

USSR

DONETSKIKH, V. I., and SOBOLEV, V. V., Izvestiya Akademii Nauk Moldavskoy SSR, Seriya Fiziko-Tekhnicheskikh i Matematicheskikh Nauk, No 1, 1973, pp 40-46

Cd<sup>IV</sup>B<sub>2</sub> crystals. There was found to be good agreement between the authors' data and the results of known electroreflectance spectra in the number and position of peaks.

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USSR

UDC 546.682.535.232

SOBOLEV, V. V., and DONETSKIKH, V. I.

"Optical Properties of HgS, HgSe, HgTe in the Bandgap Absorption Region"

Kishinev, Izvestiya Akademii Nauk Moldavskoy SSR, Seriya Fiziko-Tekhnicheskikh i Matematicheskikh Nauk, No 3, 1971, pp 46-51

Abstract: The article, which is a paper presented at the Second All-Union Conference on the Physics and Chemistry of AllpVI Type Compounds (Uzhgorod, May 1969), studies the reflection spectra of cleavages (HgSe) and etched (HgTe) single crystals, as well as a red modification of HgS (large samples of the mineral cinnabar from Central Asia and China deposits) in the 1.5-5 ev region at 293 and 77° K and in the 5-12.5 ev region at 293° K. The spectra for trigonal HgS proved to be very complex in the 2-5 ev region, especially at 77° K. The nature of the HgSe and HgTe bands is discussed on the basis of known theoretical band calculations and established empirical regularities in the pattern of the dependence of reflection band position on lattice parameter. Values are predicted for the transitions for  $\beta$ -HgS. A scheme is suggested for the structure of the valence band and conduction band of mercury chalcogenides.

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SOBOLEV, V. V., and DONETSKIKH, V. I., Izvestiya Akademii Nauk Moldavskoy SSR, Seriya Fiziko-Tekhnicheskikh i Matematicheskikh Nauk, No 3, 1971, pp 46-51

The authors thank YU. V. POPOV and V. G. NAGORNYY for measurements in the 5-12.5 ev region, N. A. OZEROVA for providing specimens of the  $\alpha$ -HgS minerals, and F. HERMAN and W. SCOULER for reprints of their articles.

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Semiconductor Technology

USSR

UDC 546.682'19:535.232.1

VOROB'YEV, V. G., KOTRUBENKO, B. P., LANGE, V. N., and SOBOLEV, V. V.,  
Institute of Applied Physics, Academy of Sciences, Moldavian SSR

"Reflection Spectra and Structure of Zones of Highly Alloyed Indium Arsenide"

Moscow, Neorganicheskiye Materialy, Vol 6, No 8, Aug 70, pp 1524-1525

Abstract: In order to continue studies on the influence of strong alloying on the optical transitions in the  $E > E_g$  area in compounds such as  $Al_{1-x}In_xV$ , the authors studied the reflection spectra of etched mirror surfaces of InAs crystals, alloyed with tellurium (0.05, 0.1, 1, 2, and 5 at. %) and selenium (0.5, 1, 2, 5, and 10 at. %). In InAs-Te specimens with increasing alloying the maxima principally expand (particularly the long wave maxima), then the entire band is strongly spread with considerable displacement toward the long wave area. When alloyed with selenium, indium arsenide shows the expansion and displacement of the band with lower concentrations of the impurity. Alloying has comparatively little influence on the short wave portion of the band and a very strong influence on the long wave portion of the band.

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1/3 012

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--CONDITIONS OF DEEPSEATED PETROGENESIS -U-

AUTHOR--(051)-SOBOLEV, V.S., BAKUMENKO, I.T., DOBRETSDV, N.L., SOBOLEV,  
N.V., KHLESTOV, V.V.  
COUNTRY OR INFO--USSR

S

SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 4, PP 24-35

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MAGMA, IGNEOUS ROCK, UPPER MANTLE, GEOLOGY, GEOPHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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CIRC ACCESSION NO--AP0114442

UNCLASSIFIED

2/3 012

UNCLASSIFIED

PROCESSING DATE--02OCT79

CIRC ACCESSION NO--AP0114442

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME ASPECTS OF MAGMA FORMATION IN RELATION WITH WATER REGIME BASED UPON RECENT DATA OBTAINED BY THE AUTHORS CONCERNED TO THE UPPER MANTLE COMPOSITION AND TEMPERATURE OF FORMATION OF IGNEOUS ROCKS ARE CONSIDERED IN THE PAPER. THE STUDY OF XENOLITHS IN KIMBERLITES AND CRYSTALLINE INCLUSIONS IN DIAMONDS PROVES THE GREAT DIFFERENTIATION OF THE UPPER MANTLE FROM PREDOMINANT PERIDOTITES UP TO ECLOGITES AND GROSSPYDITES. THE DIAMOND BEARING PERIDOTITES ARE THE DEEPEST ORIGIN XENOLITH'S. THE BIOTITE INCLUSIONS DOESN'T YET FOUND IN DIAMONDS BUT PHLOGOPITE IS PRESENT IN THE MOST UPPER PART OF THE MANTLE ACCORDING SOME DATA, AND KIMBERLITIC MAGMA ITSELF IS FORMED IN WATER PRESENCE. THE DEEP FLUIDS ARE OF COMPLEX COMPOSITION, AND PARTIAL WATER PRESSURE FLUCTUATES WITHIN A WIDE RANGE. DEPENDING ON RELATIVE VALUE OF P, H, SUB2, O, THREE TYPES OF MAGMAS CAN BE DISTINGUISHED: I. THE MOST "DRY" MAGMAS, WHICH CAN BE ERUPTED UP TO THE SURFACE; II. MAGMAS, FORMED AT HIGH P SUBTOTAL AND DECREASED P, H SUB2, O WHICH ARE ABLE TO ASCEND; III. MAGMAS FORMED AT LOW P SUBTOTAL AND INCREASED P, H SUBW, O WHICH ARE RAPIDLY CRYSTALLISED AT DECREASE OF P SUBTOTAL (MIGMATITE FIELD). IT PROVED THAT TRANSVAPORIZATION PLAYS A SIGNIFICANT ROLE, IT DECREASES THE MELTING TEMPERATURE AND IMPROVES THE POSSIBILITY OF MAGMA ASCENDING. THE PROBLEMS OF DRAINAGE OF HOST TERRANES FLUIDS AT MAGMA FORMATION AND FLUIDS RELEASE AT MAGMA CRYSTALLISATION ARE ALSO CONSIDERED. THE SPECIAL DIAPHORESIS PHENOMENON IS CONNECTED WITH THESE PROBLEMS.

UNCLASSIFIED

3/3 012

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0114442

ABSTRACT/EXTRACT--THE PROBLEM OF FURTHER STUDY OF VITREOUS AND GAS LIQUID  
INCLUSIONS IN MINERALS FOR THE PURPOSE OF MORE PRECISE MODEL OF WATER  
REGIME CONSTRUCTION IN THE EARTH'S CRUST AND MANTLE IS POSED.

UNCLASSIFIED

89

1/2 031  
UNCLASSIFIED  
TITLE--MILNE PROBLEM OF ANISOTROPIC RADIATION SCATTERING -U- PROCESSING DATE--23OCT70  
AUTHOR--SOBOLEV, V.V. S  
COUNTRY OF INFO--USSR  
SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 2, 1970, P. 246-253  
DATE PUBLISHED-----70  
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, ATMOSPHERIC SCIENCES  
TOPIC TAGS--ANISOTROPY, SOLAR RADIATION SCATTERING, ALBEDO, INDICATRIX,  
ATMOSPHERE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1493 STEP NO--UK/0033/707047/002/0248/0253  
CIRC ACCESSION NO--AP0125121  
UNCLASSIFIED



2/2 031

CIRC ACCESSION NO--AP0125121

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE ASPECT OF THE MILNE PROBLEM WHICH CONCERNS THE DETERMINATION OF THE FRACTION OF RADIATION DIFFUSELY TRANSMITTED BY A SEMIINFINITE ATMOSPHERE AT A CERTAIN ANGLE TO THE NORMAL, WITH ARBITRARY SCATTERING INDICATRICES AND PARTICLE ALBEDOS. EQUATIONS ARE GIVEN FOR DETERMINING THIS VARIABLE. THE RANGE OF VARIATIONS OF THIS VARIABLE IS ANALYZED IN THE CASE OF PURE SCATTERING. FACILITY: LENINGRADSKII GOSUDARSTVENNYI UNIVERSITY, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 628.165.04

SOBOLEV, Y. A., RYUCHIN, S. V., GOLUB, S. I., and PODBEREZNYI, V. L.

"Ten-Unit Experimental Industrial Desalination Apparatus"

Moscow, Vodostabzheniye i Sanitarnaya Tekhnika, No 7, 1973, pp 30-32

Abstract: For the first time on a world-wide scale a 10 unit desalination apparatus has been built and successfully operated. This complex is based on the principle of evaporation with seeding; it consists of evaporation units with forced circulation of the brine. The average productivity of such units is 640-650 m<sup>3</sup>/hr. The distillate obtained is suitable for the use as drinking water as well as for feeding high pressure boilers.

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Acc. Nr.

AP0045144

Abstracting Service:  
CHEMICAL ABST.

Ref. Code

4/70

U R O 4 0 9

90589a Reaction of digermazanes with o-carboranes. Svit-  
 syn, R. A.; Zhigach, A. F.; Sobolev, E. S.; Antipin, L. M.;  
 Mironov, V. P. (Gos. Nauch.-Issled. Inst. Khim. Tekhnol.  
 Elementoorg. Soedin., Moscow, USSR). *Khim. Geterotsikl. Soe-  
 din.* 1970, (1), 127-8 (Russ). Heating 4.32 g o-carborane with  
 10.1 g (Et<sub>3</sub>Ge)<sub>2</sub>NH 14 hr at 200-300°, then with 1 g added (Et<sub>3</sub>-  
 Ge)<sub>2</sub>NH 12 hr at 300°, gave after treatment with MeOH 50%  
 1-triethylgermyl-o-carborane, d<sub>4</sub><sup>20</sup> 1.0940, n<sub>D</sub><sup>20</sup> 1.5483. Similarly,  
 1-isopropylcarborane gave in 17 hr at 245° with (Et<sub>3</sub>Ge)<sub>2</sub>NH  
 27% 1-isopropyl-2-triethylgermylcarborane, n<sub>D</sub><sup>20</sup> 1.5508. 1-  
 Phenylcarborane in 28 hr at 275° similarly gave 22.5% 1-phenyl-  
 2-triethylgermylcarborane, n<sub>D</sub><sup>20</sup> 1.5882. G. M. Kosolapoff

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19780044

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SOBOLEV, Ye. V.

3 PLS 59868  
6-72

VI-4a. IMPURITY CENTERS IN DIAMOND

Article by Ye. V. Sobolev, Novosibirsk, Novosibirsk, III Symposium for Progress in Physics, Siberian Polytechnic Institute, Krasnoyarsk (Pis'ma), Novosibirsk, 12-17 June, 1972, p. 71.

With respect to manifestation in a number of properties of diamond, more than 50 different centers were isolated. For part of them the structural model was proposed and well-founded, and the content was determined. It was demonstrated that the yellow-green luminescent centers have a common fragment with the substituting trivalent nitrogen and the broken C-C bonds. With respect to structure and combinations in the crystals, the centers are divided into point and elongated, primary and secondary, independent and subordinate and also attendant. The specific nature of the crystals with respect to content of the centers and their combination is determined by the growth conditions and depends on the deposit.

Structure	Intra-Ultraviolet, Luminescence, Visible, A	Electron paramagnetic resonance	Remarks
[N]	1130	A < 5500 inactive	active
[N]			donor, E = 2.9 eV, C = 4.1018, K1130
[N]		(o) 4p-5034, active	F - n (forbidden)
[N]		5107	NO*E - 2.10 <sup>-2</sup>
[N]		4403	NO*E - 10 <sup>-3</sup>
[N]	1282	3302 (trans) inactive	inactive
[N]		3156 (1s/2)	donor, E = 4.0 eV, laotr. increased parameter, at C = 0.1 X extinction luminescence, 4152 A, C = 5.8.1018 * K1282
[N]		A < 3000	
[N]		(-) 8053	active
[N]		(o) 5034	inactive
[N]		5034	active

SOBOLEV, Ye V.

