2/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118442

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE PROBLEM OF DETERMINING THE NECESSARY CONDITIONS FOR AN EXTREMUM TO AN OPTIMAL CONTROL PROBLEM, USING AN APPROACH WHERE CONSTRAINTS ARE PLACED ON THE RANGE OF VALUES OF A DIFFERENTIABLE OPERATOR ACTING OUT OF THE CONTROL SPACE. IT IS SHOWN THAT MAKING USE OF THE ORDER DEFINED IN THE IMAGE SPACE BY THE TANGENT CONE, IT IS POSSIBLE TO GENERALIZE LIUSTERNIK AND SOBOLEV'S (1965) NECESSARY CONDITIONS, AND TO OBTAIN GRADIENT ALGORITHMS FOR THE APPROXIMATE SOLUTION OF THE PROBLEM. FACILITY: GRUZINSKII POLITEKHNICHESKII INSTITUT, TIFLIS, GEORGIAN SSR.

UNCLASSIFIED

USSR

UDC 669.74'782'891.018.9

ARSENISHVILI, A. YU., DZHAPARIDZE, N. V., DZIDZISHVILI, R. N., KATAMADZE, N. P., TSKITISHVILI, A. A., CHOLOKAVA, M. V., CHKHENDZE, E. A.

"Mastery of Industrial Preparation of the Silicon-Manganese-Calcium Alloy"

V sb. Marganets. Dobycha, obogashch. i pererabotka (Manganese. Extraction, Beneficiation and Refining -- collection of works), No 3 (28), Tbilisi, 1971, pp 47-59 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G261)

Translation: Results of three series of experiments in making Mn alloy with Si and Ca in 2,500 and 11,150 kilovolt ampere electric furnaces are discussed. The initial charge comprised a mixture of slag obtained when making medium carbon FeMn with quartzite, lime, and coke breeze. The necessary conditions for normal conduct of the alloy-making process are the following: exact weighing of the charge components and observation of the schedule for discharge of the alloy from the electric arc furnace. The following extraction in the alloy was obtained: 91% Mn, 73.38% Si, 32.93% Ca, 41.1% Al, 29.9% Mg, and 54.2% P with an alloy composition of 23.01% Mn, 54.13% Si, 9.7% Ca, 1.58% Al, 0.79% Mg, and 0.015% P. The consumption of electric power per ton of alloy was 13,195 kilowatt-hours. There are 6 tables.

1/1

USSR

KHARATISHVILI, N. G., CHKHEIDZE, I. M. and ELIZBARASHVILI, I. M.

"Some Problems of Abbreviated Presentation of Information in Testing, Measurement and Control Systems"

Inform. Metody v Sistemakh Upr. Izmereniy i Kontrolya. T. 1 [Information Methods in Testing and Measurement Control Systems. Volume 1 -- Collection of Works], Vladivostok, 1972, pp 48-53 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V424)

Translation: The problem is studied of approximation of continuous signals $f(t)$, $t \in [0, T]$, by means of functions $f^*(t) = \sum_{k=1}^{n} a_k \phi_k(t)$, where $\{\phi_k(t)\}$ is the set of linearly independent functions, a_k are constants. It is shown that for signals $f(t)$ from the class of continuous functions or functions of class $\mathrm{Lip}_1 M$, the best even approximation, with the limitation $||f(t) - f^*(t)|| \leq \varepsilon$, can be achieved by partial Fourier-Haar sums. Furthermore, it is shown that the selection of the Haar-system functions as a basis in the case of additive noise $\xi(t)$, a stationary process with correlation function $a\exp\{-\beta\tau\}$, $a > 0$, $\beta > 0$, provides greater interference stability of the approximation than a trigonometric system or a system of Kotel'nikov readings.

YU. Lin'kov

1/1

USSR

UDC 632.954:635.11/13/.21/.34/.64/.652

KOLESNIKOV, V. A., SIDOROV, V. I., and CHKHETIANI, V. R., Scientific Research Institute of Horticulture

"The Effect of Herbicides on the Weed Growth and Crop of Fruit Cultures With Prolonged Application"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 11, No 8 (118), 1973, pp 50-54

Abstract: After a prolonged unchanged application of prometrin, chloro-IFK and trephlan on some plots, their effectiveness against the weeds dropped considerably. Alternating these agents led to a lesser drop of their effect. The appearance of the weeds contaminating fruit cultures changed after prolonged application of these herbicides. Only trephlan lowered the yield of fruit after the third and fourth year of continuous unaltered application. With application of prometrin and chloro-IKF an insignificant drop in the crop was experienced, which could be due to the cumulative effect of these herbicides, which happens to be relatively low.

1/1

USSR

UDC 681.325.6

CHKHEIDZE, M. V., and LADARIYA, Tbilisi Branch, All-Union Scientific Research Institute of Metrology imeni D. I. Mendeleyev (Tbilisskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta metrologii im. D. I. Mendeleyeva)

"Flip-Flop Register with Correction of Shift Errors"

USSR Author's Certificate No 258736, filed 30 Jul 68, Moscow, Otkrytiya Izobreteniya Promyshlennyye Obraztsy i Tovarnyye Znaki, No 1, Jan 70, p 130

Translation: A flip-flop register with correction of shift errors which consists of flip-flop and "AND" and "OR" logic elements is presented. Its distinctive feature is the fact that for the purpose of improving reliability of register performance, the zero and unit output of the flip-flop of every position of the register is connected with the input of the respective coincidence circuit, the second input of which through the delay element is coupled to the output of the collector circuit, connected in turn to the input circuit of the opposite flip-flop arm. The output of the coincidence circuit through the

1/2

USSR

CHKHEIDZE, M. V., et al., USSR Author's Certificate No 258736, filed 39 Jul 68, Moscow, Otkrytiya Izobreteniya Promyshlennyye Obraztsy i Tovarnyye Znaki, No 1, Jan 70, p 130

Translation: multi-input collector circuit is connected with the inputs of the two coincidence circuits and the input of the delay element, the output of which is coupled with the other outputs of these same coincidence circuits.

2/2

Acc. Nr.: AA0053074

Ref. Code: UR 0482

USSR

UDC 681.325.6

JPRS 50533

CHKHEIDZE, M. V., and LADARIYA, Tbilisi Branch, All-Union Scientific Research Institute of Metrology imeni D. I. Mendeleyev (Tbilisskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta metrologii im. D. I. Mendeleyeva)

"Flip-Flop Register with Correction of Shift Errors"

USSR Author's Certificate No 258736, filed 30 Jul 68, Moscow, Otkrytiya Izobreteniya Promyshlennyye Obraztsy i Tovarnyye Znaki, No 1, Jan 70, p 130

Translation: A flip-flop register with correction of shift errors which consists of flip-flop and "AND" and "OR" logic elements is presented. Its distinctive feature is the fact that for the purpose of improving reliability of register performance, the zero and unit output of the flip-flop of every position of the register is connected with the input of the respective coincidence circuit, the second input of

1/2

REEL/FRAME
19821962

4

Acc. Nr.: AA0053074

which through the delay element is coupled to the output of the collector circuit, connected in turn to the input circuit of the opposite flip-flop arm. The output of the coincidence circuit through the
Translation: multi-input collector circuit is connected with the inputs of the two coincidence circuits and the input of the delay element, the output of which is coupled with the other outputs of these same coincidence circuits.

2/2

REEL/FRAME
19821963

B S.

1/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--A SPECTROPHOTOMETRIC INVESTIGATION OF NWC 84 STAR -U-

AUTHOR--CHKHIKVADZE, I.N.

COUNTRY OF INFO--USSR

SOURCE--ASTROFIZIKA (USSR), VOL. 6, NO. 1, P. 65-76, FEB. 1970

DATE PUBLISHED----FEB70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--SPECTRUM, STAR, SPECTROGRAPH, CONTINUOUS SPECTRUM, TEMPERATURE, SPECTRAL ENERGY DISTRIBUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0119 STEP NO--UR/0388/70/006/001/0065/0076

CIRC ACCESSION NO--AP0130881
UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0130881

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LINES IN THE SPECTRUM OF MWC 84 HAVE BEEN IDENTIFIED AND THE RELATIVE INTENSITIES OF THE EMISSION LINES AND ENERGY DISTRIBUTION IN THE CONTINUOUS SPECTRUM HAVE BEEN ESTABLISHED; THE DISPERSION BEING 166 ANGSTROM-MM AT H SUBGAMMA. THE OBSERVED BALMER DECREMENT DIFFERS BUT LITTLE FROM THE ONE CALCULATED FOR A GASEOUS NEBULA. AS COMPARED TO THE TRIPLETS THE SINGLETS OF HE L ARE STRONGER THAN THOSE OF GASEOUS NEBULAE. THE TEMPERATURE OF THE STAR HAS BEEN ESTIMATED TO BE 40000DEGREESK. IT HAS BEEN FOUND THAT THE DISTANCE TO THE STAR IS OF THE ORDER OF L KPC; A SUBV EQUALS 1. PRIMEM 5, M APPROXIMATELY EQUAL TO PLUS 0. PRIMEM 5 AND N(HE PRIME POSITIVE): N SUBC RATIO IS GREATER THAN IN GASEOUS NEBULAE.

UNCLASSIFIED

Nitrogen Compounds

USSR

UDC 547.854.9.07

BRITIKOVA, N. YE., BELOVA, L. A., CHKHIKVADZE, K. A., and MAGIDSON, O. YU., (DECEASED), All Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Synthesis of 5-Phenylamino Derivatives of Orotic Acid"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 2, Feb 73, pp 273-275

Abstract: Heating 5-bromoorotic acid with anizidine, aniline or p-chloroaniline in ethylene glycol at high temperature leads to a nucleophilic replacement of bromine and decarboxylation, yielding 5-phenylamino derivatives of uracyl. 5-Bromoorotic acid reacted with aromatic anines by the Ullman reaction in ethylene glycol, to give 5-phenylamino derivatives of orotic acid.

1/1

USSR

UDC 547.853.7'854.9'867.2.01

BRITIKOVA, N. YE., BELOVA, L. A., CHKHIKVADZE, K. A., and MAGIDZON, O. YU., (DECEASED), All Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Derivatives of 5-Aminoorotic Acid"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 2, Feb 73, pp 270-272

Abstract: 2,4,8-Trioxoderivatives of pyrimido-[5,4-d] [1,3] oxazine have been synthesized and converted to esters and amides of 5-acetylaminoorotic acid. The acetyl group of 5-acetylaminoorotic esters hydrolyzes easily in acid medium yielding 5-aminoorotic esters; in contrast, the acetyl group of the 5-acetylaminoorotic amides does not hydrolyze easily.

1/1

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--STUDY OF THE WORKING SPACE AND OF THE WORKING CONDITIONS OF A 16.5 MVA FURNANCE MAKING SILICOMANGANESE -U-

AUTHOR-(04)-ZHERDEV, I.T., CHKHEYDZE, Z.A., SIORIDZE, G.YA., YASKOV, YE.S.

COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30(2), 137

DATE PUBLISHED-------70

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

TOPIC TAGS--FERROALLOY, ELECTRIC FURNACE, CURRENT DENSITY, ELECTRODE PROPERTY, TEMPERATURE DISTRIBUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1869 STEP NO--UR/0133/70/030/002/0137/0137

CIRC ACCESSION NO--AP0115688

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0115688

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHARGE COMPN., TEMP., C.D., AND POWER DISTRIBUTION IN THE CHARGE OF A 7-M DIAM., 3-M DEEP, 3 ELECTRODE FURNACE WERE DETD. RADIAL CURRENT DISTRIBUTION FROM ELECTRODES WAS VERY NONUNIFORM, AND C.D. INCREASED DOWNWARDS, NONE BEING OBSD. IN THE UPPER LAYERS OF THE CHARGE AND UNDER FEEDER SPOUTS TO THE DEPTH OF 2-2.3 M. A SMALL ARC WAS PRESENT IN THE CIRCUIT OF EACH PHASE. POWER DISTRIBUTION PER PHASE WAS SUBSTANTIALLY UNIFORM.

UNCLASSIFIED

USSR

UDC 678.746

VARDOSANIDZE, TS. N., GVATUA, SH. SH., GEORGADZE, YE. Z., KAPANADZE, V. I., MUMLADZE, V. V., KHANEVICHEV, V. A., CHAVCHANIDZE, V. V., Corresponding Member of the Georgian Academy of Sciences SSR, CHAGULOV, V. S., and CHKHIKVISHVILI, L. V., Institute of Cybernetics, Academy of Sciences Georgian SSR

"Several Spectral Characteristics of Polystyrene Activated with Europium Chelate"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 63, No 3, Sep 71, pp 581-584

Abstract: The spectral characteristics of Eu^{3+} chelates have been investigated by a number of authors both in methylmetacrylate and in alcohol solutions. In this article the authors investigate samples of polystyrene doped with 0.02-2 Wt % europium benzoyl acetonate; the samples are 15 mm in diameter and 2 mm thick. They find that such a material exhibits a strong absorption in the region of 3000-4000 Å and the material of the base that is, polystyrene has strong absorption bands in the ultraviolet band of the spectrum; however, it is fully transparent from 3000 Å and up to 1.1μ . The luminescence and absorption spectra are graphically illustrated. The authors find that polystyrene is a successful base for europium benzoyl acetonate. The article contains 3 illustrations and 8 bibliographic entries.

1/1

USSR

UDC 541.15:547.455

KOCHETKOV, N. K., KUDRYASHOV, L. I., CHLENOV, M. A., and GRINEVA, L. P., Institute of Organic Chemistry, Academy of Sciences USSR imeni N. D. Zelinskiy

"Radiolysis of Aqueous Solutions of Some Organic Monophosphates"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2071-2076

Abstract: A study was conducted on the radiation-induced chemical conversion of a number of organic monophosphates. Cyclohexyl monophosphate and glucose monophosphate containing the phosphate group in 1 and 6 positions were selected for the study. Determinations were made of the decomposition yields of the dipotassium salt of α-D-glucose-1 phosphate (G-1-P) and disodium salt of D-glucose-6 phosphate (G-6-P) as well as of the yields of inorganic phosphate on radiolysis of these salts and cyclohexyl phosphate disodium salt. The OH radical appears to play the dominant role in the process of radiation dephosphorylation. The formation of inorganic phosphorus is not followed by the formation of glucose. The evaluation of the total amount of neutral sugars in the case of both sugar phosphates has shown that the yields correlate well with those of inorganic phosphate. The yield of reducing-type sugars was reduced to one half and equaled 1.0 and 0.5 for dipotassium salt 1/2.

USSR

KOCHETKOV, N. K., et al., Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2071-2076

of α-glucose-1 phosphate and disodium salt of D-glucose-6 phosphate, respectively. The neutral salts included desoxy- and desoxyketo compounds. Further studies of radiolysis products and related regularities will provide a clearer pattern of radiative dephosphorylation in terms of biological activity.

2/2

USSR

UDC: 661.143

KORABLEV, N. M., CHLENOV, V. A.

"Effect of Heat-Exchange Conditions on the Process of Formation of Zinc Sulfide Phosphors"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Substances), 1971, vyp. 6, pp 82-87 (from RZh-Khimiya, No 15, Aug 72, Abstract No 15L185)

Translation: The rate of the process of formation of zinc sulfide phosphor compositions, which is determined by the duration of nonstationary heating of the charge to the calcining temperature in a stationary layer, may be considerably increased by using heat treatment of the charge in an isothermal vibration-fluidized bed. In addition, carrying out the process in a vibration-fluidized bed gave phosphors with more uniform luminescent properties.

USSR

UDC 621.382.002

KLETCHENKOV, I.I., SHRIPOV, F.A., CHMERUK, A.N.

"Study Of The Protective Properties Of Organosilicon Compound"

V sb. Vopr. mikroelektroniki (Problems Of Microelectronics--Collection Of Works), Kiev, "Nauk.dumka," 1971, pp 181-189 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B492)

Translation: The results are presented of a study of the electrical properties of an organosilicon compound based on Vaseline and of tests on the stability of the amplification factor β of a type P-416 transistor with protection by this compound. An evaluation of the effectiveness of the protection was conducted by a method developed at the Department of Dielectrics and Semiconductors of the Kiev Polytechnical Institute. It is shown that organosilicon Vaseline is a promising protective material because of the technological nature of the process of deposition at the p-n junction, the high electrical properties, and the hydrophobic nature. A mixture of it with zeolite does not entirely answer the requirements for high stability of the parameters of the semiconductors. Zeolite considerably impairs the electrical properties of the compound and increases the absorption of moisture. 5 ill. I.M.

1/1

USSR

UDC 632.95

VASYAGINA, R. D., CHMIL', V. D.

"Gas-Liquid Chromatography of Metaldehyde"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryaz-neniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-Union Conference on the Investigation of Pesticide Residues and Preventive Contamination of Food Products, Fodder and Environment), Tallin, 1971, pp 44-46 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N473)

Translation: Metaldehyde (I) is analyzed by the gas-liquid chromatographic method in chloroform with a differential flame-ionization detection system. The relative error in the analysis by the internal standard method (octanol) was ±1.75%. From a sample of water, I is extracted with ether.

1/1

USSR

UDC 541.544.6

SEMENOVSKAYA, T. D., AVGUL', V. T., and CHMUTOV, K. U., Institute of Physical Chemistry, Acad. Sc. USSR, Moscow

"The Rate of Diffusion of Ions in the Anion Exchange Resin VP-1A in the 20-230°C Interval"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 5, May 72, pp 1191-1195

Abstract: To determine the dependence of the ionic diffusion coefficients in an ion exchange resin on temperature, the study was carried out of the form of stationary front of the ClO_4^- ions and complex zinc chloride and cadmium chloride anions on the anion exchange resin VP-1A. It has been found that increasing the temperature from 20 to 180°C increases 40 fold the rate of diffusion in the resin. The anomalous character of the diffusion rate was analyzed as a function of temperature on the basis of diffusion laws for ionic crystals. It has been shown that the VP-1A anion exchange resin could be utilized in acid medium at high temperatures.

1/1

1/2 024 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--THE SYNTHESIS OF PLASMOCOAGULASE INDUCED BY SOME MICROORGANISMS -U-

AUTHOR-(03)-YELINOV, N.P., ZAIKINA, N.A., CHMILENKO, G.S.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 3, PP 98-103

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STAPHYLOCOCCUS, BLOOD SERUM, CULTURE MEDIUM, FUNGUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1492 STEP NO--UR/0016/70/000/003/0098/0103

CIRC ACCESSION NO--AP0109552

UNCLASSIFIED

2/2 024 UNCLASSIFIED

CIRC ACCESSION NO--AP0109552 PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTRODUCTION OF THE SERUM INTO THE NUTRIENT MEDIUM CAUSED CONSIDERABLE ACCELERATION OF SYNTHESIS OF STAPHYLOCOCCUS PLASMOCOAGULASE. THIS ACTION WAS RETAINED FOR SOME TIME AFTER THE REMOVAL OF THE INDUCING AGENT ONLY BY THE MICROBIAL CELLS WHICH WERE IN DIRECT CONTACT WITH THE SERUM; THIS ACTION WAS LOST IN FURTHER TRANSFER ON THE MEDIA. THE ACTION OF THE SERUM ON COAGULASE SYNTHESIS WAS NOT ASSOCIATED WITH ITS EFFECT OF REPRODUCTION OF STAPHYLOCOCCUS. IN ALL PROBABILITY, THE INDUCING EFFECT OF THE SERUM DEPENDED ON THE PRESENCE OF PROTHROMBIN AND OF THE COAGULATION FACTOR VII IN IT, WHICH SERVED AS PLASMOCOAGULASE SUBSTRATES. REMOVAL OF THESE FACTORS BY ADSORPTION OR BY INACTIVATION BY HEATING CONSIDERABLY REDUCED THE CAPACITY OF THE SERUM TO INCREASE THE AMOUNT OF COAGULASE IN THE CULTURE MEDIUM. THE RATE OF FORMATION OF COAGULASE BY STAPHYLOCOCCI PROVED TO INCREASE IN THE PRESENCE OF IONIZED MANGANESE. THIS EFFECT WAS MANIFESTED ONLY IN THE PRESENCE OF MANGANESE IN THE NUTRIENT MEDIUM AND DISAPPEARED IMMEDIATELY AFTER ITS REMOVAL. THE CONTENT OF PLASMOCOAGULASE ROSE IN THE CELLULAR EXTRACT OF THE FUNGI GROWN ON THE SERUM CONTAINING MEDIUM. THIS EFFECT WAS REVEALED IN 23 OF 37 STRAINS STUDIED, AMONG WHICH REPRESENTATIVES OF VARIOUS TAXONOMIC GROUPS OF FUNGI WERE PRESENT.

UNCLASSIFIED

USSR

UDC 543.42

KISELEVA, YE. D., KHASANOVZ, V. M., SEMENOVSKAYA, Y. D., and CHMUTOV, Institute of Physical Chemistry, USSR Academy of Sciences, Moscow

"An Infrared-Spectroscopic Study of the Thermal Stability of the Anionite VP-1 AP"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLV, No 11, Nov 71, pp 2862-2866

Abstract: Vinylpyridine anionites, on account of their chemical and thermal stability, have become widely used in the separation of anions in acid solutions at high temperatures. With heating in water or in alkali solutions, however, these anionites darken and exhibit reduced ion-exchange capacity. No data have been published which might explain this behavior as a result of structural changes. Experiments conducted by the authors showed that heating VP-1 AP in water produces hydroxypyridines and leads to oxidation of the CH_3-substitutes of the ring, with formation of aldehydes and carboxyl groups. In the case of thermal treatment in alkaline solutions, oxidation of the CH_3-substitutes similarly appears, but accompanied by formation of the essentially stable form of pyridines, and this, in turn, leads to sharp reduction of ion-exchange capacity. However, restoration of ion-exchange capacity is possible through protonizing the oxygen atoms of the pyridines, to form hydroxypyridines. Graphic and tabular data are included in the paper.

