3, \ C_4H_3.$$

If the phosphonium salt from the above reaction is treated with triethylamine in a dioxane solution, the hydrochloride but not the phosphinomethylene is formed.  If the phosphonium salt has no H on the N, i.e., a tertiary N, the following reaction occurs:

The bromine salt reacts in an analogous manner.

1/1

- 32 -

1/2    016
UNCLASSIFIED
TITLE--CORRELATION BETWEEN THE STRUCTURE AND THE ACTIVITY OF
N,ACYLCHLORALIMINES -U-            PROCESSING DATE--27NOV70

AUTHOR-(03)-DRACH, B.S., SINITSA, A.D., KIRSANOV, A.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 934-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, ACYL RADICAL, CHLORINATED ORGANIC
COMPOUND, IMINE, MERCAPTAN, ORGANIC PHOSPHORUS COMPOUND, CHEMICAL
REACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1515
STEP NO--UR/0079/70/040/004/0934/0935
CIRC ACCESSION NO--AP0135176
UNCLASSIFIED

CIRC ACCESSION NO--AP0135176    UNCLASSIFIED    PROCESSING DATE--27NOV70
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  ETSH REACTS WITH CCL SUB3 CH:NA IN
DIOXANE IN A 2ND ORDER REACTION THAT MAY BE FOLLOWED IODOMETRICALLY; THE
FOLLOWING RATE CONSTS. AT 20DEGREES WERE DETD. (K IN L.-MOLE HR) FOR
INDICATED A GROUPS:  PHCH SUB2 CO, 226; ETCO, 77; ETO SUB2 C, 14.6; AND
(ETO) SUB2 PO, 4.7.  THE REACTION RATE DECLINES WITH REDN. OF
ELECTRONEGATIVITY OF THE ACYL GROUP.  IF THE REACTION SOLN. IS LEFT 1
DAY, EVAPN. GAVE CCL SUB3 CH(SET)NHR:PHCH SUB2 CO, M. 137-8DEGREES;
ETCO, M. 103-4DEGREES; AND ETO SUB2 C, M. 78-9DEGREES.    FACILITY:
INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 615.372.576.851.553

DRACHENNIKOV, V. I., GOLSHMID, V. K., REZEPOV, F. F., and CHENTSOVA, O. I.,
State Control Institute imeni Tarasevich and Moscow Institute of Vaccines
and Sera imeni Mechnikov

"Immunochemical and Biological Characteristics of Botulinus Type A Toxoids.
II"

Abstract:  DEAE-cellulose chromatography revealed that the specific antigen
of botulinus type A toxoids is heterogeneous in physicochemical properties.
Separation of the toxoids on DEAE-cellulose yielded a fraction containing
over 50 percent of the total antigenic activity and free from nucleic acids
and pigments.  Its specific activity was almost double that of the original
preparation.  No relationship was found between the charge of the specific
molecules of the toxoids and their molecular weight.  Purification of the
toxoids on DEAE-cellulose resulted in removal of the ballast substances
with no impairment of the immunogenic properties of the active fraction.

1/1

USSR

UDC 621.355.8

DRACHEV, G. G., MATVEYEVA, M. I., and TOMASHEVSKIY, F. F.

"Cobalt as a Trace Element in the Anode Part of Alkali  Batteries"

Translation:  The influence was determined of traces of cobalt in the form of
a metallic powder and as different compounds in the positive working terminal
on the capacity of alkaline batteries of the type TZHNK-300.  The greatest
effect was shown by the compound $CoSO_4$ in the form of a saturated solution,
approximately 3%.  Under these conditions, the capacity of the batteries
increased approximately 20% with a concommitant improvement in its power at
higher temperatures ($40^{\circ}C$) for conditions of a small reduction in the dis-
charge current.  The actual specific energy of batteries having cobalt addi-
tions with unlaminated negative and laminated positive electrodes was 73.5
watt hours/1 and 34 watt hours/kg.  Such batteries are recommended for appli-
cation for loading machines.

1/1

USSR

BRODOLIN, L. I., VAYNSHTEYN, V. D., DRACHEV, L. A., KAN, A. Z., KUZNETSOV, B. A., MININ, Yu. P., and PETRUNICHEV, V. N.