SPRS 51008

6-73

VI-4d. CHARACTERISTIC STRUCTURAL DEFECTS IN DIAMOND

Article by Ye. V. Sobolev, O. P. Yur'yeva, V. Ye. Il'in, V. K. Akseerov, M. A. Belykh, N. A. Belykh, I. I. Simonov, P. P. Stepanov, K. A. Sidorov, Poljuprovodimyykh Kristallov I Plazm, Moscow, 12-17 June, 1972, p 741

A study was made of the role of the characteristic structural defects in the properties of a diamond. It is demonstrated that a vacancy in a diamond is stable in three charged states; here the effectiveness  $\nu^-$  in the absorption edge component) define the nature of the nitryl and carbide inclusions (with the diamond) and the color (violet and smoky-brown) of the plastically deformed specimens. For the dislocation spectra in contrast to the point centers, broad structureless bands are characteristic which are related to the transitions between the dislocation zones. Nitrogen centers forming the admixture atmosphere of the dislocations were recorded (by electron paramagnetic resonance and luminescence). It was demonstrated that the spectrum of the interaction of the dislocations with the plane (100) defines the plastic properties of the diamond. A study was made of the possible role of the dislocations in the formation of the acceptor levels determining the properties of type IIc at low (less than  $5 \times 10^{15}/cm^3$ ) donor concentrations ( $N_2$  in natural and N in synthetic diamonds).

Structure	Absorption, level	Electron resonance	Remarks
$V^-$	3934	active	For $V^0 = 2.8$ ev under z. conv.
$V^0$	7414 $\lambda < 4200$	(60°K) inactive	Converts to $V^-$ and $V^+$ on heating and irradiation (ultraviolet, $\gamma$ -n)
$V^+$	5730	active	$4V^0 = 4V^- + 4V^+$ . Capacity for formation depends on the type of crystal. Mobile at 580°C.

SOBOLEV, Ye V.

S P R S 59268  
4-73

VI-4b. NITROGEN SEGREGATIONS IN DIAMOND

Article by Ye. V. Sobolev, V. I. Lopyrev, A. P. Yeliseyev, Kromskiy, P. V. Kuznetsov, I. I. Timofeev, Prof. G. A. Kuznetsov, *Izv. Akad. Nauk SSSR Ser. Khim. Nauk*, 1972, p. 221

Various methods (optical, x-ray, electron microscope, analytical) were used to establish the existence of natural diamonds of nitrogen segregation of two types in crystals: in the cubic and octahedral planes. The segregation centers: a) by variation in the properties with variations of the point zone and a transition zone — characteristic defect of a middle type, at the center K (100) with a system of broken C-C bonds, at the center N (111) apparently without a system of broken C-C bonds, at the center M (111) apparently with a system of broken C-C bonds, but with impurities. Just as the centers of recombination, exhibiting thermal luminescence and phosphorescence. A complete model of the centers (with the edge zones) is presented which describes all the known properties. The center N (100) of interstitial shape and the streamers introduced into the crystal more than at the center M (111) determine the color of the peaks on the thermal luminescence curves and other effects. The segregations can be accompanied by other centers exhibited in the luminescence. It is demonstrated that the segregations formed during growth of the crystal; the process of their formation are represented as polymerization of nitrogen vapor. Structures infra-ultra-luminescence

Wavelength (nm)	Excitation (nm)	Temperature (K)	Notes
1110	2365	2365	Emission micro- scope
1100	2365	2365	
1175	2400	2400	Emission micro- scope
1231	2400	2400	
4130 (613 (80°K))	2400	2400	Emission micro- scope
4130 (613 (80°K))	2400	2400	

No effect on  $\alpha$ -Weak effect in diffuse scattering

Accompanied by NV(G<sub>2</sub>), N<sub>3</sub>V, AI  
C<sub>1</sub> = 7.6 · 10<sup>18</sup> cm<sup>-3</sup>  
C<sub>2</sub> = 1.2 · 10<sup>18</sup> cm<sup>-3</sup>  
2365





USSR

UDC: 51

SOBOLEV, Yu. S., CHERNETSKIY, V. I., ARKHAROV, V. I.

"Concerning Refinement of an Algorithm Which Yields a Quasioptimum Solution for a Problem of Selection"

Tr. Sev.-zap. zaach. politekhn. in-ta (Works of the Northwest Polytechnical Correspondence Institute), 1971, No 14, pp 13-16 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V434)

[no abstract]

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USSR

UDC 669.18.658.562

KOPPISHON, E. Yu., NOVITSKIY, V. K., ROMANOV, P. A., SOBOLEV, V. V.,  
SOBOLEV, Yu. V.

"Smelting of Steel for the Rotors of Large Turbine Generators"

Moscow, Stal', No 2, Feb 73, pp 116-117.

Abstract: Large ingots for the manufacture of powerful turbine generator rotors can be produced by mixing of acid open-hearth steel in the required quantities with basic electric steel in an evacuated ingot mold. The study of the mechanical properties of the metal taken from various parts of the resulting ingot, contaminated with nonmetallic inclusions, segregations of the basic elements, macrostructures, etc., has shown that this type of mixed ingot satisfies all the basic quality requirements.

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USSR

UDC 669.18.658.562

KOPPISHON, E. Yu., NOVITSKIY, V. K., ROMANOV, P. A., SOBOLEV, V. V.,  
SOBOLEV, Yu. V.

"Smelting of Steel for the Rotors of Large Turbine Generators"

Moscow, Stal', No 2, Feb 73, pp 116-117.

Abstract: Large ingots for the manufacture of powerful turbine generator rotors can be produced by mixing of acid open-hearth steel in the required quantities with basic electric steel in an evacuated ingot mold. The study of the mechanical properties of the metal taken from various parts of the resulting ingot, contaminated with nonmetallic inclusions, segregations of the basic elements, macrostructures, etc., has shown that this type of mixed ingot satisfies all the basic quality requirements.

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UDC 669.187.046.51

KLYUCHAREV, V. YE., URAZGIL'DEYEV, A. KH., AGEYEV, P. YA., and SOBOLEV, YU. V.,  
Leningrad Polytechnica Institute

"Characteristics of the Behavior of Gases in the Crystallization of Ingots  
of Kh18N9-Type Steel with Titanium"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 3,  
1973, pp 43-46

Abstract: An experimental study was made of the change in concentration of hydrogen, nitrogen, and oxygen in the crystallization process of OKh18N10T steel ingots weighing 3.2 and 13.7 tons. The metal was smelted in a 40-ton basic electric arc furnace. The pouring was from above through an intermediate funnel. Samples of the metal were taken with the help of a closed quartz pipette from three levels on the central zone of the ingot during 1-2.5 hrs of crystallization. The behavior of H, N, and O during crystallization is discussed by reference to diagrams characterizing their concentration change. The results of the experiments indicate the possibility of eliminating nitrogen from steel by deoxidizing the metal with titanium. Three figures, two bibliographic references.

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USSR

UDC 539.4:[624.011.1+624.014]

BELENYA, YE. I., KUPALOV, K. K., ~~SOBOLEV, YU. V.~~

"Finding an Efficient Prestressed Design for High Pressure Equipment with a Cylindrical Housing"

V sb. III Mezhdunar. konf. po predvarit. napryazhennym metal. konstruktsiyam. T. 2 (Third International Conference on Prestressed Metal Structural Elements, Vol 2--collection of works), pp 3-12 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11V920)

Translation: During 1969, research was performed at the Moscow Engineering Construction Institute imeni V. V. Kuybyshev to find an efficient design for equipment calculated for a rare combination of large size and high internal pressure. When comparing several versions of the housing design using high-strength materials with different shapes of the shell -- spherical, cylindrical with hemispherical bottoms, and so on -- it turned out that the most efficient in design respects and the most economical version is the one with a cylindrical housing prestressed by winding with high-strength wire with flat ribbed tops reinforced by rods.

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USSR

SOBOLEVA, A. D., and DEVOYNO, I. V.

"The Problem of Formation of Tomentum-Like Structures in Lymph Organs Upon Immunization"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, No 5, Apr 71, pp 152-153

Abstract: On immunization of mice with bovine serum albumin, tomentum-like structures formed in the thymus and sometimes in the spleen and lymph nodes of animals. Staining according to Feulgen indicated that these structures were a morphological manifestation of DNA formation. The immunological response of organs is always accompanied by a reinforced synthesis of DNA. The synthesis of DNA is inhibited by the formation of specific immune proteins. For this reason, development of the tomentum-like structures was less pronounced in the spleen and lymph nodes, in which precursors of globulins are formed.

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USSR

MAKAROVA, S. V., and SOBOLEVA, D. A.

UDC 632.95

"Spectrophotometric Determination of the New Herbicide Meturin"

V sb. Problemy analot. khimii (Collection of Works: Problems of Analytical Chemistry, Vol 2, Moscow, Nauka, 1972, pp 73-76 (from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom, No 23(II), 1972, Abstract No 23N452 by T. A. Belyayeva)

Translation: The analysis of commercial meturin (I) and 80% wetting agent is based on the reaction conditions of (I) and on extraction of the meturin complex with  $Fe^{+3}$ . The sample containing  $\sim 0.1$  g I is dissolved in 10 ml. of alcohol, and the mixture is diluted with water to 1000 ml. Then 10 ml. of the obtained solution is diluted to 100 ml. with water. To 5 ml. of this solution 1 ml. of 1% solution of  $FeCl_3 \cdot 6H_2O$  and 0.1 n. HCl is added, the mixture is brought to 10 ml. with water, and the complex is extracted with 10 ml.  $CHCl_3$  for 3 min. The organic layer is filtered and the optical density of measured at 302 nm. The determination accuracy is  $100 \pm 0.72\%$ . The optical density of extracts in  $CHCl_3$  is constant at pH of the aqueous solution equaling 1.8-2.8.

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USSR

Pesticides

UDC 632.95

SOBOLEVA, D. A., and MAKAROVA, S. V.

"Determination of Some Organophosphorous Pesticides by Titration in Nonaqueous Media"

V. sb. Probl. analit. khimii, (Collection of Works: Problems of Analytical Chemistry), Vol 2, Moscow, Nauka, 1972, pp 136-138 (from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom, No 23(II), 1972, Abstract No 23N409 by T. A. Belyayeva)

Translation: An extractive titrimetric method was developed for determination of metaphos, methylnitrophos, and trichlorometaphos-3 (T) in industrial products and compounds. To 0.1 g of 5 ml. of 5% alkaline solution in MeOH is added, the mixture is heated on a water bath for 30 min, transferred into a glass containing 20 ml. of water, neutralized with 10% HCl solution until the  $\sim + 300$  mV potential is obtained, extracted with 2 x 20 ml.  $C_6H_6$ ; 10 ml. of alcohol is added, followed by the potentiometric titration until the second potential peak is obtained. The determination accuracy is  $\pm 0.5\%$ .

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USSR

UDC 681.142.644.3

ADERIKHIN, V. P., GOLIKOVA, T. G., KUZ'MICHEV, V. I., LANTSMAN, B. I.,  
LESKOV, V. G., RUDAKOV, A. N., and SOBOLEVA, E. I.

"A Device for Calculating a Partial Derivative"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 12, Apr 72, Author's Certificate No 334574, Division G, filed 22 Dec 70,  
published 30 Mar 72, p 184

Translation: This Author's Certificate introduces a device for calculating a partial derivative. The device contains a servo system for the independent variable and a servo system for the differentiable function which are based on integrators. The inputs of the integrators are connected through corresponding switches to the outputs of the corresponding scalars. The device also contains a comparator with a reference voltage source connected to one of its inputs. As a distinguishing feature of the patent, computing precision is improved by adding a delay line, logic devices, a memory unit, and an additional switch. The output of the scalar in the independent-variable servo system is connected to the first input of the logic device and to the second input of the comparator. The output of the comparator is connected to the controlling input of the additional switch. This switch

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(3)

ADERIKHIN, V. P., et al., Otkrytiya, Izobreneniya, Promyshlennyye Obratzyy, Tovarnyye Znaki, No 12, Apr 72, Author's Certificate No 334574, Division G, filed 22 Dec 70, published 30 Mar 72, p 184.

connects the output of the scaler in the function servo system to the second input of the logic device, and through a delay line to the controlling inputs of the servo system switches. The memory unit is connected to the output of the logic device.

