

USSR

UDC 576.851.555.097.29.086.3

SMIRNOVA, T. A., KUSHNAREV, V. M., KULAK, V. G., and KALYAYEV, A. V., Moscow
Institute of Vaccines and Sera

"Electron-microscopic Study of *Cl. oedematiens* During Toxin Production"
Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 5, 1973,
pp 91-94

Abstract: Electron-microscopic examination of ultrathin sections of cells from 2- and 4-day-old *Cl. oedematiens* (type A, strain 79) cultures revealed that the normal cell is surrounded by a 5-layer wall consisting of 3 osmiophilic layers separated by osmiophobic layers. Many cells had defects in the walls through which exuded an osmiophilic substance made up of barely distinguishable fibrous and membranous structures. Mature spores were rarely seen; pseudospores were much more common. The cytoplasm contained rod-shaped striated inclusions often possessing a crystalline structure. (These inclusions may have been the result of infection by bacteriophage). Toxin production declined following lysis of the bacterial mass.

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SMIRNOVA, T.A.

SPRS 56,499
14 JULY 72

Accounting to computed data the ration contained: ~ 23 g of vegetable fats, ~ 8 g of polyunsaturated fatty acids, ~ 1.3 g of cholesterol and ~ 7 g of phospholipids. The experiment was conducted under ordinary work and rest conditions. They consumed the studied ration for 35 days (second period). During the first and third periods (each 15 days in length), the subjects consumed a ration in which dehydrated foods were replaced by freshly prepared foods in equivalent quantities. On the 12th-13th days of the first period, the 14th-15th and 29th-30th days of the second period and the 13th-14th days of

the investigations were made in a 65-day experiment with the participation of six volunteers, healthy males in the age group 19-34 years. The studied ration was one of the variants of the ration described in an article by V. P. Ivanov and P. P. Ivanov (1969). It included canned meats, dehydrated meat and dairy products, meat pies and chocolate, tinned, confectionery items and other foods. The caloric content of this ration was 2,700 Cal. It contained (according to analytical data): 144 g of protein, 106 g of fats and 276 g of carbohydrates.

This paper constitutes part of investigations for evaluating the ration developed for crews of spacecrafts with a flight duration up to a month (V. P. Ivanov and P. P. Ivanov, 1969).

Article by T. A. Smirnova and O. B. Kholodova, Moscow, Aviatyrye Volynskoye Kosmicheskoye Biologicheskoye Instituty (Current Problems in Space Biology and Medicine), Russian, 1971, pp 245-247

SMIRNOVA, T.A.

MEDICINE

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APPROVED FOR RELEASE: 09/01/2001

In the presence of H. I. Alshchanskaya, V. P. Gulyaeva, and others (Voenno-Meditskii Zhurnal, No. 1, 1957, p. 100-101).
The problem of the possibility of the direct action of the active principle of the vaccine on the bacteria is a question of great interest. In addition to the direct action of the active principle of the vaccine on the bacteria, it is also possible that the active principle of the vaccine acts on the bacteria through the intermediary action of the immune system. The problem of the possibility of the direct action of the active principle of the vaccine on the bacteria is a question of great interest. In addition to the direct action of the active principle of the vaccine on the bacteria, it is also possible that the active principle of the vaccine acts on the bacteria through the intermediary action of the immune system.

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For the purpose of the present investigation a dry bacterial suspension of the active principle of the vaccine was prepared. The dry bacterial suspension was prepared by the method of the active principle of the vaccine. The dry bacterial suspension was prepared by the method of the active principle of the vaccine. The dry bacterial suspension was prepared by the method of the active principle of the vaccine.

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J-8448

... U₁ (value inverse to the U₁ term). The calculations were according to the formula

where $C = A \cdot 10^4 / V_1$

A - the amount of vaccine found in 1 ml of the bubbler (mg or U₁);
V₁ - volume of the fluid in the bubbler (ml);
45 - volume of air that passed through the bubbler in 15 minutes (lit.)

With consideration of the average volume of pulmonary ventilation of man during 15 minutes, the calculated aspirated dose corresponded to the value (C = 150).

We found (table 1) that the somewhat greater activity of vaccine P permits to produce a correspondingly large concentration of aerosol active substance in one liter of air with less spreaded amounts of aerosol in U₁ (lit) with the attainment of equal properties of antigenic units evidently proves identical volatile

Table 1

Vaccine	Amount of vaccine sprayed per 1 m ³		Vaccine concentration in 1 liter of air	
	Code	U ₁ (mg)	mg	U ₁ pt
P	10	0.10	0.0035	0.44
	15	0.15	0.0037	0.78
	20	0.20	0.0150	1.22
Zh	10	0.10	0.0038	0.22
	15	0.15	0.0076	0.44
	20	0.20	0.0110	0.78

Considering however that the antigenic and immunogenic properties of intestinal vaccines do not correlate with each other, we made further studies of the immunological changes after either from Table 1, the spraying of equal batches of these preparations, which contain different amounts of antigenic units. As it can be seen not many equal concentrations of antigenic units in 1 m³ can be possible only with the spraying of equal amounts of antigenic units. The air concentration of antigenic units in 1 m³ can be contraction 600 mg we did not get information on the antigenic activity of other preparations were compared according to the antigenic units. The two preparations with equal antigenic amounts of the active substance (12,000 U₁ per 1 m³). Moreover, by knowing the antigenic and immunogenicity of the P preparation in comparison with the Zh in animal experiments, we discovered the presence of people vaccine P, spraying a smaller amount of antigenic units (1000 and 2000) per 1 m³.

USSR

UDC: 621.793.3

GOLOVCHANSKAYA, R. G., GAVRILINA, L. P., SMIRNOVA, T. A., and KUDRYAVTSEV, N. T., Moscow Institute of Chemical Technology imeni D. I. Mendeleev

"Chemical Nickel Plating of MA-8 Magnesium Alloy"

Moscow, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70, pp 614-615

Abstract: A strong cohesion of nickel deposits (5-7 microns) with the base metal is attained after etching the MA-8 alloy in concentrated acetic acid for 0.5 - 1 minute followed by treatment with a sodium pyrophosphate solution (70 g/l) at 70°C for 1 hour. The fluoride ion has been known to inhibit magnesium corrosion. This study has shown that ammonium fluoride at pH 8 increases the stability of the nickel plating solution; at 60-70°C the surface of the solution becomes covered with a dense deposit of metallic nickel. The buffer properties of the solution will be improved by substituting ammonium bifluoride for ammonium fluoride. In 15 minutes the maximum thickness of the nickel deposit will be 5-6 microns. A longer plating duration will restore the nickel in the solution. For the chemical plating of MA-8 alloy this study suggests the following formula-

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GOLOVCHANSKIYA, R. G., et al, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70,
pp 614-615

tion of the solution (g/l): nickel sulfate, 30; sodium hypophosphite, 25;
ammonium bifluoride, 15; glycine, 15; pH, 8; temperature, 60-70°C;
deposition rate, 10 microns/hr. Glycine and ammonium bifluoride are dis-
solved in water, and nickel sulfate and sodium hypophosphite
are then added. A 20% NaOH solution is added gradually to pH 8.

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Immunology

USSR

UDC 615.471:615.835.5

VORONTSOV, I. V., Lt. Col. Med Serv, SEVERTSOVA, M. K., SMIRNOVA, T. A., and
BIKULOV, I. M., Maj Med Serv.