1/1

USSR

UDC 621.316.001.24:519.25

CHMUTOV, A. P.

"Calculation of Closed Electric Networks with Probability-Statistical Load Assignment"

V sb. Tekhn. progress v elektrosnabzh. gorodov (Technical Progress in Electric Power Supplies for the Cities -- collection of works), Leningrad, Energiya Press, 1970, pp 207-212 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Ye253)

Translation: It is proposed that the power fluxes in the elements of a closed electric network be considered as random functions of many random variables -- consumer loads. The indicated functions are obtained on the basis of the matrix which is the inverse of the matrix of coefficients of the systems of equations describing the state of equilibrium in the network. Recommendations with respect to determining the numerical characteristics of the desired network load when calculating a network by any method on a digital computer are made on the basis of the methods of analyzing the multidimensional functions of random variables. The bibliography has 8 entries. [Leningrad Institute of Engineering Economics, Leningrad]

1/1

USSR

CHUVELEVA, E. A., NAZAROV, P. P., and CHMUTOV, K. V., Institute of Physical Chemistry, Acad. Sc. USSR, Moscow

UDC 541.183

"Kinetics of the Ionic Exchange on Complex Forming Resins. I. Sorption Kinetics of Uranyl, Sodium, and Barium Ions on Carboxyl and on Phosphate Resins"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 11, Nov 72, pp 2865-2869

Abstract: Sorption kinetics of uranyl, barium and sodium ions on the H-form of the carboxyl cation exchange resins SG-1, Amberlite IRC-50 and the phosphate cation exchange resin of the KRF type has been studied as a function of the concentration of the metals in starting solution, as a function of graininess and the degree of crossgrafting of the ion exchange resins. The rate of uranium sorption increases with decreasing grain size of the exchange resin. The exchange rate of uranium increases with increasing concentration of uranium in the starting solution. Finally, the exchange of sodium takes place much faster on the phosphate resin than on SG-1 material.

1/1

USSR

UDC 541.183

CHUVELEVA, E. A., NAZAROV, P. P., CHMUTOV, K. V., Institute of Physical Chemistry, Academy of Sciences USSR

"Study of the Mechanism of Metal Ions Sorption on Phosphate Cation Exchangers"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 9, 1971, pp 2297-2301

Abstract: Interaction of uranyl, copper, and nickel ions with the styrene- and p-divinylbenzene phosphate cation-exchange resins was studied by the adsorption and potentiometric titration techniques. The experimental partition coefficients of the uranyl ion were found to be high at a low nitric acid concentration and those of Cu and Ni to increase steadily with the increase in pH and decrease in ionic strength of solution. In contrast to carboxylate resins, sorption of uranium on phosphate resins proceeds by a chemical reaction mechanism. The tabulated stability constants of the uranium complex formed indicate a strong affinity between uranyl ion and phosphate group of the resin, which indirectly

1/2

USSR

CHUVELEVA, E. A., et al, Zhurnal Fizicheskoy Khimii, Vol 45, No 9, 1971, pp 2297-2301

confirms the previously suspected existence of a covalent bond. In contrast the tabulated stability constants of Cu and Ni complexes indicate a relatively weak affinity between these metals and phosphate groups of the resins, apparently because they are bonded by electrostatic forces. The Cu complex contains only two phosphate groups.

2/2

1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--MECHANISM OF METAL ION ADSORPTION ON CARBOXYLIC CATION EXCHANGERS. VI. ADSORPTION OF COPPER AND NICKEL IONS ON SG,1 RESINS -U-
AUTHOR-(04)-YUFRYAKOVA, N.K., NAZAROV, P.P., CHUVELEVA, E.A., CHMUTOV, K.V.
COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 720-3

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATION EXCHANGE RESIN, ADSORPTION, COPPER COMPLEX, NICKEL COMPLEX, CARBONYL RADICAL, STABILITY CONSTANT/(U)SG1 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1211 STEP NO--UR/0076/70/044/003/0720/0723

CIRC ACCESSION NO--AP0128629
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128629

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTERACTION OF 0.019 AND 0.038M CU(NO SUB3) SUB2 AND 0.0196M NI (CLO SUB4) SUB2 WITH THE CATION EXCHANGER SG,1 (PK SUBDISSOCN. 5.4 AND 5.52 IN NANO SUB3 AND NACLO SUB4 SOLNS., RESP.) WAS STUDIED BY MEASURING THE PH OF THE SG,1 SUSPENSION AND EXTENT OF CU PRIME2 POSITIVE AND NI PRIME2 POSITIVE ADSORPTION AFTER THE ADDN. OF VARIOUS AMTS. OF ALKALI. BOTH OF CU PRIME2 POSITIVE NI PRIME2 POSITIVE FORM A COMPLEX WITH 2 CARBOXYL GROUPS. CU IS MORE FIRMLY COMPLEXED, WITH A STABILITY CONST. K SUB2 TIMES 10 PRIME NEGATIVE5 EQUALS 0.93 AND 1.2 FOR THE CONCNS. 19 AND 38 MM-1., RESP., WHILE NI HAS K SUB2 EQUAL 0.013 TIMES 10 PRIME5 AT THE STUDIED CONCN.

FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--MECHANISM OF METAL ION ABSORPTION ON CARBOXYL CATION EXCHANGERS. V. FORMATION OF M A SUB3 TYPE URANYL ION COMPLEXES -U-

AUTHOR-(03)-CHUVELEVA, E.A., NAZAROV, P.P., CHMUTOV, K.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 482-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL REACTION MECHANISM, CATION EXCHANGE RESIN, METAL, CARBOXYLIC ACID, CHEMICAL BONDING, ORGANIC COMPLEX COMPOUND/(U)S61 CATION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2172 STEP NO--UR/0076/70/044/002/0482/0485

CIRC ACCESSION NO--AP0125752

UNCLASSIFIED

2/2 015 UNCLASSIFIED

CIRC ACCESSION NO--AP0125752 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONDITIONS OF FORMATION OF URANYL COMPLEXES WITH 3 CARBOXYL GROUPS OF RESIN SG-1 ARE DESCRIBED. BASED ON RESULTS OBTAINED BY A PREVIOUS METHOD (P. P. NAZAROV, ET AL., 1969). BAR N, QUANTITY OF ADSORBENT FOR 1 ATOM OF METAL, WAS 3.0, AND ONLY THE 3RD COMPLEX WAS FORMED AT URANYL CONCNS. OF 0.0025 AND 0.005MU. REACTION EQUIL. CONSTS. AND STABILITY CONSTS. OF THE COMPLEXES ARE GIVEN. THE MEAN NO. OF COORDINATED GROUPS N IS APPROXIMATELY EQUAL TO 3, WHICH INDICATES THE PRIMARY FORMATION OF URANYL COMPLEXES WITH 3 CARBOXYL GROUPS. EXPTL. AND CALCD. DATA ARE COMPARED; THE BERRUM-GREGORS CALCN. METHOD COULD BE USED WHEN ONLY 1 COMPLEX COMPD. WITH A CONST. NO. OF LIGANDS WAS FORMED. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 043 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MECHANISM OF RADIATION ACTION ON THE CATION EXCHANGER KU-2 -U-

AUTHOR-(03)-KISELEVA, YE.D., CHMUTOV, K.V., KULIGINA, N.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 476-81

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATION EXCHANGE RESIN, AIR, WATER, OXYGEN, CHEMICAL REACTION MECHANISM, RADIATION EFFECT/(U)KU2 CATION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2173 STEP NO--UR/0076/70/044/002/0476/0481

CIRC ACCESSION NO--AP0125753
UNCLASSIFIED

2/2 043 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0125753
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF H SUB2 O AND O FROM AIR AND VARIOUS IONS WAS STUDIED ON CHANGES IN THE ION EXCHANGING SULFO GROUPS DURING IRRADN. OF THE CATION EXCHANGER KU-2. THE RESIN WAS IRRADIATED IN THE FOLLOWING FORMS: H PRIME POSITIVE, FE PRIME3POSITIVE; CE PRIME4POSITIVE, AND CUPRIME2POSITIVE. WHEN INCREASING THE DOSE OF THE IRRADN. FROM 0.62 TIMES 10 PRIME9 TO 2.1 TIMES 10 PRIME9 RAD, THE SPLITTING OF ION EXCHANGING GROUPS FROM THE DRY RESIN INCREASES, MASS AND THE SWELLING DECREASE. FOR THE KU-2 IN FE PRIME3POSITIVE, CU PRIME2POSITIVE, CE PRIME4POSITIVE, AND NA PRIME POSITIVE FORMS, THE ION EXCHANGING CAPACITY IS DECREASED MORE THAN IN THE CASE OF THE H PRIME POSITIVE FORM. THE INFLUENCE OF H SUB2 O WAS STUDIED FOR 2 DOSES: 0.62 TIMES 10 PRIME23 AND 0.38 TIMES 10 PRIME33 EV PER G. THE YIELD OF H SUB2 SO SUB4 AND THE LOSS OF THE ION EXCHANGING CAPACITY OF THE MOIST KU-2 INCREASES UP TO A CERTAIN H SUB2 O CONCN., AND REMAINS CONST. FOR HIGHER H SUB2 O CONCNS. ONLY THE H SUB2 O MOLECULES IN THE HYDRATION SHELL ADJACENT TO THE SORBENT ARE ABLE TO AFFECT THE CHANGES. A PORTION OF S IS CONVERTED TO A STATE WHERE IT IS NOT ABLE TO BE EXCHANGED.
FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--FLOW THROUGH CUVETTES FOR THE REFRACTOMETER IRF,23 AND THE INTERFEROMETER ITR,2 -U-
AUTHOR-(03)-KURBANBEKOV, E., LARIONOV, O.G., CHMUTOV, K.V.

CCUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 286-7

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--INTERFEROMETER, REFRACTOMETER, TEMPERATURE CHAMBER, TEST CHAMBER/(U)IRF23 REFRACTOMETER, (U)ITR2 INTERFEROMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0389 STEP NO--UR/0076/70/044/001/0286/0287

CIRC ACCESSION NO--AP0111582
UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0111582

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STANDARD CUVETTE WAS DISMANTLED INTO ITS COMPONENTS, BY HEATING IN A MUFFLE FURNACE AT 300DEGREES OVER CONCN. HNO SUB3. THE RECONSTRUCTED REFRACTOMETER CUVETTE WAS CEMENTED DIRECTLY TO THE PRISM, ITS HERMETICALLY SEALED COVER WAS DRILLED TO ALLOW FOR THE INLET (ALMOST TOUCHING THE PRISM), AND OUTLET (1-1.5 MM SHORTER) CAPILLARIES. THE VOL. OF THE NEW CVETTE WAS 0.2-0.3 ML. SIMILARLY, A NEW INTERFEROMETER CUVETTE WAS CONSTRUCTED, ITS VOL. REDUCED BY AN INSERT, TO 0.3-0.4 ML AND HAVING CAPILLARIES OF 0.5-1 MM DIAM., THE OUTLET ONE BEING 4-5 MM FROM THE BOTTOM OF CUVETTE.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--MECHANISM OF THE ACTION OF IONIZING RADIATION ON THE ANION EXCHANGER AV-17 -U-

AUTHOR-(03)-KISELEVA, YE.D., CHMUTOV, K.V., KULIGINA, N.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 472-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--IONIZING RADIATION, GAMMA RADIATION, AMINE, ION EXCHANGE RESIN, HYDROGEN BONDING, MOLECULAR STRUCTURE, CHEMICAL REACTION MECHANISM, WATER, METHYLENE/(U)AV17 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1398 STEP NO--UR/0076/70/044/002/0472/0475

CIRC ACCESSION NO--AP0116845

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0116845
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS STUDIED OF GAMMA RADIATION ON SAMPLES OF AV-17 ANION EXCHANGER IN THE NO SUB3 PRIME NEGATIVE FORM. THE SAMPLES WERE IRRADIATED AT REDUCED PRESSURE (10 PRIME NEGATIVE5-10 PRIME NEGATIVE4 TORR), IN THE PRESENCE OF AIR O, EITHER DRY OR IN THE PRESENCE OF DIFFERENT AMTS. OF H SUB2 O. WHEN IRRADIATING DRY SAMPLES WITH A DOSE OF SIMILAR TO 10 PRIME9 RAD, SECONDARY AND TERTIARY AMINES ARE FORMED. THIS INDICATES THAT THE ION EXCHANGE GROUPS ARE AFFECTED. IN THE PRESENCE OF H SUB2 O, THE TRIMETHYLAMINE (I) YIELD DEPENDS ON THE H SUB2 O CONCN. THE INCREASE IN THE YIELD OF I IN THE PRESENCE OF SMALL AMTS. OF H SUB2 O MAY BE EXPLAINED ON THE BASIS THAT THESE SMALL AMTS. OF H SUB2 O STILL DO NOT FACILITATE THE PASSAGE OF ELECTRONS VIA THE METHYLENE BRIDGE. DUE TO H BOND FORMATION, H SUB2 O LEADS TO A DECREASE IN THE ENERGY OF THE C-N BOND SO THAT THE PROBABILITY OF ITS SPLITTING IS INCREASED. THE H SUB2 O SWELLED ANION EXCHANGER MAY BE CONSIDERED AS A NEW MOL. STRUCTURE WITH A DIFFERENT DISTRIBUTION OF ENERGY. ELECTRONS ARE SHIFTED TO POLAR ANION EXCHANGING GROUPS BY MEANS OF H BONDS OF THE HYDRATION SHELL OF H SUB2 O. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MECHANISM OF ADSORPTION OF METAL IONS ON CARBOXYLIC CATION EXCHANGERS. IV. ADSORPTION OF URANYL ION ON KB-4 RESIN -U-
AUTHOR-(03)-CHUVELEVA, E.A., NAZAROV, P.P., CHMUTOV, K.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 166-70

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATION EXCHANGE RESIN, BENZENE DERIVATIVE, URANIUM COMPOUND, COMPLEX COMPOUND, CALCULATION/(U)KB4 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1403 STEP NO--UR/0076/70/044/001/0166/0170

CIRC ACCESSION NO--AP0116850
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116850

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INVESTIGATION WAS ACCOMPLISHED ON CATION EXCHANGERS OF THE TYPE KB-4, CONTAINING DIFFERENT AMOUNTS OF DIVINYLBENZENE. THE CONSTS. OF COMPLEX FORMATION OF UO SUB2 PRIME2 POSITIVE WERE CALCD. ON THE BASIS OF EXPTL. DATA. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

Ion Exchange

USSR UDC 541.183

CHUVELEVA, E. A., NAZAROV, P. P., and CHMUTOV, K. V., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Mechanism of Sorption of Metal Ions on Carboxyl Cation Exchangers. V. Formation of Complexes of the Type $\overline{M(A)_3}$ by the Uranyl Ion"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 2, Feb 70, pp 482-485

Abstract: Adsorption of UO_2^{++} ions by the cation-exchange resin SG-1 with three COOH groups from solutions contains uranyl nitrate, NaOH, and $NaNO_3$ was studied. Data obtained on equilibria in the solution-resin system at pH 1.72-3.36 indicated that a complex of the type $\overline{UO_2(A)_3}$ formed on the resin and that this complex combined with Na^+ to form $Na\overline{UO_2(A)_3}$ in preference to binding H^+ with the formation of $H\overline{UO_2(A)_3}$. Experiments in which $NaNO_3$ containing ^{22}Na was used confirmed the results in regard to the adsorption of Na^+. With increasing amounts of UO_2^{++} adsorbed on the resin, the adsorption of Na^+ increased because of formation of the compound $Na\overline{UO_2(A)_3}$.

1/1

Radiation Chemistry

USSR UDC 541.5

KISELEVA, YE. D., CHMUTOV, K. V., and KULIGINA, N. V., Institute of Physical Chemistry, Academy of Sciences USSR Moscow

"Mechanism of the Action of Radiation on the Cation Exchanger KU-2"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 2, Feb 70, pp 476-481

Abstract: The effects of irradiation with gamma-rays on the cation-exchange resin KU-2 were studied. KU-2 is a sulfonated styrene-divinylbenzene copolymer. The resin was irradiated in the H^+, Fe^{3+}, Ce^{4+}, and Cu^{++} forms with doses in the 0.3×10^9 - 2.1×10^9 rad range. Irradiation of the resin in the dry state with increasing doses resulted in increased splitting-off of ion-exchange groups, while the mass of the resin, its exchange capacity, and its degree of swelling decreased. Radiation-chemical decomposition was greater in the presence of O_2 than in vacuo. Presence of Fe^{3+}, Ce^{4+}, and Cu^{++} as well as that of Na^+ in experiments in which irradiation of Na KU-2 with accelerated electrons was carried out protected the resin' decomposition was reduced as compared with that on irradiation of KU-2 in its H^+ form. It has been established in earlier work that Fe^{3+} and Cu^{++} exert a protective effect on KU-2 even in the

1/2

USSR

KISELEVA, YE. D., et al., Zhurnal Fizicheskoy Khimii, Vol 4,, No 2, Feb 70, pp 476-481

presence of H_2O because they act as electron acceptors during irradiation. During irradiation in the dry state in experiments carried out in this instance, protective action was exerted by the metal cations by reason of a cage effect which prevented detachment of SO_3 - metal cation groups, while the smaller SO_3H groups of KU-2 in the H^+ form were detached. With increasing degrees of filling of the resin with Cu^{++}, the protective effect of Cu^{++} increased. On irradiation of KU-2 containing H_2O, the formation of H_2SO_4 and loss of exchange capacity by the resin increased up to a certain H_2O content lower than that required for complete swelling and then remained constant at higher H_2O amounts. Evidently only molecules of the hydrate film adjacent to the ion-exchanger surface promoted decomposition under the effect of radiation.

2/2

USSR UDC 541.15

KISELEVA, YE. D., CHMUTOV, K. V., and KULIGINA, N. V., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Mechanism of the Action of Ionizing Radiation on the Anion Exchanger AV-17"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 2, Feb 70, pp 472-475

Abstract : The Action of gamma-radiation on the anion-exchange resin AV-17 in its NO_3^- form was studied. This resin is a styrene-divinylbenzene copolymer that contains quaternary ammonium groups. Its anion-exchange groups have the structure $CH_2N^+Me_3$. The resin was irradiated in a dry state in vacuo, in the presence of O_2, and in the presence of various amounts of H_2O taken up by the resin on swelling. On irradiation in the dry state in vacuo or in the presence of O_2 with doses of 0.3×10^9 to 1×10^9 rad, secondary and tertiary amines formed as a result of decomposition of the exchange groups. On irradiation of the resin containing H_2O with a dose of 3×10^8 rad, the amount of NMe_3 evolved and the loss of mass by the resin increased up to a certain H_2O content and then decreased with increasing amounts of H_2O in the resin. Up to the maximum of

1/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200610009-1"

USSR

KISELEVA, YE. D., Et al., Zhurnal Fizicheskoy Khimii, Vol 44, No 2, Feb 70, pp 472-475

of NMe_3 evolution, radiation-chemical decomposition of the exchange groups took place by splitting of the CH_2 - N bond, while at a higher H_2O content intramolecular redistribution of energy occured and electrons that were displaced along H-bonds of the nearest hydrate H_2O film were captured with the splitting off of a Me group or according to the scheme $NO_3^- + e \rightarrow NO_2^-$.

2/2

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ELECTRON PARAMAGNETIC RESONANCE STUDY OF CATION EXCHANGERS -U-

AUTHOR-(04)-KARPUKHINA, T.A., KISELEVA, YE.D., CHMUTOV, K.V., GLAZUNOV, M.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 1003-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS

TOPIC TAGS--ION EXCHANGE RESIN, FORMALDEHYDE, ANTHRACENE, ORGANIC AZOLE COMPOUND, PHENANTHRENE, GAMMA RADIATION, ELECTRON PARAMAGNETIC RESONANCE, PHOTOLYSIS, CONJUGATE BOND SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0777 STEP NO--UR/0076/70/044/004/1003/1007

CIRC ACCESSION NO--AP0136214

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0136214
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF HCHO WITH ANTHRACENE, PHENANTHRENE, CARBAZOLE, OR ACENAPHTHENE, FOLLOWED BY SULFONATION GAVE ION EXCHANGE RESINS CONTG. LARGE CONJUGATED SYSTEMS. THESE RESINS WERE VERY STABLE TOWARDS GAMMA IRRAON. EPR SPECTRA OF THE RESINS AND THEIR PHOTODEGRADATION PRODUCTS ARE DISCUSSED.
FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--MECHANISM OF METAL ION ADSORPTION ON CARBOXYLIC CATION EXCHANGERS. VII. ADSORPTION OF PRASEODYMIUM BY THE RESIN SG 1 -U-
AUTHOR-(03)-CHUVELEVA, E.A., NAZAROV, P.P., CHMUTOV, K.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 966-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ION EXCHANGE RESIN, PRASEODYMIUM, COMPLEX COMPOUND, CARBOXYLIC ACID/(U)SG1 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1977 STEP NO--UR/0057/70/044/004/0966/0969

CIRC ACCESSION NO--AP0132238
UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132238

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PR PRIME3POSITIVE ION EXCHANGED WITH 3 CARBOXYLIC GROUPS OF THE ION EXCHANGER. K PRIMEH SUBPR3POSITIVE, THE CONST. OF EXCHANGE H-PR PRIME3POSITIVE VARIED FROM 5.6 TIMES 10 PRIME3 TO 2.3 TIMES 10 PRIME4 IN THE PH RANGE 2.66-4.04, WHILE K PRIMENAPOSITIVE SUBPR3POSITIVE WAS INDEPENDENT OF PH AND EQUAL TO 40. THE STABILITY CONST. K SUB3 OF THE PR-COOH COMPLEX, DETD. ACCORDING THE METHOD OF BJERRUM, IS 3.3 TIMES 10 PRIME6. THESE FIGURES DEMONSTRATE A RELATIVELY LOW AFFINITE OF PR PRIME3POSITIVE IONS FOR THE CARBOXYLIC GROUPS OF THE RESIN. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EFFECT OF TEMPERATURE ON ION EXCHANGE KINETICS IN THE PRESENCE OF COMPLEXING REAGENTS -U-
AUTHOR-(04)-MATORINA, N.N., SAFONOVA, N.D., SHEPETYUK, L.V., CHMUTOV, K.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 486-90