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USSR

UDC 577.391

VOYTKEVICH, A. A. and SOBOLEVA, E. L., Institute of Medical  
Radiology, Academy of Medical Sciences USSR, Obninsk

"Lobes of the Adenohypophysis in Acute Radiation Sickness"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya,  
No 1, 1971, pp 56-59

Abstract: A cytomorphological study was conducted of the effects of single whole-body irradiation (900 r) on the anterior and intermediate lobes of the adenohypophysis in rats. Attention was focused mainly on the reaction of the two lobes at the height of radiation sickness when the destructive changes were most pronounced. Degranulation of the oxyphilic cells gave way to cytological heterogeneity and transformation of the cytoplasm into a homogeneous colloid. Signs of destruction of the chromophilic elements and hypertrophy of the chromophobic elements were conspicuous in the anterior lobe. The cells of the intermediate lobe, on the other hand, exhibited considerable structural and

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USSR

VOYTKEVICH, A. A. and SOBOLEVA, E. L., Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No. 1, 1971, pp 56-59

tinctorial stability, an indication of greater resistance to irradiation. The differences between the two lobes in this respect are apparently due to characteristics of morphological organization and physiological properties. The intermediate lobe comes in direct contact with the neurohypophysis while the anterior lobe is connected to the neural elements by the greater vessels. Another factor that may contribute to the greater radiosensitivity of the anterior lobe is that it is heavily vasculated.

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USSR

UDC 611.814.33:612.014.2]:617-001.28

VOYTKEVICH, A. A. and SOBOLEVA, E. L., Institute of Medical Radiology, Academy of Medical Sciences USSR, Obninsk

"Cytochemical Reactions of the Intermediate Lobe of the Pituitary in Acute Radiation Sickness"

Leningrad, Arkhiv Anatomii, Gistologii i Embriologii, No 1, 1973, pp 34-43

Abstract: Irradiation of Wistar and August rats (900 r, dose rate 55 r/sec) sharply intensified metabolic activity in the intermediate lobe of the animals' pituitary, producing in the period of acute radiation sickness cytochemical changes reflecting significant functional shifts. An initial increase in basophilia of the intermediate cells was accompanied by partial vacuolation and hypertrophy as well as by an increase in ribonucleoproteins and intensified activity of several oxidative enzymes, which decreased 24 hours after irradiation. At the height of radiation sickness, i.e., 72 hours after irradiation, the activity of the hydrolytic enzymes in the intermediate cells increased. In the terminal phase, i.e., 120 hours after irradiation (when many animals died), the ribonucleoprotein content in the cytoplasm of the hypertrophic cells was minimal and the activity of lactic and succinic dehydrogenases and coenzyme NADH<sub>2</sub> had disappeared. Thus, the terminal phase of radiation sickness

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VOYTKEVICH, A. A. and SOBOLEVA, E. L., Arkhiv Anatomii, Gistologii i Embriologii, No 1, 1973, pp 34-43

is characterized by exhaustion of the energy potential of the intermediate lobe cells as manifested by their loss of activity of NAD and related dehydrogenases.

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USSR

UDC 617-001.28-07:616.153.756-092:616.36-07

DOROFEEV, V. M., ZYABLITSKIY, V. M., SOBOLEVA, E. L., and NESTAYKO, G. V.,  
Institute of Medical Radiology, Academy of Medical Sciences USSR, Obninsk

"Role of the Liver in the Mechanism of Lowering the Blood Serotonin Level in  
Acute Radiation Sickness"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 1, 1973,  
pp 33-34

Abstract: In rabbits irradiated once at 600 r ( $Co^{60}$  gamma rays, dose rate 120  
r/min), the serotonin concentration in the portal vein was the same as in the  
control, showing that the entry of serotonin from the argentaffine cells into  
the blood was not blocked at the height of acute radiation sickness. However,  
the serotonin concentration in the vena cava inferior was almost half that in  
the portal vein. This suggests that at the height of acute radiation sickness  
a substantial part of the serotonin coming from the intestine was destroyed in  
the liver before reaching the blood by monoamine oxidase whose activity in the  
liver increased sharply in the irradiated animals.

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UNCLASSIFIED  
 TITLE--INDIFFERENT EPITHELIUM IN HORMONOPHORESIS OF THE ADENOPHYOPHYSIS  
 -U-  
 AUTHOR--(02)--VOYTKEVICH, A.A., SUBOLEVA, E.L. PROCESSING DATE--13NOV70  
 COUNTRY OF INFO--USSR  
 SOURCE--ARKH ANAT GISTOL EMBRIOL 58(1): 19-27. ILLUS. 1970.  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
 TOPIC TAGS--ADRENAL GLAND HORMONE, BIOSYNTHESIS, INHIBITION, MEDICAL EXPERIMENT  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAME--3002/1086  
 GIRC ACCESSION NO--AP0128513  
 STEP NO--UR/9076/70/058/001/0019/0027  
 UNCLASSIFIED



LIRC ACCESSION NO--AP0128513 UNCLASSIFIED PROCESSING DATE--13NOV70  
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL PROCEDURES AFFECTING  
 THE SYSTEM OF NEUROSECRETION AND IMPAIRING THE BODILY HORMONE BALANCE  
 (HORMONE ADMINISTRATION, IRRADIATION, THYROIDECTOMY, ADRENALECTOMY)  
 CAUSE ACTIVATING OR INHIBITING EFFECTS ON THE CELLS OF THE TUBERAL LOBE  
 OF ADENOHYPHYSIS IN DOGS AND RATS. STRUCTURAL AND STAINING  
 PROPERTIES OF EPITHELIUM IN THE RESIDUAL HYPOPHYSEAL CAVITY DEPEND ON  
 ACCUMULATION OF COLLOID, INCREASING WITH EXCLUSION OF PERIPHERAL  
 ENDOCRINE GLAND ACTIVITY. THE EPITHELIUM, LINING THE RESIDUAL CAVITY  
 BORDERING THE HYPOPHYSIS ON THE SIDE OF PARS INTERMEDIA, EVIDENTLY  
 POSSESSES ENDOCRINE FUNCTION. FACILITY: LAB. NEUROENDOCRINOL.,  
 INST. MED. RADIOD., ACADEM. MED. SCI. USSR, OBNINSK, USSR.

UNCLASSIFIED

USSR

VARENİK, Yu. R., SOBOLEVA, E. N.

UDC: 518.5:681.3.06

"On a Model for Predicting the Flow of a Pathological Process in an Organism"

V sb. Neyrobionika (Neurobionics--collection of works), Kiev, 1970, pp 241-243 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V854)

Translation: The following problem is considered.

Let a given specific pathological process be characterized by symptoms  $M_i$  from a set  $M$ , where  $0 < i \leq n$ . Any combination of symptoms from  $M$  is called a state of the organism. These states are given on the set  $A$ , and let  $A_i$  be the elements of this set.

Then

$$I = \sum_{i=1}^n C_i$$

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VARENIN, Yu. R., SOBOLEVA, E. N., Neyrobionika, Kiev, 1970, pp 241-243

The entire pathological process is broken up into  $k$  periods. Each period is designated by  $k, 1 \leq k \leq K$ . Then  $A_j^k$  will characterize the  $j$ -th state in the  $k$ -th period. In order to predict the most probable nature of development of the pathological process, it is necessary to find the maximum probability of the transition  $P_{max} A_j^k$  to  $A_{j'}^{k+1}$ , where  $j'$  may be equated with  $j$  and designates a state different from  $j$ . V. Mikheyev.

2/2

- 56 -

UNCLASSIFIED  
 PREPARATION OF CRYSTALLINE XYLITOL FROM COTTONSEED HULLS -U-  
 PROCESSING DATE--04DEC70  
 AUTHOR--(02)--SOBOLEVA, G.D., MESHKOVA, V.YA.  
 COUNTRY OF INFO--USSR  
 SOURCE--GIDROLIZ. LESOKHIM. PROM. 1970. 23(3), 23-6  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY  
 TOPIC TAGS--PROCESSED PLANT PRODUCT, POLYHYDROXY ALIPHATIC ALCOHOL,  
 CHEMICAL PURIFICATION, ION EXCHANGE RESIN  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--3007/1983  
 CIRC ACCESSION NO--AP0137162  
 STEP NO--UR/0328/70/023/003/0023/0026  
 UNCLASSIFIED

CIRC ACCESSION NO--AP0137162  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. THE PRODN. OF CRYST. XYLITOL IN THE USSR WAS ORGANIZED ON THE BASIS OF RESEARCH DONE AT THE ALL UNION RESEARCH INST. OF PROTEIN SYNTHESIS. XYLITOL IS CRYSTD. FROM SOLNS. PURIFIED ON ION EXCHANGE RESINS AND EVAPO. BECAUSE OF THE HIGH SOLY. OF XYLITOL, VACUUM EVAPN. IS NOT EFFICIENT AND CRYSTN. MUST BE CARRIED OUT BY COOLING OF SOLNS. IN CRYSTALLIZERS. THE QUALITY OF XYLITOL AND ITS YIELD DEPEND ON THE PURITY OF THE SOLNS. AND A HIGH DEGREE OF SOLN. PURIFICATION, SUCH AS IS ATTAINED ON SELECTED ION EXCHANGE RESINS, IS A PREREQUISITE FOR PRODUCING XYLITOL IN GOOD YIELDS AND OF HIGH QUALITY. STUDIES ON THE CRYSTN. PROCESS LED TO DEVELOPMENT OF A PROCESS FOR CONTINUOUS COOLING OF THE SOLNS. AND FOR 2 STAGE CRYSTN. THE CRYSTALS OBTAINED FROM THE LIQUOR OF THE 1ST STAGE BEING RECYCLED INTO THAT STAGE (AT PRESENT, THE DRAINED LIQUOR IS USED FOR THE PRODUCTION OF XYLITAN). BY THIS PROCESS, THE YIELD OF CRYST. XYLITOL FROM COTTONSEED HULLS (A MATERIAL USED IN HYDROLYSIS PLANTS) COULD BE INCREASED TO 9PERCENT. THE OVERALL PRODUCTION IN EXISTING PLANTS AND THOSE PLANNED SHOULD BE 1.5 TIMES THAT ESTD. ON THE BASIS OF THE PRESENTLY USED PROCESS.

UNCLASSIFIED

USSR

UDC 577.153

BRESTKIN, A. P., ROZENGART, E. V., SOBOLEVA, I. N., KHROMOV-BORISOV, N. V.,  
INDEBOM, M. L., TIKHONOVA, L. N., ABDUVAKHABOV, A. A., and TOREMURATOV, K.,  
Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenova,  
Academy of Sciences USSR, Institute of Experimental Medicine, Academy of  
Medical Sciences USSR, Leningrad, and Tashkent State University imeni V. I.  
Lenin

"Unproductive Bonding of Cholinesterase Substrate"

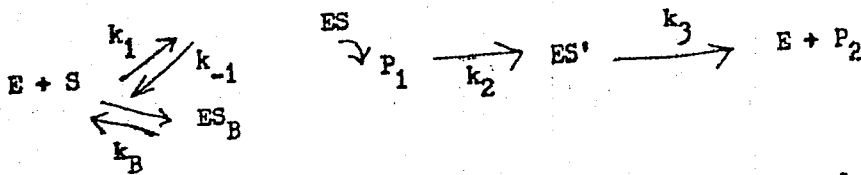
Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 717-720

Abstract: Experiments have shown that the rate-limiting step in the Michaelis-Menton substrate reaction is the acylation or deacylation rather than the initial formation of the Michaelis complex. The specificity of the cholinesterase is also determined by the latter steps in the reaction and it is only the L optical isomer of acetyl- $\beta$ -methylcholine which is hydrolyzed by the acetylcholinesterase. The D isomer is an inhibitor at it is adsorbed on the active sites but not subsequently removed. The system can be generalized as follows:

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BRESTKIN, A. P., et al., Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972,  
pp 717-720



where E is the enzyme; S, the substrate; ES, the Michaelis complex; ES', the acylating enzyme; ES<sub>B</sub>, the unproductive complex; and P<sub>1</sub> and P<sub>2</sub>, the products of the reaction - alcohols and acids. The general implications of differences in the relative magnitudes of k<sub>1</sub>, k<sub>-1</sub>, k<sub>2</sub>, k<sub>3</sub>, and k<sub>B</sub> are presented. Actual data are given for five substrates.

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ACC. NO.