UDC 681.327.67'12

"Long-Term Photoscopic Memory"

USSR Author's Certificate No 260926, filed 7 Oct 68, published 10 Jun 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6 B325 P)

Translation: A long-term photoscopic memory designed for storing, retrieving, and selecting a symbol image is proposed. The memory contains a light spot commutator -- for example, a cathode ray tube -- a projection objective with telecentric behavior of the beams in the image space, a lense raster information unit, a fast collective, a transmitting cathode ray tube with storage -- for example, the superorthicon type and digital and analog tracking systems for setting the spot on a given address. The memory is distinguished by the fact that to prevent charging the target when retrieving the required microframe, the device contains an electronic image modulator in the transfer section of the transmitting TV-tube. In order to insure a broad range of variation of the capacity of the TV frame and the selection rate, the target of the transmitting TV tube is executed in the form of a metal fiber disc with a coefficient of secondary emission

1/2

USSR

BRODOLIN, L. I., et al., USSR Author's Certificate No 260926, filed 7 Oct 68, published 10 Jun 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika , No 6, Jun 71, Abstract No 6 B325 P)

of the side turned toward the photocathode equal to one.  In order to simplify the design and insure the possibility of recording the service information used during operation of the tracking systems in the microframe, the device contains a fiber, vacuum-tight coherent light guide with a cross section equal to the size of the symbol in the focal plane of the collective.  The photocathode of the transmitting TV tube is applied to the output end of the light guide, and the input ends of the light guides connected with the photomultipliers of the tracking address system are arranged around the perimeter of the input end.  In order to insure the required levels of light flux from the standing light spot, the light spot commutator executed in the form of a cathode ray tube contains a built-in screen which vibrates in its own plane.  There is 1 illustration.

2/2

- 73 -

1/2    023                    UNCLASSIFIED          PROCESSING DATE--18SEP70
TITLE--MACROKINETICS OF THE FLUIDIZED BED LEACHING OF ZINC CINDERS -U-

AUTHOR-(02)-BUROVOY, I.A., DRACHEVA, T.V.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(1), 26-30

DATE PUBLISHED-------70


SUBJECT AREAS--MATERIALS

TOPIC TAGS--FLUIDIZED BED, EXTRACTIVE METALLURGY, ZINC COMPOUND, REACTION
   KINETICS, MATHEMATIC MODEL, THERMODYNAMIC ANALYSIS


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0757        STEP NO--UR/0136/70/043/001/0026/0030

CIRC ACCESSION NO--AP0102722
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0102722

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE EXPTL. RESULTS ARE PRESENTED
ON THE TITLE SUBJECT, AND A MODEL IS PROPOSED FOR THEIR MATH. TREATMENT.
THE EXPTS. WERE PERFORMED UNDER SO CALLED GRADIENTLESS ISOTHERMAL
CONDITIONS, UNDER WHICH THE DROP IN THE CONCNS. OF THE LIQ.  REAGENT AT
THE ENTRANCE AND AT THE EXIT TEND TOWARD ZERO, WHICH SIGNIFICANTLY
FACILITATES THE SUBSEQUENT TREATMENT OF THE EXPTL. DATA.  THE MATH.
MODELING METHOD FOR THE TREATMENT OF THE EXPTL. DATA WAS NECESSARY
BECAUSE DURING THE EXPT. ONE CANNOT BRING ABOUT CONDITIONS UNDER WHICH
ONLY ONE OF THE GIVEN PARAMETERS WOULD VARY AND WHERE THE OTHERS WOULD
REMAIN CONST.  THE MACROKINETIC CONSTS. WERE DETD. BY VARYING THE
COEFFS. OF THE MATH. MODEL WITH A GIVEN STRUCTURE UNDER THE CONDITION OF
THE MIN. OF THE MEAN SQUARE ERROR.  MOST OF THE EXPTS. WERE PERFORMED AT
THE RATE OF 59 CM-MIN.  AT C PRIMEO H SUB2 SO SUB4 EQUALS 100 G-L., THE
DAMPING COEFF. OF THE LEACHING RATE BY REACTION PRODUCTS IS 1-10, 1-20
THAT FOR LEACHING FROM BRIQUETTES.