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--EUROPIUM, CATION EXCHANGE RESIN, ACTIVATION ENERGY, ENTROPY, HEAT EFFECT, COMPLEX COMPOUND, REACTION KINETICS/(U)KU2 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1210 STEP NO--UR/0076/70/044/002/0486/0490

CIRC ACCESSION NO--AP0128628

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128628

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY THE MEASURING AND CALCN. METHOD THE INTERNAL DIFFUSION COEFFS. OF EU PRIME POSITIVE POSITIVE POSITIVE IN CATION EXCHANGER KU,2 IN THE PRESENCE OF 0.01 M DIETHYLENETRIAMINEPENTAACETIC ACID WERE OBTAINED AT PH 2.0-3.7 AND FOR 30, 55, AND 85DEGREES. ALSO, THE ACTIVATION ENERGIES AND ENTROPIES OF ACTIVATION WERE CALCD. FOR VARIOUS TEMPS. AND PH. IN THE CASE OF FORMATION OF NONSORBING COMPLEXING IONS OR NONSORBING FORMS OF M(OH) SUBN (OWING TO TH EHYDROLYSIS) VALUES OF THE APPARENT ACTIVATION ENERGY AND ENTROPY OF ACTIVATION DEPEND ON PH AND TEMP. THE INCREASE OF CONCN. OF NONSORBING COMPLEXING IONS OR OF CONCN. OF M(OH) SUBN IS ACCOMPANIED BY THE INCREASING THERMODYNAMIC FUNCTIONS STUDIED. THE DEPENDENCIES OF EFFECTIVE INTERNAL DIFFUSION COEFFS., AND THE APPARENT ACTIVATION ENERGY AND THE ENTROPY OF ACTIVATION ON PH AND ON TEMP. CONFIRM THE MECHANISM OF SORPTION OF IONS IN THE PRESENCE OF COMPLEXING REAGENTS: THE RATE OF INTERNAL DIFFUSION PROCESSES DURING FORMATION OF NONSORBING COMPLEX IONS WITHIN IONEXCHANGER GRAINS IS DEPENDENT ON THE RATIO OF IONS BOUND IN A COMPLEX AND FREE IONS IN THE IONEXCHANGER PHASE. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--STUDY OF THE MECHANISM OF SORPTION OF METAL IONS ON CARBOXYLIC CATION EXCHANGERS. V. THE FORMATION OF COMPLEX URANYL COMPOUNDS OF THE
AUTHOR-(03)-CHUVELEVA, E.A., NAZAROV, P.P., CHMUTOV, K.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. FIZ. KHIM.; 44: 482-5(FEB 1970)

DATE PUBLISHED----FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--URANIUM COMPOUND, CARBOXYLIC RADICAL, CATION EXCHANGE RESIN, COMPLEX COMPOUND/(U)SG1 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0966 STEP NO--BU/2505/70/044/000/0482/0485

CIRC ACCESSION NO--AP0137994
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137994

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE CONDITIONS OF FORMATION OF URANYL COMPLEXES WITH THREE CARBOXYLIC GROUPS OF THE SG-1 RESIN. THE PROBABILITY OF FORMATION OF COMPLEX COMPOUNDS WITH THE COORDINATION OF THE MAXIMUM NUMBER OF ACTIVE GROUPS OF THE RESIN INCREASED WITH DECREASING CONCENTRAITON OF THE METAL IN THE INITIAL SOLUTION. FACILITY: INST. OF PHYSICAL CHEMISTRY, MOSCOW.

UNCLASSIFIED

USSR C

UDC: 543.70

CHMUTOVA, M.K., and KOCHETKOVA, N.YE.

"Extraction of Trivalent Actinides and Europium With 1-Phenyl-3-Methyl-4-Benzoylpyrazolone-5 Solutions in the Presence of Some Donor-Active Substances"

Moscow, Zhurnal Analiticheskoy Khimii, Vol 25, No 4, Apr 70, pp 710-714

Abstract: Due to synergistic effect, the distribution coefficients for trivalent Am, Cm, Bk, and Eu increase considerably on addition of tributyl phosphate (TBP) or trioctylphosphine oxide (TOPO) to 1-phenyl-3-methyl-4-benzoylpyrazolone-5 (PMBP) solutions in cyclohexane. The extraction of Am, Cm, Bk, and Eu by solutions of PMBP-TBP and PMBP-TOPO mixtures in cyclohexane has been examined in relationship to the concentration of TOPO (for Am, Cm, Eu), of PMBP and HNO_3 (for Cm, Eu). It was determined that all elements may be quantitatively extracted from 0.1 N HNO_3 with a mixture of 0.05 M PMBP-0.25 M TBP, or by a mixture of 0.05 M PMBP-0.0025 M TOPO in cyclohexane. A mixture of

1/2

USSR

CHMUTOVA, M. K., et al, Zhurnal Analiticheskoy Khimii, Vol 25, No 4, Apr 70, pp 710-714

0.05 M PMBP-0.025 M TOPO extracts quantitatively Cm and Eu from 0.3 and 0.4 N HNO_3 respectively. On the basis of Cm and Eu the authors propose the structure $MeA_3 \cdot 2TBP$ for the material extracted from the PMBP-TBP mixtures. On the basis of literature data as well as their own, the authors assume formation of two compounds from the other extraction process: $MeA_3 \cdot 2TOPO$ and $MeA_2(NO_3) \cdot 2TOPO$.

2/2

USSR UDC: 621.317.373

KUZNETSKIY, S. S., CHMYKH, M. K.

"Classical Digital Methods of Measuring Phase Displacement"

V sb. Tonkiye magnitn. plenki, vychisl. tekhn. i radiotekhn. T. 1 (Thin Magnetic Films, Computer Technology and Radio Engineering--collection of works. Vol. 1), Krasnoyarsk, 1970, pp 32-36 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A345)

Translation: Methods of converting phase displacement to code are taken as a basis for the proposed classification. It is pointed out that the most extensively used phase meters are those with intermediate conversion of phase displacement to time intervals. These meters can be divided into two groups: "single-period" and "multiple-period". The groups are then broken down into subgroups. Bibliography of nine titles. E. L.

1/1

USSR

UDC 621.371.029.4

LIKHTER, Ya. I., MOLCHANOV, O. A., CHMYREV, V. M., RAPOPORT, V. O., TRAKHTENGERTS, V. Yu., and CHERNOVITSKIY, V. A.

"Propagation of Signals of a Very Low Frequency Transmitter in the Outer Ionosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 3 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 3--collection of works) "Nauka," 1972 pp 134-136 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A374)

Translation: Results are given of experiments investigating the propagation of very low frequency signals in the outer ionosphere. The signals of a transmitter radiating pulses of 400 and 800 msec at a frequency of 15 kHz with a repetition period of three seconds were used. Reception was made at a point magnetically adjacent to the transmitter, using two ship stations, one of which could have left the point for a distance of 3000 km. N. S.

1/1

USSR

UDC 621.371.029.4

MOLCHANOV, O. A. and CHMYREV, V. M.

"Nonlinear Channeling and the Distortion of a Train of Very Low Frequency Waves in the Earth's Magnetosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 3 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 3--collection of works) "Nauka," 1972 pp 129-133 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A373)

Translation: A possible mechanism of channeling of very low frequency signals (whistlers and others) in extraterrestrial space through the magnetosphere is considered. One illustration, bibliography of eight. N. S.

1/1

USSR UDC: 513.83

CHOBAN, M. M.

"Multiform Mappings in Borel Sets"

Moscow, Trudy Moskovskogo Matematicheskogo Obshchestva, vol. 22, 1970, pp 229-249

Abstract: This paper is the initial part of a work which is continued in the 23rd volume of the Trudy Moskovskogo Matematicheskogo Obshchestva (Transactions of the Moscow Mathematical Society) to be published. The purpose of the paper is to extend the results obtained by K. Kuratovskiy and Ryl'-Nardzevskiy, involving Borel sections in the case in which the X topological space is completely separable and metrizable, from separable space to general metrizable space. The paper discusses the canonical representation of multiform mappings, multiform mapping and zero-dimensional space, basic theorems of multiform continuous mappings, forms of the Borel sets and X closed mappings, and basic theorems on mappings semicontinuous from below.

1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ON COMPLETION OF TOPOLOGICAL GROUPS -U-

AUTHOR--CHOBAN, M.M.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK MOSKOVSKOGO UNIVERSITETA, MATEMATIKA, MEKHANIKA, 1970, NR 1, PP 33-38
DATE PUBLISHED-------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--TOPOLOGY, GROUP THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0570 STEP NO--UR/0055/70/000/001/0033/0038

CIRC ACCESSION NO--AP0117800
UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0117800

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER DEALS WITH THE COMPLETION OF TOPOLOGICAL GROUPS IN THE SENSE OF RAIKOV. FOR ANY TOPOLOGICAL GROUP G, WE DENOTE BY G THE COMPLETION OF THE TOPOLOGICAL GROUP G IN THE SENSE OF RAIKOV. NOTE THAT EVERY ABELIAN TOPOLOGICAL GROUP COMPLETE IN THE SENSE OF RAIKOV IS COMPLETE IN THE SENSE OF WEIL. CONVERSELY, EVERY TOPOLOGICAL GROUP COMPLETE IN THE SENSE OF WEIL IS COMPLETE IN THE SENSE OF RAIKOV. THE MAIN RESULTS OF THE PAPER ARE THE FOLLOWING THEOREMS. THEOREM 1. AN ALMOST METRIZABLE TOPOLOGICAL GROUP G IS COMPLETE IN THE SENSE OF RAIKOV IF AND ONLY IF IT IS COMPLETE IN THE SENSE OF CECH. THEOREM 5. LET G BE A LOCALLY PSEUDOCOMPACT GROUP. THEN EVERY CONTINUOUS FUNCTION ON G ADMITS A CONTINUOUS EXTENSION OVER G. THEOREM 7. LET G BE A LOCALLY PSEUDOCOMPACT GROUP. THEN FOR EVERY CLOSED SUBGROUP H DIM (G-H) EQUALS DIM (G-H) EQUALS IND (G-H) EQUALS IND (G-H).

UNCLASSIFIED

USSR

VAVILOV, Ye. N., CHOBANOV, S. G.

"Use of the Theory of Automata to Evaluate Accelerated Methods of Multiplication in Computers"

Teor. Kibernetika [Theoretical Cybernetics -- Collection of Works], Kiev, 1971, pp 24-40 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V789 by O. Belkin).