AP0049156

Abstracting Service:

CHEMICAL ABST. 5/70

Ref. Code:

UR0080

S

104470f Liquid-liquid-vapor equilibrium in a nitrocyclohexane-cyclohexanone oxime-water system. Lutugin, N. V.; Soboleva, I. N. (USSR). *Zh. Prikl. Khim. (Leningrad)* 1970, 43(1), 120-6 (Russ). The compn. and b.p. of the 2 binary heteroazeotropes nitrocyclohexane (I)-H<sub>2</sub>O and cyclohexanone oxime (II)-H<sub>2</sub>O were detd. The compn. of the 2 liq. phases and vapor phase in equil. in the ternary system I-II-H<sub>2</sub>O was also detd. The results indicated the feasibility of sepg. mixts. of I and II by adding H<sub>2</sub>O and distg.; this was confirmed by a trial fractionation.

Harry Watts

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Radiobiology

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UDC 612.822.3.014.482:31

USSR

ANAN'YEV, V. M., VLASOVA, N. I., NAZAROV, V. A., ~~SOBOLEVA, K. V.~~, STEFASHKIN, Yu. P.

"Mutual Correlation Coefficients of the Electroencephalograms of Irradiated Rabbits"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 3, 1972, pp 51-53

Abstract: A study was made of means of dynamic characterization of the system of mutual relationships in the cortical electrical activity of rabbits by mutual correlation coefficients of the EEG. The experiments were performed on seven rabbits using the procedure described previously [V. M. Anan'yev, et al., Byull. eksper. biol., No 1, 91, 1966]. The nature of the variations of the mutual correlation coefficients of the EEG for background recordings lasting 28 seconds was studied. The dynamics of the variation of the mutual correlation coefficients averaged with respect to the entire cerebral cortex of rabbits irradiated by gamma-radiation in a superlethal dose of 1,500 roentgens are illustrated in graph form. The presented data indicate the effect of gamma-radiation on the cerebral cortex of the animals as a whole without space detailing. The mutual correlation coefficient of the EEG combined with the

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ANAN'YEV, V. M., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny,  
No 3, 1972, pp 51-53

frequency and area indexes of the EEG is a sensitive indicator of the variations of the functional state of the cortex, and to a different extent it reflects the nature of the system of mutual relationships of the electrical activity of the cortex in its basic zones. It is expedient to use the generalized correlation index to characterize the reaction of the cortex to irradiation (to estimate the severity of damage to the cortex and the degree of restoration of the initial state).

1/2 027 UNCLASSIFIED PROCESSING DATE--09OCT70  
 TITLE--SYNTHESIS GROWTH, AND STUDY OF THE OPTICAL CHARACTERISTICS OF CSCU  
 SUB 2 CL SUB3 CRYSTALS -U-  
 AUTHOR--(05)--BELYAYEV, L.M., SUBOLEVA, L.V., GILVARG, A.B., DMITRIYEVA,  
 F.I., OGADZHANOVA, V.V. S  
 COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(1), 205-7

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CRYSTAL OPTIC PROPERTY, CRYSTAL GROWING, THERMAL ANALYSIS,  
 COPPER CHLORIDE, CESIUM COMPOUND, CRYSTAL LATTICE STRUCTURE, LIGHT  
 TRANSMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRA--1980/0158

STEP NO--UR/0070/70/015/001/0205/0207

CIRC ACCESSION NO--AP0048450

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0048450

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CSCU SUB2 CL SUB3 WERE PREPD. FROM A STOICHIOMETRIC MIXT. OF CUCL SUB2.2H SUB2 O, METALLIC CU, AND CSCL IN 20PERCENT EXCESS. CSCU SUB2 CL SUB3 FORMS COLORLESS NEEDLES, BECOMING YELLOW AND THEN GREEN IN A MOIST ATM. DTA OF THE STARTING PRODUCT AND PREPD. SINGLE CRYSTALS SHOWED IDENTICAL RESULTS: AN ENDOTHERMIC EFFECT AT 280DEGREES CORRESPONDING TO THE M.P. OF CSCU SUB2 CL SUB3. CSCU SUB2 CL SUB3 BELONGS TO THE RHOMBODIPYRAMIDAL CLASS (3L SUB2 3PC, MM) WITH UNIT CELL PARAMETERS A 9.49, B 11.88, AND C 5.61 ANGSTROM; THE BRAGG ANGLES OF THE 3 PRINCIPAL PLANES (100), (010), (001) ARE THETA (SUB100) EQUALS 9DEGREES 21 PRIME, THETA (SUB010) EQUALS 7DEGREES 27 PRIME, THETA (SUB001) EQUALS 15DEGREES 57 PRIME. THE PRINCIPAL NS, N GAMMA, N BETA, AND N ALPHA, ARE GIVEN FOR 8 MONOCHROMATIC WAVELENGTHS IN THE RANGE 408-691 MN. HIGH TRANSMITTANCE OF CSCU SUB2 CL SUB3 IN THE VISIBLE AND IR RANGE WAS FOUND (TO 20 MU FOR THE THICKNESS 4.5 MM).  
FACILITY: INST. KRISTALLOGR., MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 029

CIRC ACCESSION NO--AP0119330  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE PROBLEM OF LINEARIZATION OF LIGHT CHARACTERISTIC OF INFRARED RADIATION RECEIVERS IS CONSIDERED, IN APPLICATION TO THE OPERATION OF A NONCOOLED PBS PHOTORESISTOR. A BLOC DIAGRAM OF THE EXPERIMENTAL SETUP IS PRESENTED AND DESCRIBED. A BRIDGE CIRCUIT COMPRISING DIODES WITH A GIVEN TRANSMISSION FACTOR TO BIAS BOLTAGE RATIO IS USED AS A NONLINEAR ELEMENT. THE PROBLEM IS SOLVED BY OBTAINING A CONTROL SIGNAL, WHICH WITH VARIATION OF IRRADIATION WOULD AFFECT THE BRIDGE BIAS VOLTAGE IN SUCH A WAY THAT THE TRANSMISSION FACTOR OF THE ENTIRE SYSTEM WOULD REMAIN CONSTANT. THUS THE CORRECTION OF THE LIGHT CHARACTERISTIC OF THE RECEIVER IS ACCOMPLISHED AUTOMATICALLY BY VARYING THE TRANSMISSION FACTOR OF THE NONLINEAR BRIDGE TYPE ELEMENT. THE RESULTS ATTEST THE POSSIBILITY OF LINEARIZATION OF LIGHT CHARACTERISTICS OF INFRARED RADIATION RECEIVERS. THE CIRCUIT BEING COMPARATIVELY SIMPLE MAY BE RECOMMENDED FOR USE IN THE INFRARED INSTRUMENTATION, WHERE THE ELIMINATION OF DISTORTIONS RELATED TO NONLINEARITY OF LIGHT CHARACTERISTIC IS NECESSARY.

UNCLASSIFIED

Polymers and Polymerization

USSR

UDC 678.742.2-137.46.22:66.018.86

TERTERYAN, R. A., LESHCHENKO, S. S., LIVSHITS, S. D., GOLOSOV, A. P.,  
ITSIKSON, L. B., MONASTYRSKIY, V. N., KARPOV, V. L., SOBOLEVA, N. S.,  
MAL'TSEVA, A. P., and ISKHAKOV, L. I.

"Radiation Stability of Ethylene and Styrene Copolymers"

Moscow, Plasticheskiye Massy, 7, 1973, pp 3-5

Abstract: A study was made of the continuous statistical copolymerization of ethylene monomers (E) with styrene (S) under conditions similar to those under which low density polyethylene is produced and also of the behavior of E + S polymers in an ionizing radiation field. The results of copolymerization studied -- grams of copolymer/hr concentration of S in the polymer, density, and others -- are given as a function of styrene concentration and pressure at 200°C. An increase in the concentration of S in the reaction mixture leads to a decrease in the copolymer yield, in its characteristic viscosity, in its melting temperature, and its crystallinity, and to an increase in the density. The presence of S monomers in the polyethylene chains and the chemical bonds between them and the methylene groups significantly increases the resistance of the material to  $\alpha$ -radiation damage. The gases evolved during the radiation of various types of polymers were determined.

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SOBOLEVA, N. S.

TECHNICAL TRANSLATION

PTC-HT-23-611-71

ENGLISH TITLE: New Testing Machines and Instruments

FOREIGN TITLE: Novyye Ispytatel'nyye Mashiny i Pribory

AUTHOR:

N. S. Soboleva

SOURCE:

Pribery i Shtemny Upravleniyya (Instruments and Control Systems), No. 12, 1969, pp 35-39

GRAPHICS NOT REPRODUCIBLE

Translated for FSTC by

ACSI

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This translation was accomplished from a xerox manuscript. The graphics were not reproducible. An attempt to obtain the original graphics yielded negative results. Thus, this document was published as is, in order to make it available on a timely basis.

USSR

UDC 523.164

YESEPKINA, N. A., PETRUN'KIN, V. Yu., SOBOLEVA, N. S., and REYNER, A. V.

"Polarization Observations in an Antenna of Variable Profile"

Gor'kiy, Izvestiya VUZ--Radiofizika, Vol 14, No 8, 1971, pp 1149-1159

Abstract: A method is considered for eliminating parasitic polarization in antennas of variable profile through the use of a grid of curved wires. A description is also given of experiments performed at the Large Radiotelescope of the Pulkova Observatory to verify the effectiveness of the new design and the conclusions reached by the authors. Equations are derived for determining the shape of the grid wires on the basis of an earlier paper written by the first author named above (Radiotekhnika i elektronika, 6, No 12, 1961, page 1947). To design the grid, the authors use the focal synthesis method, in which the antenna is assumed to be excited by a plane wave with constant polarization. This permits determination of the field polarization at a given surface close to the focal plane. The grid which would permit the synthesis of the field distribution found by this method is then chosen. The authors thank G. M. Timofeyeva for her assistance, consisting of observation of solar circular polarization with the grid. The authors are connected with the Chief Astronomical Observatory.

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UDC 621.375.93.002.2

USSR

GERTSENSHTEYN, M. YE., KOSTIN, A. A., MAGNUSHEVSKIY, V. R., MARKOV, V. V.,  
SOBOLEVA, O. A., SOLOVEY, L. G., Active Members of the Society

"Plug-in Module for a Wide Band Parametric Amplifier"

Moscow, Radiotekhnika, No 11, 1971, pp 105-107

Abstract: A description is presented of a miniature modular design of a centimeter-range parametric amplifier with integral structure of the oscillatory systems. The operating principle of the module is discussed, and schematic diagrams of basic elements are presented. The primary oscillatory system comprises a varactor diode and an auxiliary lumped inductance included in series with respect to the signal frequency. The pass band of the module is actually determined by the time constant of the diode and is 8-9% of the operating frequency at a level of 1 decibel with amplification of 10-11 decibels. Further expansion of the pass band to 11-12% of the operating frequency is obtained by using a second corrector. The frequency-amplitude characteristic of the module with the additional corrector is presented. The application of a step structure as the corrector, transformer and rejector of the other frequencies permits optimal coupling of the

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USSR

UDC [549.321.13+549.514.71]:548.4

BOYARSKAYA, R. V., SOBOLEVA, S. V., and LAPUTINA, I. P., Institute of the Geology of Ore Deposits, Petrography, Mineralogy, and Geochemistry, Academy of Sciences, USSR, Moscow

"The Combined Application of Microdiffraction and Electron-Sonde Analysis for the Diagnosis of Fine Inclusions in Sphalerites and Cassiterites"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Geologicheskaya, No 1, Jan 73, pp 79-85

Abstract: Some examples of the exposure of fine inclusions-admixtures in sphalerites and cassiterites, by means of electron microscopy and micro-röntgenspectral analysis, are examined, and their application to specific minerals is established. Very fine dendrite-like crystals and growth of chalcosine, not visible in an optical microscope, were found in sphalerite from the Zangezur deposit. The presence of molybdenite microinclusions was established in sphalerite from the Zangezur deposit. Similar inclusions of  $MoS_2$  found earlier elsewhere are an indication of the fact that molybdenum is not likely to enter into the  $ZnS$  lattice in the form of an isomorphic admixture, but forms predominantly an independent crystalline phase. Microinclusions of goethite, discovered in cassiterite from the Tubaraka deposit

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USSR

BOYARSKAYA, R. V., et al., Izvestiya Akademii Nauk SSSR, Seriya Geologicheskaya, No 1, Jan 73, pp 79-85

(Belgian Congo), have the character of distribution and the density which are in good agreement with the intensity of the brown coloring of the zones in the mineral.