TITLE--THE AGING TRAITS OF CEREBRAL STROKES --U-

AUTHOR-(03)-DRACHEVA, Z.N., PENEK, N.V., SHEHURINOK, L.A.

CCUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,
 VOL 70, NR 6, PP 812-815
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CEREBRUM, HEMORRHAGE, BIOLOGIC AGING, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0921          STEP NO--UR/0246/70/070/006/0812/0815

CIRC ACCESSION NU--AP0126580
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0126580
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER CONCERNS A COMPARATIVE
  STUDY OF CLINICAL TRAITS IN HEMORRHAGIC STROKES OF THE YOUNG AND OLD
  AGE. THE AUTHORS STUDIED 17 PATIENTS IN THE AGE GROUP OF 30-45 AND 25
  PATIENTS FROM 60-75 YEARS OF AGE WITH CEREBRAL HEMORRHAGES. IN ALL THE
  CASES THE DIAGNOSIS WAS VERIFIED IN POST MORTEM EXAMINATIONS. THE
  PATIENTS OF THE YOUNGER GROUP WERE CHARACTERIZED BY MORE EXPRESSED
  GENERAL BRAIN SYMPTOMS, A RAPID DEVELOPMENT OF COMATOSE STATES,
  AUTOMATIZED JESTURES, HORMETONIA, OCULOMOTOR DISORDERS, DISTURBANCES OF
  RESPIRATION AND CARDIAC ACTIVITY. THE OLDER PATIENTS DID NOT EXPRESS SO
  STRIKINGLY THE GENERAL BRAIN SYMPTOMS, WHICH DEVELOPED MORE GRADUALLY.
  THIS MAY BE RELATED TO A MORE COMPENSATED BRAIN EDEMA, SWELLING, BECAUSE
  OF THE CEREBRAL AND BRAIN TISSUE ATROPHY, AS WELL AS A DECREASE OF THE
  REACTIVITY ON BEHALF OF THE NERVOUS SYSTEM.          FACILITY:
  KIYEVSKOGO MEDITSINSKOGO INSTITUTA.          FACILITY: KAFEDRA NERVNYKH
  BOLEZNEY.

UNCLASSIFIED

USSR                                          UDC 669.295.476

DRACHEVSKAYA, R. K., ALMAZOVA, N. G., LUKINA, A. G.

"Production of Titanium from Anhydrous Media on a Mercury Cathode"

Nauch. tr. Kazakhsk. Politekhn. In-t [Scientific Works of Kazakh Polytechnical Institute], Alma-Ata, 1971, pp 548-550, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G263 by G. Svodtseva).

Translation:  A 10% solution of $TiCl_4$ in isobutyl alcohol, with 1 volume of ethylene glycol added to 2 volumes of the solution, was electrolyzed.  Each g was poured onto the bottom of the electrolyzer, acting as the cathode, while the anode was a Pt plate.  The current density of the cathode was about 440 $a/m^2$. Electrolysis time 1 hour.  Metallic Ti was separated as a finely dispersed black sediment on the surface of the Hg.  Following electrolysis, the sediment was washed and filtered by decantation in isobutyl alcohol.  Only about 2% of the metal Ti was extracted from the initial solution.

1/1

UDC 669.285'295'296;784.018.44;620.186

USSR

GRISHOV, V. L., DRACHINSKIY, A. S., KAVERINA, S. N., PISARENSKO, V. A., and TREFILOV, V. I., Institute of the Physics of Metals, Academy of Sciences Ukrainian SSR

"Change in the Structure and Properties of Molybdenum After Heating in the High-Temperature Range"

Translation: The following two types of heat treatment were used to obtain different structural states of Mo alloy with 0.39% Ti, 0.19% Zr, and 0.007% C: annealing in a TVV-4 furnace in a vacuum of $5 \cdot 10^{-4}$ mm Hg with four-hour holding and a cooling rate of $\sim 1$ deg/sec; heating by passing alternating current through a specimen at a heating rate of $\sim 150$ deg/sec and a cooling rate of 200 deg/sec. Specimens annealed at different temperatures under these conditions underwent mechanical tensile tests and microhardness measurements. The influence of structure on the strength characteristics of the alloy was studied. A significant increase was found in the strength and ductility values of specimens electric-heat-treated to 2000° as compared with annealing heat-

1/2

USSR

GRISHOV, V. L., et al., Metallofizika. Resp. mezhved. sb., 1970, vyp. 30, pp 42-49

treated specimens.  Aging processes were observed in the Mo alloy in some cases after heat treatment.  Eleven illustrations.  Bibliography with four titles.