"The Effectiveness of Aerosol Immunization"

Moscow, Voenno-Meditsinskiy Zhurnal, No 4, 1970, pp 71-74

Abstract: Two aerosol typhoid vaccines were made, one from bacteria grown on solid medium, and the other from bacteria grown in liquid medium and alcohol dried. All experimental subjects were of similar age, size, and had similar living conditions. They had been vaccinated with typhoid and paratyphoid strains six months before. A total of 241 received aerosol inhalation for 15 minutes (dry vaccine) and 243 were treated similarly with vaccine prepared from alcohol-dried cultures. The reaction of both groups was very much alike. Within 6-12 hours, a slight rise in temperature was noted in a small percentage of subjects. However, 24 hours after aerosol vaccination, all side reactions subsided. Immunological tests a month after revaccination showed a twofold increase in antibody titer. The findings were similar in both groups. However, a few subjects vaccinated with dry vaccine showed a slight increase in the titer of O-agglutinins. A single vaccination with dry typhoid aerosol produced a significant increase in antibody titers.

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 TITLE--ELECTRON MICROSCOPY OF ADENOSINETRIPHOSPHATASE IN ESCHERICHIA COLI
 CELLS -U-
 AUTHOR--(03)--KUSHNAREV, V.M., SMIRNOVA, T.A., DUDENKOV, L.G.
 COUNTRY OF INFO--USSR
 SOURCE--CAN. J. MICROBIOL. 1970, 16(6), 449-53
 DATE PUBLISHED-----70

UNCLASSIFIED
 PROCESSING DATE--04DEC70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--ESCHERICHIA COLI, ADENOSINE TRIPHOSPHATE, PHOSPHATASE, ENZYME
 ACTIVITY, ELECTRON MICROSCOPY, CALCIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY FICHE NO----FD70/605012/B12 STEP NO--CN/0000/70/016/006/0449/0453
 CIRC ACCESSION NO--AP0140257
 UNCLASSIFIED

272 016
 CIRC ACCESSION NO--AP0140257 UNCLASSIFIED
 ABSTRACT/EXTRACT--(U) GP-0- PROCESSING DATE--04DEC70
 CELLS WAS INVESTIGATED BY A COMBINATION OF ELECTRON MICROSCOPIC AND
 CYTOCHEM. METHODS. THE ACTIVITY IS LOCATED IN THE CYTOPLASM AND
 CYTOPLASMIC MEMBRANE. AFTER PROLONGED INCUBATION IN SUBSTRATE MEDIUM
 CONTG. CA PRIME² POSITIVE, THE INSOL. CA PHOSPHATE WAS CONCD. INTO
 SEVERAL AGGLOMERATES AND PROBABLY EXTRUDED FROM THE CELL. THE POSSIBLE
 MECHANISM OF EXTRUSION IS DISCUSSED. THE LOCATION OF ATPASE IN MEMBRANE
 PREPNS. WAS INVESTIGATED BY SIMILAR TECHNIQUES AND FOUND BETWEEN THE
 MEMBRANE SUBUNITS. THE SUBUNITS BECAME MORE REGULARLY ARRANGED AFTER
 INCUBATION WITH ATP. FACILITY: METSCHNIKOFF INST. VACCINES
 SERA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.375.8

SMIRNOVA, T. A., CHERPAK, N. T., and SHAMFAROV, Ya. L.

"Special Case of UHF Ruby Quantum Amplification"

Gor'kiy, Izvestiya VUZ--Radiofizika, No 10, 1972, pp 1583-1584

Abstract: This brief communication reports the experimental observation of simultaneous inversion of the 1-2 and 3-4 level populations in ruby at a wavelength of approximately 4 cm. The quantum paramagnetic amplifier used in the experiments had an amplification factor of $G = 20$ dB and a band width of $\Delta f = 1.5$ MHz, and a resonator completely filled with dielectric. The pumping wavelength was 1.5 cm and the magnetic field intensity $H = 1.7$ kOe. The possibility of obtaining the population inversion in the Zeeman levels of the 1-2 and 3-4 transitions by the use of a pumping frequency coinciding with the 1-4 transition frequency had been predicted in an earlier paper (N. B. Karlov, et al, Kvantovyye usiliteli -- Quantum Amplifiers -- Institut nauchnoy informatsii AN SSSR, Itogi nauki, seriya Fizika, 1966).

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USSR

UDC 576.858.74.095.38:576.858 (Langat)

SMIRNOVA, T. D., and KAGAN, G. YA., Institute of Epidemiology and Microbiology
Imeni Gamaleya, Academy of Medical Sciences USSR

"Effect of Mycoplasma-Viral Infection of a Primary Culture of Chick Embryo
Cells on Interferon Production Induced by Langat Virus"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 12, 1971,
pp 54-58

Abstract: The purpose of the experiments was to study: (i) the ability of some mycoplasmas to induce interferon production; (ii) the effect of mycoplasmas on the production of virus-induced interferon; (iii) the relationship between the production of virus-induced interferon, the duration of mycoplasma reproduction in a cell culture before it was infected with virus, and the size of the infectious dose of mycoplasmas. None of the Mycoplasma species studied (*M. laidlawii*, *M. gallisepticum*, *M. hominis* I) was able to induce interferon production in a primary culture of chick embryo cells with vesicular stomatitis virus used as an indicator. In a culture infected with both mycoplasmas and Langat virus, the mycoplasmas reproduced actively while inhibiting the reproduction of the virus and synthesis of interferon. The extent to which mycoplasma (all 3 species) depressed the production of virus-induced interferon was directly related to the length of time they reproduced in the cells before the virus was added. The interferon titers decreased

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SMIRNOVA, T. D., and KAGAN, G. YA., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 12, 1971, pp 54-58

most sharply when the mycoplasma strains were added to the culture 24 hours before the virus. The same phenomenon occurred when the cell cultures were infected with different amounts of mycoplasma. When the cells were treated with the antibiotic tylosine, which inhibits the reproduction of mycoplasmas, the cells regained almost completely their ability to produce interferon,

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SMIRNOVA, T. G. S

"Seminar on the Intensification of the Electrolytic Processes of Electrodeposition of Metals"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 433-484

Abstract: This article discusses a seminar which took place at the Moscow House of Scientific and Technical Propaganda imeni F. E. Dzerzhinskiy. The seminar was attended by 650 representatives of industrial enterprises, scientific research institutes, and design bureaus from a number of states of the Soviet Union. In a review "The Basic Considerations Governing the Intensification of Electrodeposition of Metals", Prof. N. T. Kudryavtsev analyzed various features affecting the deposition rate of metals and quality of coatings and primarily, the uniformity of metal distribution; the significance of the high concentration of discharging ions at the cathode and maintaining a constant pH, using buffer solutions; and use of ultrasonics in degreasing and etching of metals. S. S. Yakobson suggested a new electrolyte containing zincate and ethanalamine zinc complexes. P. S. Titova and L. N. Faybusovich reported on a bright zinc plating technology from a sulfatechlorideammonia electrolyte with the addition of the NF dispersing agent. A stable polyethylenepolyamine

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SMIRNOVA, T. G., Zashchita Metallov, Vol. 6, No. 4, Jul-Aug 70, pp 483-484

electrolyte for zinc deposition permitting the use of current density up to 10 amp/dm² was proposed by A. V. Ryabchenkov and M. P. Kriworuchko. Ya. M. Zoshkarev and collaborators discussed fluoboric electrolytes for deposition of zinc, cadmium, tin, and alloys based on them (current density -- 4-5 amp/dm²) as well as new effective additives to produce deposits of even thickness. A highly efficient tripolyphosphate electrolyte with the addition of carpenter's glue or peptone (V. S. Galinker, M. I. Nansonova) and a complex fluoride electrolyte with additions of polyethyleneglycol esters (L. K. Bobrovskiy, V. L. Kiseleva) were the major topics of other reports on new electrolytes. Particular interest was shown to reports on the effect of periodic currents of various shape on metal electrodeposition (A. K. Krivtsev) and equipment involved in this process (V. T. Fomichev, A. M. Ozerov). S. S. Kruglikov read a report entitled: "Ways of Intensifying the Process of Leveling the Microroughness of the Surface of Coated Parts"

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SMIRNOVA, T. M.