The effectiveness of the integrated use of microdiffusion and electron-sonde analysis in application to replicas with extraction has been demonstrated. This permits refinement and supplementation of the structural characteristics by data concerning the qualitative chemical composition of the investigated specimen. 11 figures. 8 references.

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SOBOLEVA, T. N.

EFFECT OF FLIGHT FACTORS ON DORMANT LETTUCE SEEDS

Article by Yu. V. Fedor, L. V. Sidorova, N. N. Rad'yan, and T. N. Soboleva; Moscow, Kosmicheskaya Biologiya i Meditsina, Kung'len, Vol. 5, No. 8, 1971, submitted for publication 16 June 1971, pp 24-31

SO: JPRS 55102  
4 FEB 72 936744

UDC 581.48.037:29.78.043

Abstract: The effect of spaceflight factors on gamma-irradiated and unirradiated lettuce seeds was examined. The experiments were carried out using seeds with normal and increased levels of spontaneous and induced mutagenesis. The flight was shown to influence spontaneous and induced mutagenesis in lettuce seeds.

A considerable amount of data on the influence of spaceflight factors on plants has now been accumulated in the foreign and Russian literature. The investigations were made with air-dried seeds, sprouts and flowering Tradescantia plants. A number of authors have published communications on the influence of spaceflight factors in general (N. I. Nuzhda, et al., 1965; G. P. Parfenov). This paper covers materials pertaining only to air-dried seeds.

As demonstrated by the results of published studies, carried out using different objects (Table I), the results are nonuniform: in one case there was an increase in the number of cells with chromosomal rearrangements; in others there was no influence of spaceflight factors on the appearance of cyto-genetic changes. Despite the nonuniformity of the results, it can be assumed that they were not determined by differences in the radio-sensitivity of the biological objects (T. N. Sidorova and N. N. Sokolov; L. K. Gordon, et al.; N. I. Nuzhda, 1965; N. L. Dalone and V. V. Antipov) and were not dependent on spaceflight duration (V. V. Khvorova, et al.; N. L. Dalone, et al.). Some authors do not relate the increase in the effect noted in seeds under flight conditions to exposure to cosmic radiation (D. N. Sidorov and N. N. Sokolov; V. V. Khvorova, et al.). This is also indicated by the results of measurements of the doses of ionizing radiations during satellite and spaceship flights.

Organometallic Compounds

2

UDC 547.13:546.72 + 546.14/15

USSR

NESMEYANOV, A. N., KOCHETKOVA, N. S., MATERIKOVA, R. B., PALITSYN, N. P.,  
KSENZENKO, V. I., and SOBOLEVA, T. S., Institute of Metal Organic Compounds,  
Academy of Sciences USSR

"Reaction of Ferrocene Derivatives With Bromine and Iodine"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 9, No 2, Feb 73, pp 378-380

Abstract: Reaction of bromine and iodine with ferrocene substituted with electron donating and electron accepting substituents was studied. At  $-20^{\circ}$  in heptane bromine decomposes ethyl- and 1,1'-diethylferrocene; with 1,1',3,3'-tetra-tert-butylferrocene it forms the tribromide of 1,1',3,3'-tetra-tert-butylferrocenium. At  $50^{\circ}$  in benzene iodine does not decompose ferrocene or its derivatives, forming addition products with various quantities of iodine. In general, presence of electron-donating substituents and reaction with strong oxidizers ( $Cl_2$ ,  $Br_2$ ) favor the decomposition of the ferrocene ring. In case of hindered derivatives or when the halogen is a weak oxidizer (iodine) mainly oxidation products are obtained, with an intact ferrocene ring. Oxidation to ferrocenium evidently preserves the system from further decomposition by the halogen.

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SOLOV'YEVA, YE. V.

SPRS 55008

6-73

6

SESSION VII

VII-1a. APPLICATION OF THE METHOD OF CONTINUOUS WEIGHING FOR STUDYING THE ETCHING AND GROWTH PROCESSES IN THE Ga-AsCl<sub>3</sub>-H<sub>2</sub> SYSTEM

Article by L. I. D'yakonov, E. S. Koppel'veich, V. N. Zaitsev, V. Ya. Repetava, B. I. Kuda, Ye. V. Solov'yeva, Moscow; Novosibirsk, Ill. Sibirskiy po Protekaniya Route 1 Sibirskiy Poluprovodnikoviy Kristalloy 1 Pismo. Russian. 12-17 June, 1972. p 831

A simple method of continuous weighing has been developed to investigate the etching rates of gallium and the growth of the epitaxial layer of GaAs. On completion of the period of saturation of the gallium with arsenic, the composition of the gas phase is changed sharply, and the gallium content in the gas film under stationary conditions corresponds to the equilibrium above the solid gallium arsenide, and the arsenic content is determined by the amount of AsCl<sub>3</sub> introduced into the reactor. In contrast to the available published data it has been found that the growth rate of the GaAs layer is established in practice lamplately with respect to completion of the saturation period. The nature of the experimental dependences of the growth rate on the process parameters indicates that the growth of GaAs takes place in the diffusion-kinetic region. The temperature profile in the reactor was determined for which the radial gradients are eliminated which cause uncontrolled nucleation of the GaAs on the reactor walls in the substrate zone. A study was made of the effect of the conditions of the growth process on the structure and the electrical properties of the unalloyed epitaxial layers of GaAs. The electron mobility in the layers grown under optimal conditions reached 850 cm<sup>2</sup>/v-sec at 100°K and 63,000 cm<sup>2</sup>/v-sec at 77°K with a concentration of them of 3·10<sup>18</sup> cm<sup>-3</sup>.



UDC 616-036.882-08-06:616-002-036.1

USSR

SOBOLEVA, V. I., TOLOVA, S. V., GURVICH, N. L., SIDORA, A. K., TRUBINA, I. Ye.,  
and MUTUSKINA, Ye. A., Laboratory of Experimental Physiology for Resanimation,  
Academy of Medical Sciences USSR, Moscow

"Characteristics of the Course of the Restoration Period in Animals Revived by  
Extracorporeal Circulation After Clinical Death"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14, No 5,  
Sep/Oct 70, pp 24-27

Abstract: Forty-three adult dogs which had sustained clinical death from profuse hemorrhage for 7 to 12 min. were revived by use of extracorporeal artificial-circulation equipment. In nonanesthetized dogs, corneal reflexes were suppressed for only 10 min. after the onset of high-volume rate perfusion (not less than 100 mg/kg/min). The electrical activity of the cerebral cortex was reduced at first. For most anesthetized animals, revival could be accomplished even 12 min. after clinical death. It was concluded that artificial blood circulation equipment could be used to revive nonanesthetized dogs within 8 min. of clinical death from hemorrhage, in some cases even within 10 min. Anesthetized animals could be revived after 10 min. of clinical death, a fact which was attributed to moderate

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USSR

SOBOLEVA, V. I., et al, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14, No 5, Sep/Oct 70, pp 24-27

hypothermia accompanying the anesthesia. The body temperature of the anesthetized dogs dropped to a mean of 35°C before bloodletting and to 31.9°C before artificial blood circulation was stopped. Hypoxia during the resuscitation period was much less pronounced in these dogs.

2/2

USSR

UDC: 77.01:53

AYRAPETYANTS, A. V., SOBOLEVA, V. V., and TSEKHOMSKY, V. A.

"Spectral Research on Photochrome Glass, Sensitized by Silver Halides"

Moscow, Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematofotografii, Vol I, No 1, Jan-Feb 72, pp 27-35

Abstract: The article deals with an investigation of the optical properties of photochrome glass, sensitized by silver chloride and silver bromide. Sensitivity spectra are determined for processes of coloration and light-caused decolorization for samples 2.5 mm thick. For silver chloride glass, the most effective light for coloration is with  $\approx 330$  millimicrons, for decolorization, 450-1250 millimicrons; for silver bromide glass, light for coloration is 390 millimicrons, and for decolorization, 630 millimicrons. The influence of temperature upon the supplementary-absorption spectra was studied; also studied was the change of the supplementary-absorption spectra in processes of darkness-caused decolorization and decolorization by light of various wave lengths. The obtained results support the supposition of the colloidal nature of particles with a supplementary absorption band. Nine figures. 12 references.

1/1

85

Acc. Nr: APO044040

Ref. Code: UR 0240

PRIMARY SOURCE: Gigiyena i Sanitariya, 1970, Nr 2, pp 38-41

PATHOMORPHOLOGICAL CHANGES IN THE CARDIOVASCULAR  
SYSTEM OF ALBINO RATS WITH EXPERIMENTAL  
METHEMOGLOBINEMIA

Ye. A. Sobelova, M. V. Starkov

Investigations showed an increased methhemoglobin level in the blood of animals, lagging of their weight gain and marked pathomorphological changes in the cardiovascular system following alimentary ingestion together with vegetables of potassium and ammoniacal saltpeter in amounts of 10, 100, 1000 mg/kg for a period of 4 months. Control rats receiving with vegetables physiological amounts of nitrates (1.5 mg/kg) demonstrated none of the described changes.

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REEL/FRA  
19770486

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UNCLASSIFIED

PROCESSING DATE--18SEP70

1/2 027

TITLE--ANISOTROPY OF PARAMAGNETIC Y CENTERS IN LITHIUM FLUORIDE CRYSTALS

-U-  
AUTHOR--(05)-DAVITASHVILI, T.SH., DZHORDZHISHVILI, L.I., KALABEGISHVILI,

T.L., POLITOV, N.G., SOBOLEVSKAYA, S.V.

COUNTRY OF INFO--USSR

S

SOURCE--FIZ. TVERD. TELA 1970, 12(1), 289-91

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ANISOTROPY, LITHIUM FLUORIDE, OPTIC PROPERTY, LIGHT  
ABSORPTION, SINGLE CRYSTAL, PARAMAGNETIC MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1984/0222

STEP NO--UR/0181/70/012/001/0289/0291

CIRC ACCESSION NO--AP0055018

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0055018

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EPR SPECTRA WERE INVESTIGATED OF SINGLE CRYSTALS OF LIF AFTER IRRADN. WITH A PRIME60 CO SOURCE IN A REACTOR WITH EMPHASIS ON THE Y LINE, APPEARING AFTER NONISOTHERMAL ANNEALING OF IRRADIATED CRYSTALS. OPTICAL ABSORPTION SPECTRA WERE ALSO RECORDED BEFORE AND AFTER ANNEALING. IN GAMMA IRRADIATED NONANNEALED CRYSTALS F AND M ABSORPTION BANDS WERE OBSD. AFTER NONISOTHERMAL ANNEALING OF THESE CRYSTALS, A WEAK F BAND REMAINED IN THE OPTICAL ABSORPTION SPECTRUM AND ONLY A Y LINE IN THE EPR SPECTRUM. DEPENDENCES WERE MEASURED OF THE WIDTH  $\Delta H$  AND G FACTOR ON ORIENTATION OF THE CRYSTAL IN AN EXTERNAL CONST. MAGNETIC FIELD H. WHEN H PARALLEL TO (010) ALL OF THE AXES (111) FORM AN ANGLE OF 54.7DEGREES WITH H, CENTERS OF GRAVITY OF ALL 4 LINES COINCIDE AND DISPLACEMENTS RELATIVE TO THE LINES ARE ABSENT. WHEN H PARALLEL TO (110), 1 PAIR OF THE 4 AXES (111) FORMS WITH H AN ANGLE OF 35.3DEGREES, AND 2ND PAIR AN ANGLE OF 90DEGREES. THE CENTERS OF GRAVITY COINCIDE FOR THE SEP. LINES IN EACH PAIR. WHEN H PARALLEL TO (111), THE REMAINING 3 AXES (111) FORM WITH H AN ANGLE OF 72DEGREES. THE LINES ARE SEPD. INTO 2 GROUPS CONSISTING OF 1 AND 3 LINES, RESP. THE WIDTH AND G FACTOR ARE DETD. BY THE DISPLACEMENTS BETWEEN THE GROUPS OF LINES. IT FOLLOWS THAT Y CENTERS POSSES AN AXIS OF AXIAL SYMMETRY ALONG (111).