2/2

USSR                                                          UDC 547.75

ZHUNGIYETU, G. I., DRAGALINA, G. A., and DOROFEYENKO, G. N., Chemistry
Institute of the Academy of Sciences of the Moldavian SSR, Kishinev

"Reaction of Oxindoles with $\beta$-Diketones"

Abstract:  In the reaction with acetylacetone in presence of hydrogen
chloride, oxindole and 1-acetyloxindole form a mixture of approximately
equal quantities of 3-isopropylideneoxindole, 1-oxonia-2,4-dimethylcarbazole
chloride and methyl ester of o-aminophenylacetic acid hydrochloride.  In
case of other 1- and 5-substituted oxindoles it was possible to isolate
3-isopropylidene derivatives.

1/1

USSR                                          UDC 547.759.1'753'756

ZHUNGIYETU, G. I., DRAGALINA, G. A., and DOROFEYENKO, G. N., Chemistry
Institute, Academy of Sciences of Moldavian SSR, Kishinev

"Reactions of Indoles and Hydroxyindoles With Some Aldehydes"

Abstract: 3,5-Di-tert-butyl-4-hydroxybenzaldehyde (I) reacts with indole and
2-methylindole yielding derivatives of di(indolyl-3)methane; with hydroxyin-
dole and 1-methyloxyindole (I) yields derivatives of 3-arylideneoxyindole.
With salicylaldehyde hydroxyindoles form 3-(0-hydroxybenzylidene)hydroxy-
indoles. In reactions with arylglyoxals hydroxyindoles yield (hydroxy-
indolyl-3)aroylcarbinols which under the influence of acetic acid dehydrate
to 3-phenacylidenehydroxyindoles. But the starting carbinols and their
products in reactions with hydrazine form 3'-arylspiro(hydroxyindol-3,5')-
$\Delta^2$-pyrazolines.

1/1

USSR                                    UDC:  621.372.061

BRITNER, L. P., DRAGAN, A. B.

"A Method of Calculating Pulse Reactions of Communications Channels"

V sb. Vopr. elektrosvyazi (Problems of Electrical Communications--collection
of works), Kiev, "Tekhnika", 1970, pp 42-48 (from RZh-Radiotekhnika, No 11,
Nov 70, Abstract No 11A92)

Translation:  In order to solve a number of problems associated with the
development of correcting devices for high-speed transmission of discrete
information, it is necessary to know the relationships between the reference
values of the pulse reaction in the uncorrected channel.  This problem can
not be solved by direct measurements at the present time.  In this connection
the authors discuss a method of determining the reference values of the pulse
reaction in the channel from readings of its amplitude-frequency and phase-
-frequency characteristics.  Formulas are derived which can be used to de-
termine the unknown quantities from readings of the complex transmission
factor of the channel.  Application of these formulas is illustrated by
calculation of practical correcting devices.  Two tables, bibliography of
five titles.  N. S.

1/1

USSR                                                    UDC:  51:621.391

DRAGAN, Ya. P.

"On Data Compression in Representation of a Random Process"

Otbor i peredacha inform. Resp. mezhved. sb. (Data Collection and Trans-
mission. Republic Interdepartmental Collection), 1972, vyp. 34, pp 3-12
(from RZh-Kibernetika, No 5, May 73, abstract No 5V582 by Yu. Lin'kov)

Translation:  Let $l_1^+$ be a space of sequences $\alpha = (\alpha_1, \alpha_2,...)$ such that

$x_k \geqslant 0$ for all $k$ and $\|\alpha\| = \sum_{k=1}^{\infty} \alpha_k < \infty$.   The sequence $\alpha \in l_1^+$ such that $\alpha_1 \geqslant \alpha_2 \geqslant \cdots$,

is called majorizing for the sequence $\beta \in l_1^+ (\alpha \succ \beta)$, if $\sum_{k=1}^{n} \beta_k < \sum_{k=1}^{n} \alpha_k$  for any