Translation: Formulas are concluded for calculation of the mean number of additions, subtractions and shifts per digit of a factor for various methods of accelerated multiplication. The formulas consider computer word length. A method is presented for utilization of the theory of finite automata for evaluation of methods of accelerated multiplication.

1/1

USSR UDC 8.74

VAVILOV, Ye. N., CHOBANOV, S. G.

"Using the Theory of Automata to Evaluate Accelerated Methods of Multiplication in Digital Computers"

Kiev, Teor. kibernetika--sbornik (Theoretical Cybernetics--collection of works), 1971, pp 24-40 (from RZh-Matematika, No 1, Jan 73, abstract No 1V789 by O. Belkin)

Translation: Formulas are derived for calculating the average number of additions, subtractions, and shifts per digit of the multiplier for various methods of accelerated multiplication. The methods take the word length of the digital computer into account. A procedure is outlined for using the theory of finite automata to evaluate methods of accelerated multiplication.

1/1

USSR UDC 537.226:536.42:54-165

SIROTA, N. N., Academician, and CHOBOT, M. A., Institute of Solids and Semiconductors, Academy of Sciences Belorussian SSR

"Curie Temperatures of Solid Solutions in the Ternary System Lead Zirconate-Lead Titanate-Lead Metaniobate"

Minsk, Doklady Akademii Nauk BSSR, Vol 15, No 2, 1971, pp 113-115

Abstract: The Curie temperatures of solid solutions in the system $PbZrO_3$-$PbTiO_3$-$PbTiO_3$-$Pb_{0.5}NbO_3$ were determined and the characteristics of the dependence of the constant Curie temperatures on concentration were found. The Curie temperatures were determined by the position of the maxima on the curve for the dependence of the dielectric permeability as a function of temperature. Specimens in the form of disks of 10-15 mm diameter and 1-2 mm thick were prepared. The surface of the disks was coated with a layer of silver paste, which was then brazed at 600°C. The dielectric permeability measurements were taken at a frequency of 5 kHz in the temperature range from room temperature to 700°C. In contrast to solid solutions with a perovskite structure and a potassium-tungsten bronze structure, solid solutions of the system investigated with the pyrochlorite structure have low Curie temperatures,

1/2

USSR

SIROTA, N. N, and CHOBOT, M. A., Doklady Akademii Nauk BSSR, Vol 15, No 2, 1971, pp 113-115

within the limits from 23°K (in the binary system $PbZrO_3$-$Pb_{0.5}NbO_3$ with a 50 mole % $PbZrO_3$ content) to 46°K (in the binary system $PbTiO_3$-$Pb_{0.5}NbO_3$ with a 50 mole % $PbTiO_3$ content). Curie temperatures decrease practically in direct proportion with increase in $PbZrO_3$ content. It was found that the highest Curie temperatures are exhibited by solid solutions in the boundary of the binary system $PbTiO_3$-$Pb_{0.5}NbO_3$ with an approximate 10 mole % $PbTiO_3$ content.

2/2

USSR

UDC 615.471:616.74-073.97

[redacted] and SAPLINSKAS, I. S., Institute of Experimental and Clinical Medicine, Ministry of Public Health, Lithuanian SSR, and Vilnyus University imeni V. Kapsukas

"An Attachment to the Electromyograph for Investigation of Dynamic and State Efforts of Muscles"

Moscow, Byulleten' Eksperimentalnoy Biyologii i Meditsiny, Vol 70, No 7, Jul 70, pp 121-122.

Abstract: A dynamographic-tensiometric attachment for an electromyograph is proposed for use in investigations of dynamic and static efforts of muscles. The device permits simultaneous registration of the electromyogram and dynamogram of the muscles studied on the same film.

1/1

USSR

UDC 550.371:53.083.8

KADZHAROV, M.V., and CHOGOVADZE, G.G.

"Monitoring System With Dispersed Elements in a Data Field"

Tr. Tbilis. NII sooruzh. i gidroenerg. (Works of Tbilisi Scientific Research Institute of Structures and Water Power Engineering), 1971, vyp 3, pp 217-221 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 72, Abstract No 1A495)

Translation: The article considers questions in the organization of a monitoring system in a data field by means of dispersed elements. It is shown that the resolution of the monitoring system can be increased for the case of matrix representation of the primary elements (sensors) in the monitored field. 2 illustrations. 2 tables.

1/1

USSR

UDC: 533.95

RUKHADZE, A. A. and CHOGOVADZE, M. Ye., P. N. Lebedev Physics Institute, Moscow

"Interaction of Single-Energy, Nonrelativistic Electron Beams With Surface Potential Plasma Oscillations"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, No 2, 1973, pp 256-265

Abstract: It is the authors' contention that linear theory of the interaction of charged particles with plasma and the excitation of characteristic electromagnetic oscillations is inferior to a quasi-linear theory. The authors also consider it more important to examine the interaction of the electron beam and the surface oscillations -- the latter defined as oscillations which die away from the interface surface -- than the interaction of the beam and the voluminal oscillations, since the latter may not emerge from the interaction space. Furthermore, they find that excitation of surface potential oscillations occurs only for nonrelativistic electron velocities and so confine this article to the effects of a single-energy, nonrelativistic electron beam. It is assumed, in this theoretical treatment, that the diameter of the beam is fixed and is identical with that of the plasma and that the plasma is limited by a vacuum or a dielectric surface.

1/1

USSR

UDC: None

ZASHKVARA, V. V., KORSUNSKIY, M. I., RED'KIN, V. S., and CHOKIN, K. Sh.

"Interpreting Energy Loss Peaks of 30-70 ev in the Spectra of Electrons Reflected from Transitional Metals"

Leningrad, Fizika Tverdogo Tela, vol 14, No 7, 1972, pp 2182-2184

Abstract: For transitional metals, whose spectra of characteristic electron energy losses are more complex than those of such ordinary metals as Na or Al, only the initial sections of these spectra, in the 25-30 ev interval, can be explained by plasma-type losses. The interpretation of the more distant portions of the spectra, where the spectral shape is determined by factors in addition to multiple and combination plasma losses, is more difficult. In this brief communication, the authors attempt such an interpretation through the idea that the loss peaks in the spectra, which they call e-peaks, can be identified by comparing the energy position of the e-peak with the total energy required for excitation of the 4p-4d transition and of low-energy plasma oscillation, for each element of the Y-Pd series. A table of energy values for this series is given. The authors are associated with the Institute of Nuclear Physics at Alma-Ata.

1/1

CHOKIN K.SA.

Acc. Nr: AP0048299 Abstracting Service: CHEMICAL ABST. 5170 Ref. Code: 4R0A1 3

94384q Spectrum of electron characteristic energy losses in osmium. Zashkvara, V. V.; Korsunskii, M. I.; Larin, M. P.; Red'kin, V. S.; Masyagin, V. B.; Kil'diyarov, M. A.; Chokin, K. Sh. (Inst. Yad. Fiz., Alma-Ata, USSR). *Fiz. Tverd. Tela* 1970, 12(1), 294–6 (Russ). The spectrum was obtained of characteristic energy losses of electrons in Os. The spectrum was obtained by reflecting a beam of electrons with energy 0.8–1.4 keV from a plane surface of a massive specimen. The energy losses detd. from the max. of the peaks are 11.4, 29.8, 46.5, and 58 eV for a scattering angle of 141°, and 11.3, 24.5, 45.2, and 57.4 eV for a scattering angle of 39°. The peak of the 1st loss is interpreted as the loss of energy for excitation of surface plasma oscillations, and the 2nd loss. as the energy loss for excitation of vol. plasma oscillations in Os. A. Libackyj

IB

1/1

18

REEL/FRAME
19792021

USSR C UDC: 3

ZASHKVARA, V. V., KORSUNSKIY, M. I., LARIN, M. P., RED'KIN, V. S., MASYAGIN, V. YE., KUL'DIYAROV, M. A., and CHOKIN, K. SH., Institute of Nuclear Physics of the Kazakh Academy of Sciences, Alma-Ata (Institut yadernoy fiziki AN Kaz SSR, Alma-Ata)

"Spectrum of Characteristic Energy Losses of Electrons in Osmium"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 1, January 1970, pp 294-296

Abstract: The authors obtained a spectrum of characteristic energy losses of electrons in osmium. This is the first time this has been done and should contribute information about the third transition metal group. The spectrum was produced by reflecting an electron beam with an energy of 0.6-1.4 kev off a flat surface of a massive specimen. Energy analysis of the scattered electrons was carried out by using an electrostatic beta-spectrometer with a cylindrical field. The resolving power of the spectrometer was 0.2%. The spectrum was obtained for two different angles of scattering for the primary beam of electrons. In the first case the beam of primary electrons falls normally to the specimen surface and electrons which had been scattered at a 141° angle in the specimen enter the beta-spectrometer. In the second case the angle between the direction of the primary beam and the specimen surface is 19°30' with electrons analyzed which had been scattered at 39°. The osmium specimen was 0.3 mm thick and was made from low-dispersion powdered osmium pressed and subsequently cintered above 2000°C in a $2 \cdot 10^{-6}$ torr vacuum for several hours. The spectrum was produced without disturbing the vacuum

ZASHKVARA, V. V., et al., Fizika Tverdogo Tela, Vol 12, No 1, January 1970, pp 294-296

at the above temperature, with registration of electrons scattered at a 39° angle. It was shown that the osmium spectrum did not change with a fall in temperature down to 1400°C. The position of the specimen was changed for taking a spectrum at an angle of 141°. This required disturbing the vacuum. The latter spectrum was produced at a specimen temperature of 1700°C in a $2 \cdot 10^{-6}$ torr vacuum. A graph is given for the two spectra. Energy losses in electron-volts as determined from curve peaks are as follows: (141° angle of scattering) 11.4, 29.8, 46.5, 58; and (39° angle of scattering) 11.3, 24.5, 45.2, 57.4. The energy position of the first loss does not change with the angle of scattering. The ratio of the height of the first peak to the height of the second loss peak decreases as the angle of scattering increases and with increased primary beam energy. At a specimen temperature below 1300°C, the height of the first loss peak falls significantly and reaches 9.7 ev. This may be interpreted as energy lost in exciting surface plasma oscillation. At the same time, the energy loss does not coincide with theory. A significant discreptancy (on the order of 5 ev) exists in the energy position of the second loss peak. This is probably conditioned by excitation of volume plasma oscillation in the osmium for 141° and 39° scattering angles. Energy calculated for

USSR

ZASHKVARA, V. V., et al., Fizika Tverdogo Tela, Vol 12, No 1, January 1970, pp 294-296

a volumetric plasmon using the Langmuir formula with the supposition that all eight s and d are free and form a homogeneous electron gas yields 28.6 ev. This value does not correspond to the second peak energy position obtained in this study. The origins of the remaining peaks in the osmium spectrum are also unclear.