UNCLASSIFIED

USSR

UDC 669.24.053.27

LINCHEVSKIY, B. V., TARAKANOV, Yu. V., ~~SOBOLEVSKIY, A. L.~~

"Deoxidation of Nickel During Vacuum Smelting"

Sb. tr. Mosk. Vech. Metallurg. In-t. [Collected Works of Moscow Evening Metallurgical Institute], No 13, 1971, pp 169-174, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G390 by the authors)

Translation: Possible means are studied for removal of O during melting of Ni in a vacuum. It is demonstrated by thermodynamic regularities that the holding of liquid Ni at  $<6.3$  mm hg pressure should result in removal of O. Experimental melts were performed in a resistance furnace at  $10^{-2}$ ,  $10^{-3}$ ,  $10^{-4}$  mm hg at 1,550, 1,600, and 1,650°. The removal of O from Ni follows a first order kinetic equation, corresponding to a diffusion-adsorption mechanism for the process. Based on the results produced, an approximate diffusion factor of O and liquid Ni is calculated at 1,600° as  $1.04 \cdot 10^{-4}$  cm/sec. Deoxidation of Ni in a vacuum using C is considerably more rapid than removal of O without the deoxidizers. 2 Figures; 2 Tables; 9 Biblio. Refs.

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USSR

SOBOLEVSKIY, CH., Riga Polytechnic Institute

"Plastic Materials Improve Metals"

Riga, Sovetskaya Latviya, 11 Feb 73, No 36, p 3

Translation: The continuously developing national economy requires new materials which are strong and reliable, and have good machinability. For this purpose work was organized a few years ago to develop metalloplastic materials at the scientific research laboratory of the Chemical Technology Department of Riga Polytechnic Institute.

It should be noted, however, that the technology of producing metalloplastics with the use of glues was developed in our country much earlier. But the material produced by this method was not universal in its properties. During the stamping operation with pulling, as well as in the case of other machining methods the separation of the plastic film from the metal base was observed. This shortcoming limits the area of applicability of this type of material.

The technology of producing metalloplastics developed at our laboratory includes coating of a steel band with a modified polyethylene film by the thermo-adhesion method. The method is simple and secures the required physicochemical

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USSR

SOBOLEVSKIY, CH., Sovetskaya Latviya, 11 Feb 73, No 36, p 3

properties of the material. The material produced by this method is called Stapen. The steel base and the plastic film never separate during any type of mechanical treatment. Furthermore, the plastic film adheres strongly to the metal even if the uncoated steel areas are galvanically plated.

The steel base of the metalloplastic can be of varying thickness, from 0.2 to 1.5 mm. The plastic film thickness is selected according to requirements. As a result, strong, elastic sheets are produced which can be easily cut, bent, or shaped by other processes.

The plastic film of Stapen is stable against organic and inorganic acids, alkalis, gases, and atmospheric air. In short, it possesses the strength of metal and the chemical stability of plastics. Lining of some items with this material does not require any additional work, such as varnishing or enamel coating. Furthermore, the color of the plastic film can be of any shade; the film can stand printing on it and it can imitate leather.

All these properties of Stapen make its applicability practically unlimited in various branches of the national economy. It can be used for the production of cases for many instruments and apparatus, lining of parts in the automobile, aviation, and shipbuilding industries, and in the manufacturing of furniture and lighting industry items.

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USSR

SOBOLEVSKIY, CH., Sovetskaya Latviya, 11 Feb 73, No 36, p 3

Metalloplastics can play a very important role in the construction of different type of structures. They can be successfully used for decoration of facades of commercial and industrial buildings, as well as of apartment houses, and can substitute for wooden and colored ceramic decorative items. Wooden decorations decay with time, but Stapen can stand the trial of time. Colored plates made of Stapen can make buildings more attractive, beautiful, and modern.

Stapen is suitable for window sills, roof gutters, and drain pipes. Window sills in one of houses in Kengarags have been in use for the last 5 years and still preserve their original color.

Ventilation pipes made of steel or galvanized sheet metal need periodic painting, and some external ventilation pipes and attachments need replacement every 2-3 years. But pipes, exhaust hoods, covers, and other ventilation system items made of Stapen do not require any painting. They can be made in any color, according to requirements and industrial esthetics. They need only a periodic washing. Calculations made at the Latsantekhmontazh / Latvian Sanitary Technology Installation / office showed that one square meter of the ventilation system made of Stapen for a highly corrosive industrial shop is four times cheaper than the ventilation system made of sheet iron painted with special enamel.

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USSR

SOBOLEVSKIY, CH., Sovetskaya Latvija, 11 Feb 73, No 36 p 3

Metalloplastics can be used for dressing panels, columns, and stair-case gratings of public buildings, as well as for suspended, acoustic ceilings, and for other purposes. The use of metalloplastics in the chemical industry made it possible to cut expenses for expensive stainless steel which is used primarily for containers, reservoirs, mixers, precipitation tanks, and for other apparatus functioning in aggressive media.

The experimental and industrial production of Stapen was organized at one of the machine-building plants, with the active participation of our laboratory which supplied not only the production technology but also the designs for all production items. This work is carried out at the Riga experimental plant of TsPKB MA [expansion unknown]. The first batch of material has been sent to the Volga Automobile Plant. Plans are underway for the construction of a separate industrial plant for the production of Stapen.

The new material passed two test stages, the production of the first experimental samples under laboratory conditions, and production at the industrial pilot plant. It should be said, however, that coworkers of a comparatively small laboratory functioning at the institute received great satisfaction for their efforts. It is a pleasant realization that the fruitful

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USSR

SOBOLEVSKIY, CH., Sovetskaya Latviya, 11 Feb 73, No 36 p 3

scientific idea which dominated the minds of many people found its practical application for the benefit of the national economy.

The next task for the laboratory coworkers is technological development for the production of metalloplastics with the use of aluminum alloys. These materials will possess new physical and chemical properties, will be light and inexpensive. This task is within the ability of the laboratory coworkers, consisting mainly of young specialists. Let's hope that this task will be solved and the national economy will receive new materials for future applications.

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USSR

UDC 678.06:678 029.5:669:678.742.2]01:53

KALNIN', M. M., KARLIVAN, V. P., METRA, A. YA., SOBOLEVSKIY, CH. A., MALERS, L. YA., DZENIS, M. YA., KRAGIS, I. ZH., and REYKHMANIS, F. K.

"Metalloplastics Based on Modified Polyethylene"

Moscow, Plasticheskiye Massy, No 10, 1972, pp 31-33

Abstract: The technological process of the production of metalloplastics is based on thermal contact [plating] between a pretreated metal base and a film of modified polyethylene. Optimal ranges of the important parameters influencing the properties of metalloplastics are as follows: temperature of thermal contact -- 200-250°C; duration of the contact -- 30-60 sec; filler content -- 8-10 vol-%. The surface of the metal base is cleaned, preheated and passed through a set of rollers where the initial contact with modified polyethylene is made. Final bonding occurs in an induction heating chamber. The material obtained -- the unilateral or bilateral metalloplastic -- shows high anticorrosive properties. It can be processed by several methods such as bending, folding, or die stamping. Surfaces can be joined together by welding or folding and other methods. This material is ideally suited for production of equipment resistant to chemical agents, such as storage or sedimentation tanks. It could be used for production of special pipe lines, ventilation systems, etc. Due to 1/2

USSR

KALNIN', M. M., et al., *Plasticheskiye Massy*, No 10, 1972, pp 31-33

the ability of producing colored surface coatings, it could also be used in automobile, airplane or ship building industry as well as for construction of furniture or specialized equipment.

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USSR

Rpt 29 Apr 71

In the article "In Presidium of Supreme Soviet USSR" it is noted that by Ukases of the Presidium of the Supreme Soviet USSR the rank of Hero of Socialist Labor, with the Order of Lenin and "Serp i Molot" Gold Medal, was awarded for outstanding successes in the fulfillment of targets of the five-year plan to the most outstanding workers and specialists of enterprises and organizations of the chemical, petroleum-refining and petrochemical industry, geological exploration works, chemical and petroleum, construction, road and communal machine building, electrical engineering industry and instrument-making, power and electrification, cellulose-paper, microbiological industry, machine building for light and food industry, food, fish, meat and dairy industry, and fuel industry.

These included, for the city of Moscow:

LIDORENKO, Nikolay Stepanovich, Director, All-Union Scientific Research Institute of Current Sources,

PETRYANOV-SOKOLOV, Igor' Vasil'yevich, Academician; Head, Laboratory, Scientific Research Physicochemical Institute imeni L. Ya. Karpov, and

SOBOLEVSKIY, Mikhail Viktorovich, Doctor of Technical Sciences.

Moskovskaya Pravda, 29 Apr 71, p 1, cols 1-2

(3)

1/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--OXIDATIVE THERMAL DEGRADATION OF SOME OLIGOSILOXANES -U-  
AUTHOR--SOBOLEVSKIY, M.V., CHERNYSHEV, E.A., LOTAREV, M.B., VISHNEVSKIY,  
P.N., NAZAROVA, D.V.  
COUNTRY OF INFO--USSR  
SOURCE--PLAST. MASSY 1970, (2), 26-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--THERMAL DEGRADATION, OXIDATION, SILOXANE, MOLECULAR STRUCTURE,  
BENZENE DERIVATIVE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1987/1057 STEP NO--UR/0191/70/000/002/0026/0027  
CIRC ACCESSION NO--AP0104455  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104455

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. THE OXIDATIVE THERMAL DEGRADATION OF OLIGOHETEROCYCLOSILOXANES, OLIGODIMETHYLSILOXANES, OLIGODIETHYLSILOXANES (I), AND OLIGOMETHYLPHENYLSILOXANES OF STRUCTURE II WAS STUDIED BY THERMOGRAVIMETRIC ANAL. UNDER ISOTHERMAL CONDITIONS AT 200-350DEGREES. II HAD THE MAX. RESISTANCE TO OXIDN., WHEREAS I WAS LEAST RESISTANT TO OXIDN. AND ABSORBED O AT 200DEGREES. THE ABSORPTION RATE OF O WAS PROPORTIONAL TO TEMP. FOR ALL OF THE SILOXANES TESTED.

UNCLASSIFIED



1/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--ORGANOSILICON POLYISOCYANATES -U-

AUTHOR--(05)-BORODAVCHENKO, YE.S., SOBOLEVSKIY, M.V., NGVITSKIY, E.G.,  
SEVERNYY, V.V., SHELUYAKOV, V.D.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,880

REFERENCE--UTKRYTIYA, IZBERET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--10FEB70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ORGANOSILICON COMPOUND, ORGANIC ISOCYANATE, CHEMICAL PATENT,  
SILOXANE, ORGANIC SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3002/1464

STEP NO--UR/0482/70/000/000/0000/0000

GIRC ACCESSION NO--AA0128863

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128353

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. ORGANOSILICON POLYISOCYANATES ARE PREPD. BY TREATING POLY(ORGANOSILOXANES) CONTG. AN OH GROUP WITH CLME SUB2 SI(CH SUB2) SUB3 ACU IN THE PRESENCE OF AN HCL ACCEPTOR, E.G. PYRIDINE.

UNCLASSIFIED

1/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--REACTION OF METHYLCYCLOSILAZANES WITH CARBOXYLIC ACIDS -U-

AUTHOR--(03)-ZHINKIN, D.YA., MORGUNOVA, M.M., SOBOLEVSKIY, M.V.