$n < \infty$ and $\|\beta\| = \|\alpha\|$.   It is shown that if $\alpha \succ \beta$, $\|\alpha\| = \|\beta\| = 1$, then $(\alpha) < H(\beta)$,
the equality sign holding only when the sequence $\beta$ is derived from $\alpha$
by rearranging elements, where $H(\alpha)$ is the entropy of the probability
distribution which forms the sequence $\alpha = (\alpha_1, \alpha_2,...)$.   Let $\xi(t)$ be a
random Hilbert process, $M\xi(t) = 0$, $M|\xi(t)|^2 < \infty$ for all $t \in [a, b]$, $r(t, s) = M\xi(t)\overline{\xi(s)}$,
$R$ is an operator with kernel $r(t,s)$ acting in the space $H = L_2(a,b)$, and

1/2

USSR

DRAGAN, Ya. P., Otbor i peredacha inform. Resp. mezhved. sb., 1972, vyp. 34, pp 3-12

let $r(t,s)$ be a continuous function, and let $\mathrm{Sp}R$ be the Spur of operator $R$, $r(t,s) = \sum_{k=1}^{\infty} \sum_{j=1}^{\infty} r_{kj}^{\psi} \psi_k(t) \overline{\psi_j(s)}$, where $\psi = \{\psi_k(t)\}$ is some normed basis in $H$.

The entropy $H^{\psi}(\xi) = H(\rho^{\psi})$, where $\rho^{\psi} = (\rho_1^{\psi}, \rho_2^{\psi}, \ldots)$, $\rho_k^{\psi} = \dfrac{r_{kk}^{\psi}}{\mathrm{Sp}R}$ is called the entropy of the process $\xi(t)$ in the normed basis $\psi$. It is shown that for any normed basis $\psi$ the inequality $\rho^{\phi} \succ \rho^{\psi}$ is satisfied, and consequently $H^{\psi}(\xi) > H^{\phi}(\xi)$, where $\phi$ is an orthonormalized Loéve-Karhunen basis. Extension to the case of multidimensional random processes is considered.

2/2

- 56 -

USSR

DRAGAN, Ya. P.

"Biperiodically Correlated Random Processes"

Otbor i Peredacha Inform. Resp. Mezhved. Sb. [Collection and Transmission of Information. Republic Interdepartmental Collection], 1972, No 34, pp 12-14 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V148, by the author).

Translation: The concept of biperiodically correlated random processes is introduced, used to describe binary rhythms in natural phenomena, and the properties of these processes are studied.

1/1

USSR                                                          UDC 519.2

DRAGAN, YA. P.

"Types of Canonical Expansions of Random Processes"

Otbor i peredacha inform. Resp. mezhved. sb. (Data Sampling and Transmission.
Republic Interdepartmental Collection), 1972, vyp. 31, pp 12-21 (from RZh-
Kibernetika, No 9, Sep 72, Abstract No 9V82)

Translation: Two types of canonical expansions of the random process given in
a segment are isolated. Using the concept of the Riesz basis, a description of
all possible expansions of both types is presented for the given process. The
relation to the Karunen-Loewe expansion, the problem of finding a shaping fil-
ter, the Rice expansion and the reckoning theorem is established.

1/1

USSR

UDC: 519.21

DRAGAN, Ya. P., Physicomechanical Institute, Academy of Sciences, UkrSSR

"On the Spectral Properties of Periodically Correlated Random Processes"

Kiev, Otbor i Peredacha Informatsii, Resp. Mezhved. Sb., No 30, 1971, pp 16-24

Abstract: The spectral properties of periodically correlated random processes are investigated by elaborating the ideas proposed by the author in 1969 (Ya. P. Dragan, Otbor i Peredacha Informatsii, No 22, 1969). Periodic correlation is understood to mean periodic nonstationarity of second order. The covariation function of the periodically correlated random process $b(t, u) = r(t + u, t) = E\bar{\xi}(t + u)\xi(t)$ is represented as

$$b(t, u) = \int_{-\infty}^{\infty} e^{iu\lambda} d_\lambda F(\lambda, t).$$

the time dependence of the spectral function being periodic, and the function itself having the expansion

$$F(\lambda, t) = \sum_{k=-\infty}^{\infty} F_k(\lambda) e^{ik\frac{2\pi}{T}t};$$

1/2