UDC 518.5:681.3.06

"The Application of the M-20 PRORAB Machine $\Pi_1(p, v)$ for the Solution of Problems in Linear Programming"

Zap. Nauchn. Seminarov Leningr. Otd. Mat. In-ta AN SSSR, [Writings of Scientific Seminars of the Leningrad Division of the Mathematics Institute, Academy of Sciences, USSR], 1970, pp 18, 76-95, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. SV658 by V. Mikheyev).

Translation: The solution of a degenerate problem in linear programming by a modified simplex method using a standard program written in PRORAB Machine language $\Pi_1(p, v)$ M-20 is described. An example is presented illustrating this program.

SMIRNOVA, T. N., YEREMINA, V. P.

UDC: 8.74

"On the Use of Magnetic Drums in the PRORAB Mode"

Zap. nauch. seminarov Leningr. otd. Mat. in-ta AN SSSR (Notes of Scientific Seminars of the Leningrad Department of the Mathematics Institute, Academy of Sciences of the USSR), 1971, 23, pp 128-131 (from MZh-Kibernetika, No 5, May 72, Abstract No 5V517)

Translation: The paper describes organization of the work of a program of interpreting type (PRORAB) in the presence of two fields: an operative field of codes and an external field of codes on magnetic drums. For the latter field, three magnetic drums are used, each of them in one-to-one correspondence with a counter for calculating the length of a free space. The following operations of exchange between the operative and external fields are considered: "record", "readout", "clear" (erasure of a code for a quantity accompanied by dense packing of the codes of intact quantities). In this connection, each operation is assigned by a program (code) whose position is described in the operating manual. V. Mikheyev.

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USSR

SMIRNOVA, T. N., KOSTOMETOVA, Ya. M., RYBAKOVA, Yu. V.

UDC: 8.74

"On Making Calculations in the PRORAB Mode"

Zap. nauch. seminars Leningr. otd. Mat. In-ta AN SSSR (Notes of Scientific Seminars of the Leningrad Department of the Mathematics Institute, Academy of Sciences of the USSR), 1971, 23, pp 132-137 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V518)

Translation: A report is made on the results of whole-number computer calculations in the mode of a special program of interpreting type -- PRORAB. For this purpose, the PRORAB library of the M-20 computer is supplemented in the division of programs of polynomial operations by a program of "division" of polynomials which enables transition from polynomial operations to operations with rational functions. When this transition is made, the elimination of all common multiples in the denominator and numerator of each rational function is found to be non-trivial. It is noted that a generalized version of Euclid's algorithm can be realized in the PRORAB mode on the basis of the program of "division" of polynomials. A brief presentation is given of an approach to realization of programs of arithmetic operations on large whole numbers. V. Mikheyev.

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USSR

UDC: 681.3.06:51

SMIRNOVA, T. N., ALEKSANDROVA, A. A., RYBAKOVA, Yu. V., SOLOV'YEVA, N. A.
"The PRORAB $\Pi_1(P,v)$ M-20 Computer"

Zap. nauchn. seminarov Leningr. otd. Mat. in-ta AN SSSR (Notes of the Scientific Seminars of the Leningrad Department of the Mathematics Institute of the Academy of Sciences of the USSR), 1970, 18, pp 31-75 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V733)

Translation: The authors describe the PRORAB $\Pi_1(P,v)$ M-20 computer which can perform operations not only with algebraic and trigonometric polynomials of an arbitrary number of independent variables, but also with objects of another nature, in particular with "perforated" matrices and vectors. The elements of the $\Pi_1(P,v)$ M-20 are: 1) the base M-20 computer with a single operational memory array; 2) the PRORAB $\Pi_1(P,v)$; 3) a library of programs of operations which consists of two divisions: a division of programs of polynomial operations, and a division of programs of operations on "perforated" data blocks. The PRORAB $\Pi_1(P,v)$ program and a set of programs of operations on "perforated" data blocks are given in "M-20" computer codes. V. Mikheyev.

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#0048208

Abstracting Service:
CHEMICAL ABST. 5-70

Ref. Code:

GE 9006

S

102097r Basic trends of technical advances in comminuting and grinding equipment. Korenkov, G. I.; Ruzov, S. V.; Smirnov, S. A. (Tech. Hochsch. Otto von Guericke, Magdeburg, E. Ger.). Chem. Tech. (Leipzig) 1970, 22(2), 77-83 (Ger). A review is given with 39 refs. on primary and fine crushers and mills made in the USA. BVJG

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19791921

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UDC 669.71.472(088.8)

USSR

ZAYTSEV, V. N., BOLDIN, V. V., and SMIRNOVA, T. V.

"Device for Extraction and Replacement of Anode Rods in an Aluminum Electrolyzer With Top Application of Current"

USSR Author's Certificate No 254105, Filed 1/07/65, Published 17/03/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G150 P)

Translation: To increase the reliability and service life of the device, and also decrease the weight and height of the bridge crane, the mechanism for lifting the rod is made up of a system of levers articulated to the carriage and moved in the horizontal and vertical planes by hydraulic cylinders, while the rotating mechanism is clamped directly to the rod head and connected to the rod clamp mechanism. The electric motor of the mechanism for rotation of the rod is located coaxially with a planetary reducer, the output shaft of which is equipped with a clamp for connection to the rod. The mechanism for contacting the clamps with the rod is equipped with a telescopic shaft, a set of bevel gears, and a mechanical switch, moved in the horizontal plane by a hydraulic cylinder.

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1/2 042 UNCLASSIFIED PROCESSING DATE--23OCT70
 TITLE--LOWER ATMOSPHERE OF VENUS FROM RADIO ASTRONOMICAL AND SPACE
 MEASUREMENTS -U-
 AUTHOR--(04)-KUZMIN, A.D., NAUMOV, A.P., SMIRNOVA, T.V., VETUKHNOVSKAIA,
 YU.N.
 COUNTRY OF INFO--USSR
 SOURCE--PLENARY MEETING. 13TH LENINGRAD, USSR, MAY 20-29, 1970, PAPER.
 IIP.
 DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, ATMOSPHERIC SCIENCES
 TOPIC TAGS--VENUS PLANET, PLANETARY ATMOSPHERE, ATMOSPHERIC MODEL, RADIO
 ASTRONOMY, RADAR OBSERVATION, LOWER ATMOSPHERE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3001/0548