S

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSCH. KHIM. 1970, 40(4), 809-12

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLIC GRUP, ORGANOSILICON COMPOUND, AMINE DERIVATIVE,  
AMMONIA, METHACRYLIC ACID, ETHER, EXOTHERMIC REACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/1373

STEP NO--UR/0079/70/040/004/0809/0812

CIRC ACCESSION NO--AP0128773

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70  
CIRC ACCESSION NO--AP0128773  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TREATING CYCLO-(R SUB2 SINO) SUBX WITH ORG. ACIDS IN CALCD. AMT. RESULTS IN AN EXOTHERMIC REACTION WITH EVOLUTION OF NH SUB3, COMPLETED IN 3 HR AT 60-70DEGREES, TO YIELD THE DIACYLOXYSILAZANES LISTED BELOW. THUS, HEXAMETHYLCYCLOTRISILAZANE AND ACOH IN INDICATED AMOUNTS GAVE: (1:1), DIACETOXYHEXAMETHYLTRISILAZANE (I), B SUB15 1380-40DEGREES, D PRIME20 1.0156 N PRIME20 SUBD 1.4370; (1:2) SAME PRODUCT; (1:3) THE SAME PRODUCT ALONG WITH ME SUB2 SI(OAC) SUB2 AND DIACETOXYTETRAMETHYLDISILAZANE (II), B SUB15 109-10DEGREES, 1.0274, 1.4265; (1:6) ME SUB2 SI(OAC) SUB2. SIMILAR REACTION BUT WITH 2 MOLES ETCO SUB2 H GAVE DIPROPTONOXYHEXAMETHYLTRISILAZANE, B SUB10 124-5DEGREES, 0.9962, 1.4370; SIMILARLY, 2 MOLES C SUB5 H SUB11 CO SUB2 H GAVE DICAPROXYHEXAMETHYLTRISILAZANE, B SUB15 163-5DEGREES, 0.9564, 1.4396; OCTAMETHYLCYCLOTETRASILAZANE AND 2 MOLES ACOH GAVE ME SUB2 SO(OAC) SUB2, I, II, AND DIACETOXYOCTAMETHYLTETRASILAZANE, B SUB14 159-61DEGREES, 1.0104, 1.4425. (ME SUB2 SINH) SUB3 AND NH SUB4 OAC IN 3 HR AT 50-5DEGREES GAVE NH SUB3 AND 85PERCENT I IDENTICAL WITH THE ABOVE; SIMILAR REACTION WITH METHACRYLIC ACID, RUN BEST IN ET SUB2 O 1 HR AT 40DEGREES, GAVE AMINUISOBUTYRIC ACID AND 24PERCENT BIS(METHACRYLOXY)HEXAMETHYLTRISILAZANE, B SUB4-5 63DEGREES, 0.9892, 1.4545; SIMILAR REACTION BUT WITH (ME SUB2 SINH) SUB4 GAVE 31PERCENT BIS(METHACRYLOXY)TETRAMETHYLDISILAZANE, B SUB18 96-80DEGREES, 1.0011, 1.4405.

UNCLASSIFIED

1/2 009

TITLE--POLYSILOXANES -U-

UNCLASSIFIED

PROCESSING DATE--13NOV70

AUTHOR--(05)-SOBOLEVSKIY, M.V., NAZAROVA, D.V., VORDPAYEVA, G.V.,  
KUZNETSOVA, A.A., GALASHINA, M.L.

COUNTRY OF INFO--USSR

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SOURCE--U.S.S.R. 265,445

REFERENCE--UTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970

DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYSILOXANE, CHEMICAL PATENT, ORGANIC SULFUR COMPOUND,  
ORGANIC SILANE, ORGANIC SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1418

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128817

UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AA0128817  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

AND ALKOXY GROUPS ARE PREPD. BY HYDROLYSIS OF ORGANOCHLOROSILANES OF  
FORMULA RSICL SUB3, WHERE R EQUALS THIENYL, HALOTHIENYL, METHYLTHIENYL,  
OR ITS MIXT. WITH DI OR TRIFUNCTIONAL CHLOROSILANES, WITH A MIXT. OF H  
SUB2 O AND ETOH IN THE PRESENCE OF AN ORG. SOLVENT.

UNCLASSIFIED

USSR

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MITIN, A. A., SOFIYEV, G. N.

UDC 621.383.8

"Low-Noise Preamplifier Using Field-Effect Transistors"

Moscow, Pribory i tekhnika eksperimenta, No 4, July-August, 1970, pp 74-75

Abstract: The transistors in the preamplifier circuit described in this article are domestically produced, and were designed to replace the Texas Instrument Company's 2N3823 device which figured in both domestic and foreign papers dealing with this type of preamplifier. The article begins with a brief description of the Soviet field-effect transistor, giving its technical specifications and curves of the averaged volt-ampere characteristics for the n-channel device. As for the circuit, a schematic of which is given, it was originally designed as the amplifier in a device for obtaining the spectra of soft gamma and x-rays derived from the high energy resolution of high-quality semiconductor detectors. The characteristic noise of the preamplifier containing the Texas Instrument device was from 0.9 to 1.8 kev, and with external capacitance inputs, 0.05 to 0.08 kev/pf. Similar results were obtained with the domestic transistors. The article also offers an explanation of the preamplifier circuit operation, and gives the results of tests conducted with. The circuit uses two field-effect transistors and two ordinary transistors. In concluding, the

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USSR

MITIN, A. A., et al., Pribory i tekhnika eksperimenta, No 4, July-August 1970,  
pp 74-75

the authors express their gratitude to V. G. Brovchenko for checking the  
manuscript and for his valuable comments.



USSR

UDC: 539.171

BARASHENKOV, V. S., IL'INOV, A. S., SOBOLEVSKIY, N. M., and  
TONEYEV, V. D., Joint Institute of Nuclear Research, Dubna

"Interaction of High-Energy and Ultra-High-Energy Nuclei and  
Particles With Nuclei"

Moscow, Uspekhi Fizicheskikh Nauk, No 1, 1973, pp 91-136

Abstract: This article is a rather qualitative review of the achievements made thus far from the study of collisions between high-energy and ultra-high energy particles and nuclei on the one hand, and nuclei on the other. This branch of nuclear physics has only recently come into its own and has proved a valuable tool for computing radiation protection for high-altitude aircraft and space ships, for the "electronuclear" method of obtaining atomic energy and acquiring rare isotopes, and for solving problems in the resistance of materials to radiation, among other things. Besides the general introduction to the subject, the topics treated in this review are: the mechanism of intranuclear cascades; the nucleus model and the computation of particle collisions with intranuclear nucleons; the general method of cascade

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USSR

UDC: 539.171

BARASHENKOV, V. S., et al, Uspekhi Fizicheskikh Nauk, No 1, 1973,  
pp 91-136

computation; comparison of the cascade model and experiment; the model of intranuclear cascades in energies greater than several gigaelectron volts; intranuclear cascades at ultra-high energies beyond 10 Gev; the theory of inelastic collision between two nuclei; and a concluding section containing the authors' recommendations for further study. A bibliography of 85 titles is appended.

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USSR

UDC: 539.12.17

BARASHENKOV, V. S., ~~SOBOLEVSKIY, N. M.~~, TONEYEV, V. D.

"Passage of Beams of High-Energy Particles Through Thick Layers of Matter"

Moscow, Atomnaya Energiya, Vol 32, No 3, Mar 72, pp 217-221

Abstract: In their previous article (Atomnaya Energiya, Vol 32, p 123) the authors described a procedure for calculating a nucleon-meson cascade in a block of matter, and they also studied the distribution of particle fluxes initiated by high-energy primary radiation inside and outside blocks of various compositions and dimensions. In this paper the same method is used for studying in more detail the characteristics of secondary particle fluxes behind a thick shield. The calculations are done by modeling the "fate" of each individual particle in the material by the Monte-Carlo method. Each case of inelastic interaction of a particle with a nucleus is calculated by the Monte-Carlo method according to the cascade-evaporative model. The behavior of neutrons with energies below 10.5 MeV was modeled on the basis

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BARASHENKOV, V. S. et al., Atomnaya Energiya, No 3, 1972,  
pp 217-221

of reactor constants. The results were compared with measurements on the synchrocyclotron at the Joint Institute of Nuclear Research at energies of 340 and 660 MeV. The geometry of the experiments was strictly reproduced in the computations: aluminum blocks with thicknesses of 75 and 150 g/cm<sup>2</sup> were exposed to a collimated beam of protons with a radius of 1 cm. The results show that the proposed method can be successfully used both for computing integral characteristics (such as the overall particle flux) and for obtaining detailed information: the spatial structure of the radiation behind the shielding, the different spectral-angular characteristics, their correlations, etc. The comparison of theoretical and experimental results shows that the accuracy of calculations depends most on the completeness of knowledge of the experimental conditions. Indefiniteness as to the individual parameters of the model plays no appreciable part. One figure, eight tables, bibliography of nine titles.

2/2

USSR

UDC: 519.4:517:513.88

DYMENT, D. A., SOBOLEVSKY, P. Ye.

"On Coercive Solvability of the Cauchy Problem for Parabolic Differential Equations in a Banach Space"

Tr. NII Mat. Voronezh. un-ta (Works of the Scientific Research Institute of Mathematics, Voronezh University), 1970, vyp. 1; pp 60-72 (from RZh-Matematika, No 5, May 71, Abstract No 5B897)

Translation: Let  $E$  be a Banach space;  $A(t), t \in [0, T]$ , a family of linear operators in  $E$  which generates an analytic subgroup with exponentially decreasing norm, such that for some  $\rho \geq \frac{1}{2}$  the domain of  $A^\rho(t)$  is constant. Let  $C_0^\alpha (0 < \alpha < 1)$  be the complement of a space of continuously differentiable functions  $\phi(t)$  on  $[0, T]$  with values in  $E$  with respect to the norm

$$\|\phi(t)\|_{C_0^\alpha} = \max_{t \in [0, T]} \|\phi(t)\|_E + \sup_{0 < t < t+\Delta t < T} \|\phi(t+\Delta t) - \phi(t)\|_E t^\alpha (\Delta t)^{-\alpha}.$$

In the article, conditions are found on  $A(t)$  which guarantee coercive solvability of the problem  $v'(t) + A(t)v(t) = f(t) (0 < t < T), v(0) = v_0 \in D(A(0)), f \in C_0^\alpha$ ; i. e., the existence and uniqueness of the solution  $v(t)$  of this problem and satisfaction of the inequality

$$\|v'(t)\|_{C_0^\alpha} + \|A(t)v(t)\|_{C_0^\alpha} < k (\|f(t)\|_{C_0^\alpha} + \|A(0)v_0\|_E),$$

where  $k > 0$  does not depend on  $f(t)$  and  $v_0$ . T. Yenikeyeva.

1/1

Acc. Nr:

AP0048029

Abstracting Service: S/70  
INTERNAT. AEROSPACE ABST.

Ref. Code:  
UR0041

S

A70-23120 # Solvability of mixed problems for one-dimensional quasi-linear hyperbolic equations (O razreshimosti smeshannykh zadach dlia odnomernykh kvaziliniinykh giperbolicheskikh uravnenii). P. E. Sobolevskii and V. A. Poporelenko (Voronezhskii Gosudarstvennyi Universitet, Voronezh, USSR). *Ukrainskii Matematicheskii Zhurnal*, vol. 22, no. 1, 1970, p. 114-121. 5 refs. In Russian.

Derivation of L sub p and C estimates of solutions to mixed problems for one-dimensional hyperbolic equations. With the aid of these estimates the solvability of linear problems with minimal constraints on smoothness is demonstrated. The solvability of mixed problems for quasi-linear equations with nonlinearities figuring in both the equation coefficients and the boundary conditions is proven.

A.B.K.]

1/1

ALS

REEL/FRAME  
13791711

21

USSR

UDC 615.472:615.846

LIVENSON, A. R., FRENK, A. A., KRETILOVA, Ye. L., and SOBOLEVSKIY, S. V.,  
All-Union Scientific Research Institute of Medical Instrument-Building, Moscow

"'Volna-2' Apparatus for Microwave Therapy"

Moscow, Meditsinskaya Tekhnika, No 4, Jul/Aug 72, pp 21-25

Abstract: In order to eliminate shortcomings of previous apparatus using electromagnetic waves for the treatment of patients, the Volna-2 apparatus was designed to use 65 cm wavelength. This makes it possible to penetrate human tissues twice as deep and to practically eliminate the standing waves in fat layers. The reflection coeff. scattering is also reduced by 1.8-fold. The portable apparatus generates electromagnetic waves of 460 MHz frequency, with a maximum output power of 100 watts. It consists of the wave autogenerator, wave power meter, interchangeable emitters, power supply unit, and automatics. Since it is impossible to measure the power absorbed by the patient's body, the measurement of the output power of the apparatus plays an important role in establishing the dosimetry for each patient. A duration of treatment combined with the apparatus output power makes it possible to find with sufficient accuracy the radiation dose received by the patient. The total error of the output power meter should not exceed  $\pm 25$  percent. A schematic diagram of the apparatus is given, with description of all details and materials used for its design.

1/1

1/2 012

TITLE--OLEFINS FROM N BUTANE BY CATALYTIC DEHYDROGENATION -U-

UNCLASSIFIED PROCESSING DATE--23OCT76

AUTHOR--(05)--STEPANOV, G.A., TSAILINGOLD, A.L., PILIPENKO, F.S., SOBOLEY,  
V.M., BORESKOV, G.K.