3/3

USSR

UDC: 531.787.087.4

CHOKOVSKIY, B. P., "Uralenergotsvetmet" Production-Engineering Union

"A Stroboscopic Pressure Indicator"

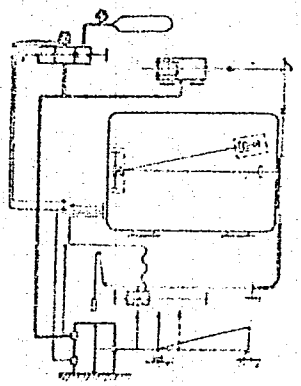
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329426, Division G, filed 30 Mar 70, published 9 Feb 72, pp 165-166

Translation: This Author's Certificate introduces a stroboscopic pressure indicator designed chiefly for compressors. The device contains a pressure pickup, a piston-position pickup, a registration unit, and an oscillograph with photocassette kinematically connected to the registration unit. As a distinguishing feature of the patent, provision is made for correcting the coordinates of the record chart with respect to the pressure axis by using a pneumatic drive with its rod kinematically coupled to the photocassette, and its working cavity connected to the pressure data unit and to one of the cavities of the equal-pressure registration unit which is installed in the compressor to be studied and is electrically connected through a switch to the brightness modulator of the oscilloscope.

1/2

USSR -

CHOKOVSKIY, B. P., USSR Author's Certificate No 329426



2/2

1/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--STUDY OF THE SIZE AND MORPHOLIGICAL PECULIARITIES OF LACTOBACTERIUM CASEI -U-
AUTHOR-(03)-CHOMAKOV, KH., KARPAROV, A., KARABASHEVA, V.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 3, PP 455-459
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED ANIMAL PRODUCT, FERMENTATION, BACTERIA, CONTINUOUS CULTURE, MORPHOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0424 STEP NO--UR/0216/70/000/003/0455/0459

CIRC ACCESSION NO--AP0126177
UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126177

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS ESTABLISHED THE SIZE AND MORPHOLOGICAL PECULIARTIES OF LACTOBACTERIUM CASEI IN 13 STRAINS ISOLATED FROM MONGOLIAN KUMISS. WHEN CULTIVATED IN BROTH AND EXAMINED WITH THE AID OF A LIGHT MISCROSCOPE THE BACTERIAL CELLS LOOKED LIKE SQUARE ENDED RODS OCCURING MOSTLY SINGLY, TWO BY TWO AND IN CHAINS OF VARYING LENGTH OF BACTERIAL CELLS 1,0-4,0 MU LONG. WHEN CULTIVATED AN AGAR MEDIUM AND EXAMINED BY MEANS OF AN ELECTRON MICROSCOPE THE BACTERIAL CELLS REPRESENTED SHORT ROUNDED RODS 0.5-8.0 MU LONG. THE THICKNESS OF THE BACTERIA CULTIVATED BOTH IN BROTH AND ON AGAR AMOUNTED TO 0.5-0.8 MU. SOME BACTERIA CULTIVATED ON AGAR APPEARED TO BE SURROUNDED BY CARSULE.

UNCLASSIFIED

USSR

UDC 547.944.945

ZUPAROVA, K. M., CHOMMADOV, B., YUSUPOV, M. K., SADYKOV, A. S., Tashkent Order of the Red Banner of Labor State University imeni V. I. Lenin

"Alkaloids of Merendera Jolantae"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 4, 1971, pp 487-493

Abstract: A study was made of the alkaloids of Merendera Jolantae in which it was discovered that along with tropolonic compounds it also contains bases with other hydrocarbon rings. By extraction of 48 kg of the above-ground parts of the merendera, 0.59% of the total alkaloids were isolated, including 0.28% of the bases. The compounds β-lumicolchicine, colchicine, 2-dimethylcolchiceine and the unknown lumi-derivative -- MJ-3 alkaloid (melting point 268-270°) and also colchiceine were obtained by chromatography on adsorbent fractions of neutral and phenol compounds. Colchamine, colchaneine and the new bases MJ-1, MJ-2 and MJ-4 isolated from the bases and phenon-basic fractions. The presence of 3-demethylcholchamine and four more unknown, non-tropolonic compounds with R_f 0.40, 0.49, 0.53 and 0.54 was determined by chromatographic methods. The formula $C_{16}H_{16}(OH)(OCH_3)(CO)(NCH_3)$ was proposed for Jolantamine (the base MJ-1) by spectral methods.

1/1

USSR

UDC: 547.944.6

CHOMMADOV, B., YUSUPOV, M.K., SADYKOV, A.S., Tashkent State University imeni V.I. Lenin, Tashkent, Ministry of Higher and Secondary Specialized Education Uzbek SSR

"The Structure of Alkaloid L-5 from Colchium Luteum"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1970, pp 82-88

Abstract: Alkaloids were extracted from the plant body of the Colchium luteum Baker (meadow saffron) which grows in the Sazan-Ata Canyon of the Chimkentskaya Oblast. The alkaloids extracted in the flowering stage amounted to 1.58%, and in the fruiting stage -- to 0.29%. Absorption chromatography on aluminum oxide revealed that the alkaloid mixture from the flowering stage is composed of colchamine, 3-demethylcochamine, colchicine, 2-demethylcolchicine and 3-demethyl-β-lumicolchicine. The first two bases with the topolone ring and 3-demethyl-β-lumicolchicine. had never been extracted from saffron before. Analysis of the alkaloid mixture extracted from the fruting stage showed colchicine, β-lumicolchicine, N-desacetyl-N-formylcolchicine, 2-demethylcolchicine, 3-demethyl-β-lumicolchicine, luteidine (alkaloid L-2) and new compounds with R_f of 0.21 and 0.76 (system 1) named L-5 and L-6 respectively. Alkaloid L-5, with an empirical formula of $C_{20}H_{21}O_6N$ is a yellow amorphous substance which melts at 179-183°C. It makes up the principal part of the phenol-acid fraction of the alkaloids. Spectroscopic analysis shows that this compound contains the tropolone ring. Spectroscopic and functional

1/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200610009-1"

USSR

CHOMMADOV, B., et al, Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1970, pp 82-88

data suggest the following formula:

$$C_{15}H_9(OCH_3)_2(OH)(CO, OH)\ (NHCOCH_3).$$

It was established that the structure corresponds to 2-demethylcolchicine, which is present in all colchicine-bearing plants of Central Asia, and may be an intermediate product in the biosynthesis of colchicine. Paper chromotography showed that the alkaloid mixture also contains three new alkaloids with R_f of 0.38, 0.40 and 0.86.

2/2

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--STRUCTURE OF THE ALKALOID L 5 FROM COLCHICUM LUTEUM -U-

AUTHOR-(03)-CHOMMADOV, B., YUSUPOV, M.K., SADYKOV, A.S.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PRIR. SOEDIN. 1970, 6(1), 82-8

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED PLANT PRODUCT, ALKALOID, MOLECULAR STRUCTURE, UV SPECTRUM, IR SPECTRUM, NUCLEAR MAGNETIC RESONANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0463 STEP NO--UR/0393/70/006/001/0082/0088

CIRC ACCESSION NO--AP0132678
UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0132678
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO NEW ALKALOIDS L-5 (I) AND L-6 (II) WERE ISOLATED FROM C. LUTEUM TOGETHER WITH COLCHAMINE, 3,DEMETHYLCOLCHAMINE, 3,DEMETHYL,BETA,LUMICOLCHICINE, COLCHICINE, 2, DEMETHYLCOLCHICINE, BETA,LUMICOLCHININE, N,DEACETYL,N,FORMYLCOLCHICINE, AND LUTEIDINE. II, C SUB21 H SUB23 O SUB6 N, M. 291-3DEGREES (ME SUB2 CO) (ALPHA) SUBD MINUS 41DEGREES (CO.88, MEOH), WAS ISOLATED FROM A PHENOLIC FRACTION AND ITS STRUCTURE WAS NOT DETD.; I, M. 179-83DEGREES, WAS PROVED TO BE 2,DEMETHYLCOLCHICINE. UV, IR, AND NMR DATA OF I ARE GIVEN AND TRANSFORMATIONS OF I INTO COLCHICINE, ISOCOLCHICINE, 2,DEMETHYLCOLCHICINE, AND 2,DEMETHYLISOCOLCHICINE ARE DESCRIBED. FACILITY: TASHKENT. GOSUNIV. IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--THE ALKALOID L-6, C SUB3 HYDROXYLATED DERIVATIVE OF GAMMA,LUMICOLCHICINE -U-

AUTHOR-(03)-CHOMMADOV, B., YUSUPOV, M.K., SADYKOV, A.S.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PRIR. SOEDIN. 1970, 6(2), 275

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED PLANT PRODUCT, ALKALOID, MOLECULAR STRUCTURE, MASS SPECTRUM, NMR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0467 STEP NO--UR/0393/70/006/002/0275/0275

CIRC ACCESSION NO--AP0132682

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0132682
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ALKALOID L-6 (M. 291-3DEGREES, (ALPHA) PRIME20 SUBD MINUS 410DEGREES) FROM COLCHICUM LUTEUM IS, ACCORDING TO NMR AND MASS SPECTRA; THE AS YET UNKNOWN 3,DEMETHYL,GAMMA,LUMICOLCHICINE (I) THE CORRESPONDING ME ETHER, M. 275-6DEGREES, IS IDENTICAL WITH GAMMA,LUMICOLCHICINE. FACILITY: TASHKENT. GOSUNIV. IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

UDC 614.715(-21)-037

USSR

DMITRIYEV, M. T., IVANOVA, L. Yu., and CHON EN DE, Institute of General and Communal Hygiene imeni A. N. Sysin, Academy of Medical Sciences USSR, Moscow, and State University imeni M. V. Lomonosov, Moscow

"Hygienic Prognosis of Photochemical Smog Formation in Cities"

Moscow, Gigiyena i Sanitariya, No 2, Feb 73, pp 8-13

Abstract: UV radiation at wavelengths of 320-330 nm plays the most important role in the formation of photochemical smog in the air. An equation for the rate of formation of photooxidants in the air calculated as O_3 was derived in earlier work by Dmitriyev et al (Gig. i San., No 10, p 6, 1971). By using this equation and estimating the amount of effective UV radiation under consideration of direct and scattered radiation as well as of UV radiation absorbed by O_3 in the stratosphere, the rate of formation of photooxidants and of photochemical smog in 17 USSR cities located at various latitudes ranging from 69.1°N (Murmansk) to 38.0°N (Ashkhabad) could be calculated (table). The assumption was made that the principal source of atmospheric pollution was formed by automative exhaust gases in an amount corresponding to a CO concentration of 100 mg/m^3 in the air. Curves were obtained which

1/2

USSR

DMITRIYEV, M. T., et al., Gigiyena i Sanitariya, No 2, Feb 73, pp 8-13

indicated that the maximum rate of photochemical reactions that determine the formation of smog must be at noon hours in June in northern USSR cities and in Jul-Aug in southern USSR cities. It is pointed out that if the existing USSR requirements for the maximum concentrations of pollutants in the air that should not be exceeded are fulfilled, photochemical smog cannot form. At a concentration of automotive exhaust gases corresponding to /CO/ = 1 mg/m^3 and /NO_2/ = 0.085 mg/m^3, /hydrocarbons/ = 3 mg/m^3, the maximum rate of photochemical reactions at noon even in the southernmost cities of the USSR does not exceed 0.018 mg/m^3.hr, which is 20 times lower than that at which a photochemical smog may still form.