STEP NO--UR/0000/70/000/000/0011/0011

CIRC ACCESSION NO--AT0126295

UNCLASSIFIED

PROCESSING DATE--23OCT70

UNCLASSIFIED

2/2 042

CIRC ACCESSION NO--AT0126295

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF TWO MODELS FOR THE LOWER ATMOSPHERE OF VENUS TAKING INTO ACCOUNT AN ANALYSIS OF RADIO ASTRONOMY AND RADAR MEASUREMENTS BASED ON DATA OF THE SOVIET SPACECRAFT VENERA 5 AND 6. THREE INDEPENDENT EVALUATIONS OF THE PRESSURE AND THE TEMPERATURE OF THE VENUS ATMOSPHERE ARE MADE. AN ADIABATIC MODEL WITH RELATIVE ABUNDANCE OF WATER VAPOR OF 0.5PERCENT AND A MODEL WITH AN ISOTHERMAL NEAR SURFACE REGION AT A TEMPERATURE OF 650DEGREEK ARE DESCRIBED. FACILITY: AKADEMIIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--11 DEC 70
 TITLE--THE UNIVERSAL LONGITUDINAL DIFFERENTIAL PROTECTION OF SHORT
 OVERHEAD LINES -U-
 AUTHOR--(04)--MEZHALS, L.V., OREKHOV, L.A., FABRIKANT, V.L., SMIRNOVA, T.V.
 COUNTRY OF INFO--USSR
 SOURCE--MOSCOVA, ELEKTRICHESTVO, NO 3, 1970, PP 22-26
 DATE PUBLISHED--70
 SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
 TOPIC TAGS--TRANSMISSION LINE, OVERVOLTAGE, CIRCUIT BREAKER, PROTECTIVE
 EQUIPMENT
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FAME--1999/1198 STEP. NO--UR/0105/70/000/003/0022/0026
 CIRC-ACCESSION NO--AP0123166
 UNCLASSIFIED

2/2 C10

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0123166

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DESCRIPTION AND DIAGRAMS ARE GIVEN OF LONGITUDINAL DIFFERENTIAL PROTECTION SUITABLE BOTH FOR TWO TERMINAL OVERHEAD LINES (OL) AND FOR OL WITH BRANCH LINES. THE PROTECTION IS ACCOMPLISHED BY A SCHEME WITH CIRCULATING CURRENTS AND HAS LINEAR CHARACTERISTICS AT EXTERNAL SHORT CIRCUITS. UPON SHORT CIRCUITS IN THE ZONE THE MAXIMUM VOLTAGE ON AUXILIARY CONDUCTORS IS LIMITED. RESTRAINT, INTRODUCED INTO PROTECTION SCHEMES, IS PROPORTIONAL TO THE CURRENT OF ITS TERMINAL ON OL. TO PREVENT SPURIOUS OPERATION IN THE CASE WHEN THE CURRENT AT ONE TERMINAL OF THE OL IS LOW OR EQUALS ZERO, BLOCKING IS APPLIED, ACTING THROUGH A DEVICE OF THE GOOD WORKING ORDER CONTROL OF THE AUXILIARY CONDUCTORS.

UNCLASSIFIED

SMIRNOVA, T. V.

JPRS 57021
30 November 1972

ABSTRACTS OF REPORTS PRESENTED AT THE FIRST ALL-UNION
CONFERENCE ON METAL-DIELECTRIC PHASE TRANSITIONS

Excerpts from Russian-language book: *Sbornik Kraikish Soderzhanii Dokladov, Predstavlenykh na I Vsesoyuznyy Konfrentsiyu po Povedeniya Perexodam Metall-Dielektrik*, 1971, Academy of Sciences USSR, Institute of Higher and Secondary Specialized Education USSR, Institute of Moskovskogo Universiteta, Moscow, pp 8-10, 10-12, 15-17, 18-23.

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Metal-Dielectric Phase Transitions of SnSb Alloys in Strong Magnetic Fields (N. B. Brandt, Ye. A. Sviridov).....	1
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On Instability of Two-Zone Model of Neutron Relative to Anisotropy Scattering (Do shan Kai, Yu V. Kopayev).....	5
Light Absorption in V ₂ O ₅ (G. O. Andrianov, et al.).....	7

SMIRNOVA, T.V.

METAL-DIELECTRIC PHASE TRANSITIONS OF BISB ALLOYS IN STRONG MAGNETIC FIELDS

(Article by N. B. Brandt, Ye. A. Sviridov, Moscow State University, Physics Department, pp 8-10)

Presented in this paper are the results of a study of the magnetic resistance of specimens with small controlled overlapping of zones and controlled energy slit, i.e., of metallic and semiconductor alloys of bismuth and antimony in which the antimony concentrations vary up to 22% in pulsed magnetic fields up to 700 kG in the 2-77°K temperature range in the purpose of which was to discover effects related to quantization changes in the energy spectrum of the specimens in the ultranquantum region of magnetic fields.

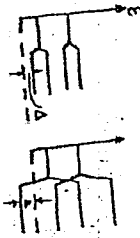


Figure 1.

electron transitions may occur, depending on the ratio of the spin and orbital masses of the carriers.

Quantization of carrier energy and the spin distribution of the energy levels in the magnetic field lead to displacement of the boundaries of the energy zones (Figure 1).

In the ultranquantum region the displacement of zone boundaries (Δ) reaches a magnitude comparable to or greater than the Fermi energy in the zones of the metals or the energy slit in semiconductors. Here

JPRS 57631
30 Nov. 1972

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--PRODUCTION OF HIGH PURITY GERMANIUM TETRACHLORIDE BY REMOVING
PHOSPHORUS IMPURITY -U-
AUTHOR--(05)-FEDOROV, P.I., MOLOCHKO, V.A., KURDYUMOV, G.M., GALOCHKINA,
V.G., SMIRNOVA, T.YU.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., TSVET. MET. 1970, 13(1), 82-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL PRODUCTION, GERMANIUM COMPOUND, CHLORIDE, PHOSPHORUS,
CHEMICAL SEPARATION, CRYSTALLIZATION, PHOSPHORUS CHLORIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0632 STEP NO--UR/0149/70/013/001/0002/0006
CIRC ACCESSION NO--AT0137717
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0137717

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

ABSTRACT. DTA INDICATED THAT PCL SUB3, POCL SUB3, AND PCL SUB5 ARE INACTIVE COMPONENTS AND ARE PRESENT IN THE EUTECTIC. VERY SMALL QUANTITIES OF PCL SUB3 AND POCL SUB3 ARE SOL. IN GECL SUB4 SOLID PHASE. THE EQUIL. DISTRIBUTION COEFF. AND THE SOLIDUS LINE ARE DEFINED FOR VERY SMALL AMTS. OF POCL SUB3 AND PCL SUB3 IN GECL SUB4. THE MEANS FOR CALCG. THE THICKNESS OF A DIFFUSION LAYER DURING CRYSTN. REFINEMENT IS PROPOSED. FOR PURIFICATION OF GECL SUB4, RECRYSTN. IS THE MOST SUITABLE METHOD. FACILITY: MOSK. INST. TONKOI KHIM. TEKHNOL., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC [661.7:547.297.2]+661.718.1

KOLPAKOVA, I. O., KABACHNIK, M. I., MEDVED' T. YA., LASTOVSKIY, R. P.,
KRINTSKAYA, L. V., URINOVICH, YE. M., and SMIRNOVA, Y. A.

"Simultaneous Production of Acetyl Chloride and Hydroxyethylenediphosphonic
Acid"

Moscow, Khimicheskaya Promyshlennost', No 8, 1972, pp 576-578

Abstract: Results are reported of the study of optimal reaction conditions for the simultaneous production of acetyl chloride and hydroxyethylenediphosphonic acid (HEDPA). The yield of HEDPA reached 84% when phosphorus trichloride was reacted with a mixture of acetic acid and acetic anhydride. The structure of HEDPA was proven by parallel synthesis from acetyl phosphonic acid diethyl ester and diethyl phosphite. Further proof was obtained by infrared spectroscopic analysis and potentiometric titration.