COUNTRY OF INFO--USSR

SOURCE--GER. OFFEN. 1,800,063

DATE PUBLISHED--16APR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DEHYDROGENATION, BUTANE, CHEMICAL PATENT, METAL OXIDE,  
CATALYST ACTIVITY, BUTENE, BUTADIENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1004

STEP NO--GY/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AA0119873

UNCLASSIFIED



2/2 012

CIRC ACCESSION NO--AA0119873  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT7C

DEHYDROGENATION OF N BUTANE AT 550-650DEGREES OVER MO AND-OR W OXIDE  
CONTG. AT LEAST ONE OF THE OXIDES OF CR, MN, FE, NI, OR CO GAVE SIMILAR  
TO 5 WT. PERCENT N BUTENES AND 10-20 WT. PERCENT BUTADIENE. THUS, ADDN.  
OF NI(NO SUB3) SUB3 IN H SUB2 O TO (NH SUB4) SUB6 MO SUB7 O SUB24 IN H  
SUB2 O AND HEATING THE PPT. AT 400-500DEGREES GAVE A CATALYST WITH 1:2  
MO-NI AT. RATIO. N BUTANE, O, AND H SUB2 O VAPOR AT A 1:0.25:10 MOLAR  
RATIO AND 590DEGREES REACTED IN THE PRESENCE OF 15 ML CATALYST TO GIVE  
4.5 WT. PERCENT N BUTANES AND 21 WT. PERCENT BUTADIENE.  
FACILITY: SCIENTIFIC RESEARCH INSTITUTE OF MONOMERS FOR SYNTHETIC  
RUBBER.

UNCLASSIFIED

USSR

UDC 519,281

MIRTOV, V. K., SOBOLEZ, V. N.

"Regression Methods of Identification Based on Orthogonal Expansions"

Identifikatsiya [Identification -- Collection of Works], Moscow, Nauka Press, 1970, pp 23 (Translated from Referativnyy Zhurnal Kibernetika, No 3, 1971, Abstract No 3 V140 by Yu. Shinakov).

Translation: The problem of active identification of nonlinear dynamic systems is studied, which is reduced to calculation of estimates of parameters  $a_0, a_1, \dots, a_n$  of the system being studied, characterizing its dynamic properties, on the basis of coefficients  $A_1, A_2, \dots, A_m$  of the orthogonal expansion of the reaction of the system to a test signal. In order to determine the parameters of the dynamic system during the testing process, it is suggested that the regression  $f_i = M[a_i | A_1, A_2, \dots, A_m]$  of parameters of the system with respect to coefficients  $A_1, A_2, \dots, A_m$  of the expansion of its reaction be used. Functions  $f_i, i = 0, 1, \dots, n$ , are defined for dynamic tests of a system model.

1/1

USSR

UDC: None

BOKOV, Ye. S. and SOBOL'KOVA, K. P.

"Stand for Testing Service Life and Limiting Speeds of Bearings"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 33, 1972, p 103, Author's certificate No (11)357489

Abstract: This device contains a testing head and an interacting loading mechanism, a testing control device, and a temperature measuring device. Its function is to test carbon bearings. A brief description of its construction and operation is given together with a drawing.

1/1

- 184 -

1/2 018

UNCLASSIFIED

PROCESSING DATE--23OCT70  
-U-

TITLE--HETEROGENEITY OF TERRESTRIAL MATTER AND THE EARTH'S AGE

AUTHOR--SOBOTOVICH, E.V. S

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. GEOL. 1970, (2), 3-12

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--EARTH CRUST AGE, MODEL, COSMIC DUST, METEORITE, EARTH CRUST DEVELOPEMNT LAW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1997/0126

STEP NO--UR/0011/70/000/002/0003/0012

CIRC ACCESSION NO--AP0119122

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119122

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. PERUSAL OF LITERATURE DATA ON ANCIENT ROCKS, WITH ABS. AGE IS GREATER THAN 3 TIMES  $10^9$  YR, SHOWED THAT THEY ARE PRESENT IN ALL CONTINENTS. THE ROCKS, WHICH FORMED GREATER THAN 3.5 TIMES  $10^9$  YR AGO, CAN BE CONSIDERED AS A NUTRUAL LOWER LIMIT INDICATOR OF THE EARTH'S AGE. THE CALCD. AGE OF EARTH U, (4.4 MINUS 6.5) TIMES  $10^9$  YR, CAN BE USED AS THE UPPER AND LOWER AGE LIMITS OF THE EARTH SUBSTANCE. A MODEL OF EARTH FORMATION FROM INITIALLY HETEROGENEOUS MATERIAL IS OFFERED AND DISCUSSED. THE LARGE FRAGMENTS OF FE ASTEROIDS WERE THE CENTERS OF EARTH CONDENSATION. INCREASINGLY SMALLER FRAGMENTS, WITH COMPN. CLOSE TO THAT OF COMMON CHONDRITES AND ACHONDRITES, PARTICIPATED IN EARTH FORMATION DURING ITS GROWHT. THE UPPER LAYER OF EARTH, WHICH FORMED EARTH'S CRUST, CONSISTS MOSTLY OF FINE COSMIC DUST RICH IN ASHES OF THE LAST NUCLESYNTHESIS IN SUPERNOVA CONTG. LARGE AMTS. OF RADIOACTIVE ELEMENTS. THE AGE OF METERORITES CANNOT BE TAKEN AS THE AGE OF THE EARTH. THE AGE OF EARTH, CALCD. FROM THE MOMENT OF ITS FORMATION AS A PLANET IS (4.66 PLUS OR MINUS 0.26 MINUS 0.36) TIMES  $10^9$  YR. FACILITY: RADIEVYI INST. IM. KHLOPINA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70  
 TITLE--USE OF SYNERGISM IN THE SUBSTOICHIOMETRIC ANALYSIS OF THORIUM -U-  
 AUTHOR--(02)-REMOV, A.G., SUBOTOVICH, E.V. S  
 COUNTRY OF INFO--USSR  
 SOURCE--RADIOKHIMIYA 1970, 12(1), 182-3  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--CHEMISTRY, MATERIALS  
 TOPIC TAGS--CHEMICAL ANALYSIS, THORIUM, STOICHIOMETRY  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--2000/0116 STEP NO--UR/0186/70/012/001/0182/0183  
 CIRC ACCESSION NO--AP0123888  
 UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123888

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE SUBSTOICHIOMETRIC DETN. OF TH BY THE METHOD OF REMOV, ET AL. (1970), THE SENSITIVITY AND ACCURACY ARE IMPROVED BY THE USE OF SYNERGETIC BACK EXTN. OF THE TH FROM THE ORG. TO THE AP. PHASE, E.G., THE USE OF A MIXT. OF ARSENAZO III (I) AND THORON (THE REAGENT) AT CONCNS. OF 14 AND 9 MU G-3 ML, RESP., INCREASED THE AMT. OF TH IN THE AQ. PHASE TO 0.9 MU G, AS COMPARED WITH 0.6 MU G WHEN I ALONE WAS USED AT A CONCEN. OF 14 MU G-3 ML.

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70  
METHOD FOR DETERMINING

TITLE--POSSIBLE FORMULATION OF A SUBSTOICHIOMETRIC  
TRACE AMOUNTS OF THORIUM -U-  
AUTHOR--(02)-REMOV, A.G., SOBOTOVICH, E.V.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 119-24

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TRACE ANALYSIS, THORIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3005/0121

STEP NO--UR/0186/70/012/001/0119/0124

CIRC ACCESSION NO--AP0132414

UNCLASSIFIED



2/2 010

CIRC ACCESSION NO--AP0132414

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SUBSTOICHIOMETRIC METHOD (A  
 MODIFICATION OF ISOTOPIC DILN). DEVELOPED BY RUZICKA, ET AL. (1961), WAS  
 APPLIED TO THE DETN. OF TH IN AQ. HCO SUB2 H SOLNS. THE TH WAS EXTD.  
 QUANT. WITH A 0.25M SOLNS. OF THENOYLTRIFLUOROACETONE IN CCL SUB4 AND  
 WAS BACK EXTD. WITH A SUBSTOICHIOMETRIC AMT. OF AN AQ. SOLN. OF ARSENAZO  
 III; PRIME234 TH WAS USED AS THE TRACER. SINCE THE YIELD OF TH IN THE  
 AQ. PHASE (IN THE BACK EXTN.) WAS A WELL DEFINED (ALBEIT NOT A LINEAR  
 ONE) FUNCTION OF ITS INITIAL CONC. IN THE ORG. PHASE, AT CONCNS. UP TO  
 SIMILAR TO 10 MU G (IN THE ALIQUOT TAKEN FOR ANAL.), THE METHOD COULD BE  
 USED FOR THE QUANT. DETN. OF TH AT SUCH CONCNS., WITH AN ERROR OF PLUS OR  
 MINUS 3PERCENT.

UNCLASSIFIED

SOCHAVA, A.V.

Geological +  
Mineralogical  
Sci.

Fossil Dinosaur Eggs from the Gobi Desert

Submitted by Doctor of Geological and Mineralogical Sciences  
A. V. SOCHAVA, Institute of Geological and Mineralogical Sciences,  
USSR Academy of Sciences, Moscow, U.S.S.R. Geological and Mineralogical  
USSR Academy of Sciences, Vol. 61, No. 7, July 1977, pp. 75-79

The enormous territory of the Gobi Desert in Central  
Asia has long attracted the attention of scientists of various  
countries. Since 1957 the Soviet expedition of V. L.  
Lorenz under the scientific leadership of A. L. Yushman, N. S.  
Yakovlev and L. M. Zhurav, organized by the academy of sci-  
ences of the USSR and the GDR, has been studying the region.

A group of co-workers of the Laboratory of Continental  
Formation of the Institute of Geology and Geochronology  
of the Pre-Cambrian of the AS USSR Institute in the geology  
investigation of the formation has conducted a systematic  
investigation of the continental sedimentary complex  
found in the southern regions of Mongolia in order to  
clarify distinctive features of its sedimentation and evolu-  
tion of the evolution of fresh-water organisms and reconstruct  
the physicochemical conditions of their habitats and regular-  
ities of their development. In the  
study of fresh-water organisms (including very rich collec-  
tions of mollusks, which the laboratory is studying actively,  
and various other organisms including very rich collec-  
tions of insects, including flies, beetles, crickets, dragon-  
flies, etc.), the main part of the scientific collection of  
vertebrates has been transferred to the museum of the Paleonto-  
logical Institute of the AS USSR and the Mineral Museum of  
the GDR.

SOCHAVA, A.V.  
28 Sep 71  
URC: 561591

172 028  
 UNCLASSIFIED  
 TITLE--OXYGEN VACANCIES IN CHROMIUM DOPED RUTILE CRYSTALS -U- PROCESSING DATE--20NOV70  
 AUTHUR-(03)-SOCHAVA, L.S., RESHINA, I.I., MIRLIN, D.N.  
 COUNTRY OF INFO--USSR  
 SOURCE--FIZ. TVERD. TEA 1970, 12(4), 1214-21  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY  
 TOPIC TAGS--DOPED ALLOY, EPK, TITANIUM OXIDE, MINERAL, OXYGEN, CRYSTAL  
 VACANCY, ELECTRON TRAP, VACUUM TECHNIQUE, MINERAL  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--3001/0375  
 CIRC ACCESSION NO--AF0126130  
 STEP NO--UR/0181/70/012/004/1214/1221  
 UNCLASSIFIED

2/2 028

CIRC ACCESSION NO--AP0126130  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT. BY EPR, CONDITIONS WERE INVESTIGATED OF THE APPEARANCE IN CR DOPED TiO SUB2 CRYSTALS OF COMPLEXES OF SUBSTITUTING CR PRIME3 POSITIVE IONS AND O VACANCIES IN THE 2ND COORDINATION SPHERE. THE ABOVE COMPLEXES ARE PRODUCED BY VACUUM REDN. OF THE CR DOPED TiO SUB2 CRYSTALS AT 500-700DEGREES DUE TO THE FORMATION OF DEFECTS OF STOICHIOMETRY, O VACANCIES. DEEP ELECTRONIC TRAPS FILLED AT STRONGER REDN. OF THE CRYSTALS AT 800-1000DEGREES ARE RELATED TO CR VACANCY COMPLEXES. FILLING OF THESE TRAPS DETS., APPARENTLY, OPTICAL ABSORPTION IN THE REGION 1.1 EV DBSD. IN THE REDUCED CR DOPED TiO SUB2 CRYSTALS. FOR CONCNS. OF CR LARGER THAN 0.15 AT. PERCENT, THE CR VACANCY COMPLEXES ARE STABLE EFFECTS WHICH FREQUENTLY AFFECT THE CHARGE COMPENSATION IN THESE CRYSTALS.

FACILITY:

UNCLASSIFIED