1/2 035 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ON THE THEORY OF PLASMA ECHO THREE MONENTUM ECHO OSCILLATIONS -U-

AUTHOR-(03)-SITENKO, A.G., CHONG, N.W., PAVLENKO, V.N.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY VIZIKI, 1970, VOL 58, NR 4, PP 1377-1383

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PERTURBATION, PLASMA OSCILLATION, PLASMA WAVE, VIBRATION RELAXATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1565 STEP NO--UR/0056/70/058/004/1377/1383

CIRC ACCESSION NO--AP0106311

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0103311

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ECHO OSCILLATIONS IN A PLASMA ARISING AS THE RESULT OF SUPERPOSITION OF THREE CONSECUTIVE PERTURBATIONS SEPARATED BY TIME INTERVALS WHICH ARE LARGE COMPARED WITH THE CHARACTERISTIC OSCILLATION DECAY TIME ARE CONSIDERED. THE PERTURBATIONS CHOSEN IN THE FORM OF PLANE WAVES AND THE PERTURBATION WAVE VECTORS ARE ASSUMED TO BE NON COLLINEAR. ECHO OSCILLATIONS OF THE SECOND ORDER ARE THEREFORE IMPOSSIBLE. IT IS SHOWN THAT ECHO OSCILLATIONS OF THE THIRD ORDER SHOULD BE POSSIBLE IF THE PERTURBATION WAVE VECTORS LIE IN A SINGLE PLANE. THE ORIGIN TIME AND SHAPE OF THE THIRD ORDER ECHO OSCILLATIONS ARE FOUND. IT IS SHOWN THAT EVEN IN THE CASE OF LOGITUDINAL PERTURBATIONS THE ECHO OSCILLATION FIELD CONTAINS BOTH LOGITUDINAL AND TRANSVERSE COMPONENTS. A NUMBER OF CONCRETE CASES OF APPEARANCE OF THIRD ORDER ECHO OSCILLATIONS ARE CONSIDERED.

FACILITY: INST. TEORETICHESKOY FIZIKI, AN UKR. SSR.

UNCLASSIFIED

USSR UDC: 621.396.67.012.12

CHONI, Yu. I.

"Some Problems in Synthesizing Amplitude Radiation Patterns"

Tr. Kazan' aviats. in-ta (Works of the Kazan' Aviation Institute), 1970, vyp. 104, pp 3-10 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12B23)

Translation: The author considers the problem of the best RMS approximation to a required radiation pattern without any restrictions relative to the nature of antenna excitation. The problem reduces to finding a stable stationary phase diagram ψ_0 and solving the known problem of the best RMS approximation to the complex radiation pattern $F_0 e^{i\psi_0}$. It is shown that even in the case of a symmetric line grating and an even function F_0, the phase diagram which corresponds to coincidence between the phase center of the antenna and its geometric center is not always optimum. Two illustrations, bibliography of six titles. N. S.

1/1

+1

USSR UDC: 621.396.677.01

DYMSKIY, V. N., GAVRILOV, A. M., MIZGAYLOV, V. N., MOROZOV, G. A., CHONI, Yu. I.

"Synthesis of Antennas on the Basis of Experimental Data"

Tr. Kazan. aviats. in-ta (Works of the Kazan' Aviation Institute), 1970, vyp. 104, pp 19-28 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12B7)

Translation: The authors analyze formulation of the problem of synthesizing antennas as a problem of calculating the distribution of current density in a region of predetermined geometric configuration with respect to a predetermined complex vector radiation pattern. In this formulation, the problem reduces to solution of an operator equation. A physical interpretation is given for the operators appearing in this equation; consideration is given to the feasibility of determining these operators from experimental data. Practical examples are analyzed. Four illustrations, bibliography of six titles. N. S.

1/1

USSR

UDC:621.378.324.666.249.1

KASK, N. Ye., KORNIYENKO, L. S., FEDOROV, G. M., CHOPORNYAK, D. B.

"Threshold of Rupture of Laser Glass as a Function of Dimensions of Nonmetallic Inclusions"

Optiko-Mekhanicheskaya Promyshlennost', No 10, Oct 73, pp 61-62

Abstract: This report presents the results of a study of the rupture of nonmetallic inclusions in laser glass for the case when the inclusions are large enough to be observed visually, that is much larger than the wave length of the laser radiation. The maximum size of inclusions studied fell in the 0.1-1 mm range. The experiments utilized a laser (λ=1.06μ) operating in the free-generation mode. A graph is presented showing the threshold of rupture as a function of maximum size of projection of the inclusion on the plane perpendicular to the laser beam.

USSR UDC 541.1:546.799.3

CHUDINOV, E. G., and CHOPOROV, D. Ya.

"Pressure Measurement of Saturated Neptunium Tetrafluoride Vapor"

Leningrad, Radiochimiya 12, No 3, 1970, pp 525-527

Abstract: The differential diffusion method was used in the temperature range from 603-818.5°C for the vapor pressure measurement. An equation is derived which satisfactorily describes the data of two experimental series. The expression for the free energy of sublimation for a change in heat capacity of ΔC_p = -6 cal/degree·mole has the form ΔF=77,700 + 6TlnT-93.6T.

1/1

USSR

UDC 620.181

CHUDINOV, E. G., and CHOPOROV, D. YA.

"Saturation Vapor Pressure of Solid Uranium Tetrafluoride"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 8, Aug 70, pp 1955-1961

Abstract: The authors measured the saturation vapor pressure of solid uranium tetrafluoride by the effusion method in the 555-1007° C range. On the basis of the measurement results the least-squares method was used to calculate on an M-20 computer the equations connecting variations in saturation vapor pressure with temperature. The best regression equation describing the experimental results was found to be

$$\lg p = 28,539 - 16504.9/T - 4,876 \lg T$$

The authors thank G. M. KUKAVADZE for making the mass-spectrometric study.

1/1

Acc. Nr: AP0047502 Abstracting Service: NUCLEAR SCI. ABST. 4-70 Ref. Code: UR0089

C

13852 SUBLIMATION OF AMERICIUM TETRAFLUORIDE.
Chudinov, E. G.; Chonorov, D. Ya.; At. Energ. (USSR); 28: 62-4(Jan 1970). (In Russian).

The vapor pressure of americium tetrafluoride was determined from 456 to 668°C. It was revealed that the behavior of americium tetrafluoride was similar to that of plutonium tetrafluoride, which indicated that the dissociation mechanisms of these compounds are identical. (R.V.J.)

pc

1/1

REEL/FRAME
19791061

18

USSR

UDC 612.84

CHORAYAN, O. G. and EL'-GOKHARI, M., Rostov State University

"Variability of Evoked Activity of Neurons"

Moscow, Nauchnyye Doklady Vysshey Shkoly, Biologicheskiye Nauki, No 8, 1973, pp 36-38

Abstract: Statistical analysis of interspike intervals in the background and evoked activity of 16 nerve cells in the tectum of frog mesencephalon following adequate photic stimulation showed that in most cases the coefficient of variation of evoked activity increased significantly ($P < 0.01$), whereas decreases in the same parameter were not significant statistically ($P > 0.1$). An increase in the coefficient of variation of evoked activity was usually accompanied by an increase in entropy of the spike train. The time dynamics of the neuronal responses to repeated stimulation exhibited a similar pattern.

1/1

USSR UDC 612.014.3

KOGAN, A. B., KURAYEV, G. A., and CHORAYAN, O. G., Rostov State University

"Some Characteristics of Information Processes in the Visual Analysor"

Moscow, Doklady akademii Nauk SSSR, No 4, 1971, pp 951-953

Abstract: In acute experiments on frogs, impulse activity of the ganglion cells of the retina was recorded simultaneously with that of neurons in the tectum of the mesencephalon, the central portion of the frog's visual analysor, following stimulation with light flashes. A close relationship was observed between the capacity of the system and excess impulses from the cells of the tectum: the capacity was high when there was an excess of impulses, especially from the ganglion cells of the retina. A similar relationship obtained between the reliability of the system and excess impulses. In some cases the marked excess of impulses from the cells of the tectum compensated for the insufficient excess of impulses from the ganglion cells of the retina needed to maintain a high capacity. These findings show that the high capacity and reliability of the "ganglion cells of the retina - cells of the tectum of mesencephalon" system are largely due to the excess communications sent by the ganglion cells. The connection between the excess at the output of the

1/2

USSR"

KOGAN, A. B., et al., Doklady Akademii Nauk SSSR, No 4, 1971, pp 951-953

system (tectum cells) and reliability, on the one hand, and capacity of the system, on the other, is regarded as evidence of the existence of feedback.

2/2

BIOLOGY

Biophysics

USSR

UDC 612.822.3-612.821.2

CHORAYAN, O. G., Rostov State University

"Redundancy in the Flow of Impulses From Neuron Assemblies in the Frog Visual Analysor"

Moscow, Doklady Akademii Nauk SSSR, Vol 191, No 3, 1970, pp 732-733

Abstract: Comparison of the flow of impulses from cells in a single neuron assembly in the frog visual analysor under different functional conditions revealed a high degree of redundancy. Redundancy per unit of time decreased following adequate light stimulation. This decrease in redundancy in response to repeated stimulation is indicative of the economical reaction of nerve cells. The dual system comes close to an optimum method of information coding by cells of the central portion of the visual analysor under conditions of identical stimulation. The existence of an excess in the flow of impulses along with the structural redundancy (presence of a group of similarly reacting neurons - the basis of the neuron assembly) is one of the ways of ensuring the reliable functioning of the cells of the central nervous system.

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--THE GRAVITY EQUATION -U-

AUTHOR--CHORNIY, A.V.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK UKRAIN'KOI RSR, DOPOVIDI SERIIA B GEOLOGIIA, GEOFIZIKA, KHIMIIA I BIOLOGIIA, VOL 32, FEB. 1970, 5 FEB. 1970, P

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATHEMATICAL SCIENCES

TOPIC TAGS--GRAVITY, SECOND ORDER EQUATION, DIFFERENTIAL EQUATION, GRAVITATION FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/2016 STEP NO--UR/0442/70/032/000/0145/0148

CIRC ACCESSION NO--AT0108342

UNCLASSIFIED

2/2 020 UNCLASSIFIED

CIRC ACCESSION NO--AT0108342 PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF A SECOND ORDER SELF CONJUGATE ELLIPTICAL DIFFERENTIAL EQUATION WITH AN ANALYTICAL COEFFICIENT, WHICH DESCRIBES THE MODULUS OF THE GRAVITATIONAL FIELD STRENGTH. A GEOMETRICAL INTERPRETATION OF THE ANALYTICAL COEFFICIENT (DEFINED BY THE GAUSSIAN CURVATURE OF THE SURFACE) IS ALSO GIVEN.

UNCLASSIFIED