1/1

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USSR

UDC 576.851.48.097.29

SMIRNOVA, V. I., GUBENKO, T. L., and GOLUBTSEVA, M. V., Agricultural Institute, University, and Scientific Research Institute of Virology and Epidemiology, Odessa

"The Hemolytic and Cytotoxic Activity of Escherichia coli Exotoxins"

Kiev, Mikrobiologichnyi Zhurnal, Vol 35, No 4, Jul/Aug 73, pp 456-460

Abstract: On centrifuging of a 24 hr Hottinger broth culture of E. coli isolated from a patient with a urological disease, the exotoxins from the supernatant liquid were concentrated by precipitation with trichloroacetic acid. Electrophoresis of the exotoxins resulted in the separation of a component that exhibited hemolytic associated with cytotoxic activity from another component which had proteolytic activity and was toxic to animals. The hemolytic and cytotoxic activity of the first component was due to a thermally labile protein substance that did not dialyze. In view of the fact that addition of magnesium salts, calcium salts, or cysteine did not alter the hemolytic and cytotoxic activity, one could conclude that this activity was not due to lecithinase C.

1/1

USSR

UDC 681.3.06:51

~~SMIRNOVA, V.F.~~

"The Problem of Organization of Combination of Programs During Joint Solution of a Group of Problems"

Tsifr. Vychisl. Tekhnika i Programmir. [Digital Computer Equipment and Programming -- Collection of Works], No 6, Moscow, Sovetskoye Radio Press, 1971, pp 87-92, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V617 by the author).

Translation: A method is studied for determining the list of subroutines simultaneously present in memory and the volume of main memory required to hold them during multiprogramming solution of problems. The method suggested can be used in a supervisor for a computer complex. Its realization can be achieved either by program or by a combination of software and hardware approaches.

1/1

USSR

UDC 616.74-018.83-02:576.851.551.097.29

POZDNYAKOV, O. M., POLGAR, A. A., SMIRNOVA, V. S. and KRIZHANOVSKIY, G. N.,
Electron Microscopy Group, Laboratory of Pathophysiology of Infectious Intoxi-
cations, Institute of Normal and Pathological Physiology of the Academy of
Medical Sciences USSR, Moscow

"Change in the Ultrastructure of the Neuromuscular Junction Under the Action
of Tetanus Toxin"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 74, No 7,
1972, pp 113-116

Abstract: Changes in the ultrastructure of the neuromuscular junction of the
rat diaphragm were studied 3-5 hours after intramuscular injection of $2 \cdot 10^5$ DLM
of tetanus toxin. The general relationship of structures remained intact, and
changes were noted mainly in the axon terminal, the most marked of which was
an increase in the number of presynaptic vesicles, most of which appeared
normal. The number of matrix density of mitochondria in axon terminals was
increased. Some injury and degeneration of the presynaptic terminals was noted.
It is suggested that the observed changes are consistent with damage to the axon
membrane leading to a decreased release of neurotransmitter with accumulation
in the axon terminal.

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- 45 -

Physiology

USSR

UDC 612.816.018.014.46:576.851.097.29

KRYZHANOVSKIY, G. N., POZDNYAKOV, O. M., D'YAKONOVA, M. V., POLGAR, A. A.,
and SMIRNOVA, V. S., Laboratory of the Pathological Physiology of Infectious
Intoxications and Electron Microscopy Group, Institute of Normal and Patho-
logical Physiology, Academy of Medical Sciences USSR

"Impairment of Neurosecretion in the Myoneural Junctions of Muscle Poisoned
With Tetanus Toxin"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 12, 1971, pp
27-31

Abstract: Electrophysiological and electron-microscopic study was conducted
of the neuromuscular synapses in the rat diaphragm locally poisoned with
tetanus toxin (2-10⁵ MLD). Injection of the toxin resulted in a progressive
decrease in the amplitude of the respiratory burst in the poisoned diaphragm,
but it had no effect on the actual nature of the respiratory electrical ac-
tivity. The animals died in 7 to 9 hours with symptoms of paralysis of the
respiratory muscles. A comparison of the histograms for intact neuromuscular
preparations isolated from the diaphragm with those for preparations isolated
3 to 3-1/2 hours after injection of the toxin revealed a sharp decrease in the
level of spontaneous synaptic activity in the poisoned muscles, an indication

USSR

KRYZHANOVSKIY, G. N., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny, No 12, 1971, pp 27-31

of impairment of the neurosecretory apparatus. Injection of inactivated toxin did not impair neurosecretion. Electron-microscopic examination showed that the neuromuscular synapse in the poisoned muscle retained its structure. Changes were noted only in the axon terminal in the form of swelling of the mitochondria and increased number of synaptic vesicles. There were no changes in the subsynaptic structures.

2/2

USSR

UDC 615.216.5.015.45

FISENKO, V. P., POLGAR, A. A., and SMIRNOVA, V. S., Department of Pharmacology, Faculties of Medicine and Public Health, 1st Moscow Medical Institute imeni I. M. Sechenov, and the Laboratory of Infectious Pathophysiology of the Nervous System, Institute of Normal and Pathologic Physiology, Academy of Medical Sciences USSR

"Microelectrophysiologic Investigations on the Mechanisms of Action and Localizations of a Number of New Curariform Drugs"

Moscow, Farmakologiya i Toksikologiya, Vol 36, No 2, 1973, pp 206-209

Abstract: The mechanisms of action of several new curariform drugs, anatruxonium (I), cyclobutonium (II), decadonium (III), and diadonium (IV) were investigated by means of microelectrode recordings of rat phrenic nerve-diaphragm preparations. The studies were conducted with male August rats, with the nerve-diaphragm preparations kept at room temperature in Tyrode's solution saturated with a mixture of oxygen and carbon dioxide (carbogen). The diameters of the tips of the microelectrodes, which were filled with 2.5 M KCl, were 0.5μ . Control values for the membrane potentials and the end plate potentials were obtained by adding ditiline, decamethonium, or D-tubocurarine to the bath. The results showed that the addition of I to a $1/2$

USSR

FISENKO, V. P., et al., Farmakologiya i Toksikologiya, Vol 36, No 2, 1973, pp 206-209

concentration of 6×10^{-8} M, II (1.25×10^{-7} M), III (1.2×10^{-7} M), or IV (1.4×10^{-7} M) did not lower the membrane potential and, thus, did not depolarize the postsynaptic membrane. They did decrease the amplitude of the end plate potentials, indicating their effect on the choline receptors at the end plate. They show that these new curariform drugs exert their inhibition of the neuromuscular junction by affecting the receptors on the end plate in such a manner that they cannot react with acetylcholine.

2/2

1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT71
TITLE--HISTOCHEMICAL FEATURES OF THE ASHKENAZY (HUERTHLE) CELLS AND THEIR
POSSIBLE ROLE IN THE FUNCTIONING OF THE THYROID GLAND -U-
AUTHOR-(02)--RAYKHLIN, N.T., SMIRNOVA, YE.A.

COUNTRY OF INFO--USSR

SOURCE--TSITOLOGIYA 1970, 12(2), 287-97

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--THYROID GLAND, CARCINOMA, HISTOCHEMISTRY, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/2035

STEP NO--UR/9053/70/012/002/0187/0197

CIRC ACCESSION NO--AP0120678

UNCLASSIFIED

2/2 014.

UNCLASSIFIED

PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120678

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWENTY-EIGHT ADENOMAS AND 32 CARCINOMAS OF THE THYROID GLAND WERE HISTOCHEM. EXAMD. THE FOLLOWING ENZYMES WERE DETECTED: DEHYDROGENASES OF THE KREBS CYCLE, LACTIC DEHYDROGENASE, ALPHA-GLYCEROPHOSPHATE DEHYDROGENASE, DEHYDROGENASES OF THE PENTOSE CYCLE, GLUTAMIC ACID DEHYDROGENASE, NAD AND NADP DIAPHORASES. THE HISTOCHEM. PROPERTIES OF THE FOLLICULAR AND HUERTHLE CELLS WERE DESCRIBED. THE ACTIVITY OF THE OXIDOREDUCTIVE ENZYMES IN THE HUERTHLE CELLS WAS VERY HIGH. THERE WERE NO LOCALIZED DIFFERENCES IN THEIR PROPERTIES. THE BEST DIFFERENTIATION AGAINST FOLLICULAR CELLS WAS OBSD. WITH SPECIMENS TESTED FOR ISOCITRIC AND SUCCINIC ACID DEHYDROGENASES. THE HIGH METABOLIC ACTIVITY OF THE HUERTHLE CELLS DID NOT PERMIT CONSIDERATION OF THESE CELLS AS REGRESSIVE TYPES. THE ONCOCYTIC CELL SYSTEM IN THE WHOLE ORGANISM APPARENTLY PLAYS AN IMPORTANT COMPENSATORY ROLE IN HOMEOSTASIS. FACILITY: LAB. HISTOCHEM. ELECTRON. MICROSCOPY, INST. EXP. CLIN. ONCOL., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.791.011:620.192.4.001.2:669.015.14:669.721

RYAZANTSEV, V. I., Candidate of Technical Sciences, SMIRNOVA, YE. I., Engineer,
and OSOKINA, T. N., Engineer

"The Effect of Alloying and the Purity of the Magnesium Alloy of the Mg-Zn-Zr-
Rare Earth Metal System on the Tendency Towards Hot Crack Formation"

Moscow, Svarochnoye Proizvodstvo, No 5, May 73, pp 28-30

Abstract: The authors show that alloys of the Mg-Zn-Zr-rare earth metal system with a content of 1.0-1.6 percent Zn, 0.04-0.1 percent Zr, 0.16-0.3 percent rare earth metal and with an admixture of Fe, Cu, Si, Ni, Al in quantities of 0.01-0.03 percent have a low resistance to hot crack formation (critical deformation rate of 0.5-0.75mm/minute). This significantly limits the possibility of their use in complexly shaped welded structures. Varying the Zn content from 1.0 to 1.6 percent in the basic metal and introducing Mn do not have a significant effect on the rate of critical deformation during welding. Resistance to hot crack formation can be significantly increased by reducing Cu content 2-3 times and the admixture (Fe, Ni, Cu, Si, and Al) 2-4 times. The critical rate of deformation under these conditions is increased 2.5-3.5 times and reaches 1.8-1.9 mm/minute.

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Welding

USSR

UDC 621.791.042:669.15'74-194

RYAZANTSEV, V. I., PUGACHEV, A. I., Candidates of Technical Sciences,
SMIRNOVA, Ye. I., MIKHEYEV, I. M., Engineers, ANTONOV, Ye. G., Candidate of
Technical Sciences, and OSOKINA, T. N., Engineer

"Selection of an Additive Material for Welding of Mg-Zn-Zr-REM Alloys"

Moscow, Svarochnoye Proizvodstvo, No 7, Jul 1972, pp 9-11

Abstract: Deformable magnesium alloys in the system Mg-Zn-Zr-REM are recommended for the manufacture of complex structures without stress relief following welding. These alloys have tensile strengths of at least

22 kg/mm^2 and $\delta > 15\%$. These alloys are also superior in impact toughness, relative elongation, and relative reduction in area. The weldability of the alloys studied was evaluated using sheets 2 mm thick following annealing for one hour at 260°C . The alloys were found to have good weldability with argon arc welding using wires with compositions differing from the base metal. Two compositions of wires based on Mg are suggested: 1.0-1.5% Zn, 0.5-0.7% Zr, 2.8-3.7% Ce; and 1.0-1.5% Zn, 4.4-7.0% Al, 0.3-0.6% Mn. The former wire is recommended for complex and rigid structures with large volumes of manual welding; the latter is recommended for automatic welding of structures to be subjected to impact and cyclical loading. These wires produce welded joints with strengths at least 90% of the base metal, bending angle at least $1/2$

USSR

RYAZANTSEV, V. I., et al., Svarochnoye Proizvodstvo, No 7, Jul 1972, pp 9-11

50 and 65° respectively. Overall corrosion of welded seams using these wires is similar to the base metal; the welded joints are not inclined to corrosion under stress.

2/2

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Welding

USSR

UDC 621.791.011.001.5:669.721 + 669.5

ANTONOV, YE. G., Engineer, POPOV, A. S., Engineer, YAKUSHIN, B. F., Candidate of Technical Sciences, OSOKINA, T. N., Engineer, NIKOLAYEVA, V. S., Technician, MIKHEYEV, I. M., Engineer, SMIRNOVA, YE. I., Engineer, SHPAGIN, B. V., Engineer, and BABADZHANOVA, I. S., Engineer

"Effect of Rare-earth Elements on the Weldability of Magnesium-Zinc and Magnesium-Zinc-Zirconium Alloys"

Moscow, Svarochnoye Proizvodstvo, No 12, Dec 70, pp 6-8

Abstract: The effect of some rare-earth metals on the weldability of magnesium-zinc and magnesium-zinc-zirconium alloys was studied in experimental melts. Sheets of the alloys, 2 mm thick, were obtained by rolling on a "Duo" laboratory mill from flat ingots cast in metal molds. Before rolling, the ingots were heated to 380-400° C (11 intermediate heats, 2-3 passes). Shrinkage was 15-25 percent. After rolling, the sheets were annealed at 260° C for an hour. The filler wire was made of the same material. The results indicate that rare-earth metals (neodymium, 1/2

USSR

ANTONOV, YE. G., et al., Svarochnoye Proizvodstvo, No 12, Dec 70, pp 6-8

lanthanum, mischmetal) at the rate of up to 0.6 percent by weight affect the hot-shortness of the studied alloys in different ways during welding. The most probable reason for this is the varying effect of rare-earth metals on the plasticity of the studied alloys in the region of the lower limit of the brittle temperature range, as well as the varying effect on the magnitude of the latter. The weld cracking resistance of the alloys can be increased by alloy additions of lanthanum and cerium mischmetal and the use of filler wire (2 percent Zn, 0.45 percent Zr, 3.44 percent cerium mischmetal, the rest Mg).

2/2

USSR

UDC 621.791.019

ANIONOV, Ye. G., POPOV, A. S., YAKUSHIN, B. F., OSOKINA, T. N., MIKHEYEV, I. M., SMIRNOVA, Ye. I., SHPAGIN, B. V., and NIKOLAYEVA, V. S., Moscow

"Metallurgical Action on Seam Strength in Magnesium Alloy Welding"

Kiev, Avtomaticheskaya Svarka, No 2, Feb 71, pp 53-55

Abstract: The problem considered in this paper is the metallurgical means that can be used to deal with cracks in magnesium alloy welds, specifically magnesium alloyed with zinc, and the efficiency of the means. Melts of the VMD3 series and several magnesium-zinc melts were the subjects of the experimentation; the defect of the first class of alloys is the tendency of its welds to develop heat cracks caused by the change in the lanthanum content. It was assumed in these tests that the introduction of rare earth metals into the alloys would improve their resistance to the formation of cracks since magnesium forms eutectics with these metals. A conclusion reached by the authors is that one cause of cracks forming in the welds that did not contain zirconium is the large crystalline structure of the weld metal, and that the resistance of the weld to cracks could be improved by the addition of 0.55% Zr.

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USSR

RYAZANTSEV, V. I., PUGACHEV, A. I., SMIRNOVA, Ye. I., BLYABLIN, A. A.,
KJUDISHINA, T. A., OSOKINA, T. N., Moscow, Svarochnoye Proizvodstvo
No 10, Oct 72, pp 8-10.

For welding wire in the Mg-Zn-Zr-Ce system, an increase in Ce content to
3.7% or more causes a sharp increase in diffusion penetration of this ele-
ment from the seam into the surrounding zone, significantly increasing
resistance to the formation of hot cracks ($A \geq 0.6$ mm/min).

2/2

USSR

UDC 621.791.042:669.721.5

RYAZANTSEV, V. I., SMIRNOVA, YE. I., and OSOKINA, T. N., All-Union Scientific Research Institute of Aviation Materials

"Effect of Filler Wire Composition on the Microchemical Heterogeneity and Some Properties of Magnesium Alloy Joints"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 72, pp 9-12

Abstract: A study was made of the chemical heterogeneity of magnesium alloy weld joints where alloying was accomplished using magnesium-base filler wires with an average composition of the alloying elements of 1.5% Zn, 7% Al, and 0.3% Mn and the base metal containing an average composition of 1.3% Zn, 0.03% Zr, and 0.22% mischmetal. Prior to welding, the alloy sheet was annealed at 260°C for one hour. Welding was done using an ADSV-2 automatic unit with an IPK-350 power source with four different threshold energy values. Microheterogeneity was studied using local x-ray spectral analysis on an MAR-1 unit. When using fillers of the Mg-Zn-Zr-Ce mischmetal system, the microchemical heterogeneity in the fusion zone emerges as a result of diffusion redistribution of cerium from the seam into the heat-affected zone; when using fillers of the Mg-Al-Zn-Mg the microchemical heterogeneity emerges as a result of diffusion penetration of zinc from the heat-affected zone into the seam. From the action of the
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USSR

RYAZANTSEV, V. I., et al., *Avtomaticeskaya Svarka*, No 10, Oct 72, pp 9-12

thermal welding cycle there is observed in the heat-affected zone -- independent of filler wire composition -- diffusion enrichment of the fusion boundaries by cerium and a decrease of its content in the boundary sections of the grain, as well as decomposition of the solid solution in the grain body, being accompanied by precipitation of phases rich with zinc. Microchemical heterogeneity for zinc amounted to approximately 1000%. The impact strength of weld joints made using fillers with cerium mischmetal was 2-3 times less and the bend angle 15-20% less than when using fillers of the Mg-Al-Zn-Mn system for an almost identical strength. 5 figures, 2 tables, 12 bibliographic references.

2/2

- 47 -

1/2 011 UNCLASSIFIED PROCESSING DATE-- EP70
TITLE--RUBIDIUM AND CESIUM CHLOROALCITES -U-
AUTHOR--SOROKINA, V.V., SMIRNOVA, YE.K., VASILKOVA, I.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 577-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--X RAY DIFFRACTION PATTERN, RUBIDIUM COMPOUND, CESIUM COMPOUND,
TRICHLORIDE, CALCIUM COMPOUND, MELTING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAF--1983/0948 STEP NO--UR/0078/70/015/002/0577/0578
CIRC ACCESSION NO--AR0053871

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AR0053871

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONGRUENTLY MELTING RBCACL SUB3 AND CSCACL SUB3 WERE PREPD. IN AN AUTOCLAVE. THE X RAY POWDER DIFFRACTION PATTERN OF RBCACL SUB3 IS GIVEN. DELTA H OF FORMATION OF MCACL SUB3 FROM THE CORRESPONDING CHLORIDES IS 5.9 AND 8.7 AND FROM ELEMENTS 298.8 AND 302.2 KCAL-MOLE FOR M EQUALS RB AND CS, RESP. DELTA H OF DISSOLN. OF EQUIMOLAR CONCNS. OF RBCL AND CACL SUB2 IS MINUS 15.61 AND OF CSCL AND CACL SUB2 MINUS 15.31 KCAL-MOLE.

UNCLASSIFIED

UDC 541.65

KIMEL'FEL'D, Ya. M., SMIRNOVA, YE. M., PERSHIKOVA, N. I., KALIYA, O. L., TEMKIN, O. N., and FLID, R. M., Institute of Spectroscopy, Academy of Sciences USSR, and Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov, Moscow

"Vibrational Spectra and the Structure of Phosphine and Phosphite Complexes of Palladium Chloride and Bromide"

Moscow, Zhurnal Strukturnoy Khimii, Vol 13, No 4, Jul-Aug 72, pp 622-625

Abstract: On the basis of data obtained by IR and Raman spectroscopy of the phosphine complexes $\text{Pd}(\text{PPh}_3)_2\text{X}_2$ ($\text{X} = \text{Cl}, \text{Br}$) and the phosphite complexes $\text{Pd}/\text{P}(\text{OPh})_3/2\text{X}_2$ ($\text{X} = \text{Cl}, \text{Br}$), it was established that the phosphine complexes have a trans-structure and the phosphite complexes a cis-structure. The difference in structure explains why the phosphite complexes are effective catalysts in the synthesis of acrylic acid esters from acetylene at atmospheric pressure according to $\text{C}_2\text{H}_2 + \text{CO} + \text{ROH} \rightarrow \text{CH}_2=\text{CH}-\text{COOR}$, while the phosphine complexes are inactive in catalyzing this reaction. The authors thank G. N. Zhizhina, N. I. Afanas'yeva, and A. V. Bobrova for assistance in determining the spectra of the complexes.

1/1

USSR

UDC: 621.396.679.4(088.8)

KOROTKOV, V. P., KAS'YANOV, D. K., SMIRNOVA, Ye. N., KORNEV, V. N.

"An Automatic Antenna Matching Device"

USSR Author's Certificate No 263009, filed 9 Aug 68, published 8 Jun 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12B407 P)

Translation: This Author's Certificate introduces an automatic antenna matching device. As a distinguishing feature of the patent, the device is designed for complete antenna matching on several working frequencies. An auxiliary long line is connected in front of the matching cell, which consists of series and parallel connected variable capacitors. Variable capacitors are also connected in this long line. Mounted between the plates of all variable capacitors are disks, each of them being broken up into several identical sectors having different dielectric constants, all the dielectric disks being made to rotate from a single step-by-step motor. Two illustrations. Resumé.

1/1

- 7 -

1/2 023 UNCLASSIFIED PROCESSING DATE--1156 70
 TITLE--AN AUTOMATIC ANTENNA MATCHER -U-
 AUTHOR--KOROTKOV, V.P., KASYANOV, D.K., SMIRNOVA, YE.N., KORNEV, V.N.
 COUNTRY OF INFO--USSR S
 SOURCE--U.S.S.R. 263009
 REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRATZSY, TOVARNYE ZNAKI NO 7, 4 FEB
 DATE PUBLISHED-----70
 SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
 TOPIC TAGS--ANTENNA COMPONENT, PATENT, ANTENNA TUNING, VARIABLE CAPACITOR,
 DIELECTRIC CONSTANT, SERVO MOTOR
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1992/1086 STEP NO--UR/0482/70/000/000/0000/0000
 CIRC ACCESSION NO--AA0112211
 UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AA0112211

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS AUTHOR'S CERTIFICATE INTRODUCES AN AUTOMATIC ANTENNA MATCHER BASED ON AUTHOR'S CERTIFICATE NO 187845. THE MATCHER DIFFERS BECAUSE THE UNIT IS DESIGNED TO PROVIDE COMPLETE MATCHING OF THE ANTENNA ON SEVERAL WORKING FREQUENCIES. AN AUXILIARY LONG LINE IS CONNECTED IN FRONT OF THE MATCHING CELL, WHICH CONSISTS OF VARIABLE CAPACITORS CONNECTED IN SERIES AND PARALLEL. ALSO CONNECTED TO THE LONG LINE ARE VARIABLE CAPACITORS, AND BETWEEN THE PLATES OF ALL VARIABLE CAPACITORS ARE DISCS, EACH BROKEN UP INTO SEVERAL IDENTICAL SECTORS HAVING VARIOUS DIELECTRIC CONSTANTS. ALL THE DIELECTRIC DISCS ARE ROTATED BY A SINGLE STEP SERVO MOTOR.

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UNCLASSIFIED

USSR

UDC 576.858.75.098.396.33.06

VORKUNOVA, G. K., SMIRONOV, YU. A., and BUKRINSKAYA, A. G., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Infectious Activity of Newly Synthesized Paramyxovirus Ribonucleoprotein"

Moscow, Vorposy Virusologii, No 6, Nov/Dec 71, pp 707-713

Abstract: The infectious factors present in cytoplasmatic extracts of Ehrlich ascites carcinoma cells infected with Sendai virus were investigated on mice by radioactive (P^{32} and H^3 -uridine) and fractionation methods. It was established that the toxicity is due to a newly synthesized viral ribonucleoprotein present in the cytoplasm of the host cells in the form of straight strands and having the buoyant density of 1.38 g/cm^3 . This modified ribonucleoprotein is believed to represent a prefinal stage, after which the strands are arranged into spirals before they are incorporated into the virus. The infectious paramyxovirus ribonucleoprotein was found only in ascitic carcinoma cells.

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172 055 UNCLASSIFIED PROCESSING DATE--30OCT70
 TITLE--TERPOLYMER OF FLUORO SUBSTITUTED STYRENES WITH STYRENE AND WITH
 DIENES -U-
 AUTHOR--(05)--ANISIMOVA, V.V., GORSHKOVA, I.A., DOKUKINA, A.F., PETERKIN,
 B.D., SMIRNOVA, Z.A.
 CCOUNTRY OF INFO--USSR
 SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 256-8
 DATE PUBLISHED--70
 SUBJECT AREAS--CHEMISTRY, MATERIALS
 TOPIC TAGS--POLYMERIZATION, FLUORINATED ORGANIC COMPOUND, STYRENE, DIENE,
 ISOPRENE, COPOLYMER, ELASTICITY
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--2000/0780 STEP NO--UR/0153/70/013/002/0256/0258
 CIRC ACCESSION NO--AP0124449
 UNCLASSIFIED

2/2. 033

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124449

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE OF COMONOMER MIXT. COMPN. ON THE COMPN. AND PROPERTIES OF THE TITLE TERPOLYMERS WAS STUDIED. EMULSION OR BULK POLYMN. OF STYRENE (I), BUTADIENE (II) OR ISOPRENE (III), AND P PHC SUB6 H SUB4 CF:CF SUB2, PHCF:CFSUB2 (IV), C SUB6 F SUB5 CME:CHSUB2, PHCF: CFC¹, OR RPHC SUB6 H SUB4 CF: GAVE 12 HIGH MOL. WT. TERPOLYMERS, IN 17.9-72.4PERCENT YIELDS, WHOSE FLUOROSTYRENE CONTENTS (05.-24PERCENT) WERE SIGNIFICANTLY LOWER THAN THOSE IN THE ORIGINAL MONOMER MIXT. (3.66-49-82 MOLE PERCENT). EMULSION POLYMN. OF A I-II-III MIXT. AND BULK POLYMN. OF I, III, AND C SUB6 F SUB5 CH:CH SUB2 DID NOT GIVE TERPOLYMERS. REACTIONS WITH ISOPRENE REQUIRED SIMILAR TO 4 TIMES LONGER. THE HIGHER THE II CONTENT OF A TERPOLYMER, THE HIGHER ITS MOL. WT. TERPOLYMER CONTG. GREATER THAN 20PERCENT II WERE RUBBERS; FILMS CAST FROM BENZENE SOLN. WERE MORE ELASTIC THAN THOSE OF COPOLYMERS NOT CONTG. II. FACILITY: LENINGRAD. POLITEKH. INST. IM. KALININA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 621.386.12:548.73.08

KUZNETSOV, F. I., SMIRNOVA, Z. F., and MYASHNIKOV, YU. G.

"The Mars-2 X-ray Unit"

V sb. Apparatura i metody rentgenovsk. analiza (Equipment and Methods of X-ray Analysis -- collection of works), Vyp.11, Leningrad, "Mashinostroyeniye", 1972, pp 39-43 (from RZh-32.Metrologiya i Izmeritel'naya Tekhnika, No 5, 1973, Abstract No 5.32.892)

Translation: The authors present a description of the Mars-2 bench type x-ray unit with an x-ray radiation generator of 0.1 kw output in the form of the BSV-7 sealed off, sharp-focus tube. The x-ray unit ensures the supply of uniformly controllable voltage to the tube within the 0 to 50 kv limits. The anode current is regulated by the supply of direct current with a 0-125v shift to the forcing electrode of the tube. The standard deviation from the given voltage value and the anode current for 12 hours of continuous operation does not exceed 2 percent. An example is given of using the unit in the realization of the high-resolution topographic Lang method. Original article: three illustrations and two bibliographic entries. Resume.

1/1

USSR

PUSHINA, M. YA., SMIRONOVA, Z. N., SHVETSOVA-SHILOVSKAYA, K. D., et al.

"Quantitative Determination of the Composition of Technical Dimethyl Chlorothiophosphate"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protective Agents)
Moscow, vyp 3, 1973, pp 126-127 (from RZh-Khimiya, No 20, Oct 73, Abstract
No 20N471)

Translation: A TLC method has been proposed for qualitative determination of the composition of technical $(\text{MeO})_2\text{PSCl}$ (I). The analysis was carried out on plates with a fixed layer of silica gel, grade KSK in the solvent system hexane- C_6H_6 (2:1). The chromatograms were developed with bromphenol blue followed by illumination with UV light. I contains the following impurities: MeOPSCl_2 and $(\text{MeO})_3\text{PS}$.

1/1

Acc. Nr: **AP0046547**

Ref. Code: UR 0216

PRIMARY SOURCE: *Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya*, 1970, Nr 1, pp 30-37.

Z. S. SMIRNOVA

INFLUENCE OF THE GASOUS MIXTURE COMPOSITION ON THE GROWTH OF THE BACTERIA ASSIMILATING GASOUS HYDROCARBONS

Institute of Bacterial Biochemistry and Physiology Academy of Sciences, USSR

It was found that the biomass concentration in the medium under stable conditions is directly dependent on the oxygen and hydrocarbon concentration of the gaseous mixture.

50% oxygen contents in a medium with methane and 55% of its contents in mixture with propane does not hinder bacterial growth.

The grade of methane or propane utilization for the synthesis of the cell substance depends on the relative contents of the hydrocarbon and oxygen.

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19781808

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Methane is utilized most efficiently by the bacteria when the ratio of $O_2 : CH_4$ volumes is equal to 1.5. Propane assimilation becomes most successful when the ratio of $O_2 : C_3H_8$ is equal to 3.

It was shown that CO_2 is necessary for the growth of methane oxidating bacteria. The optimal CO_2 concentration varies from 5—10%.

Higher CO_2 concentration hinders development of gasoxidating bacteria.

A CO_2 concentration exceeding 20% completely stops bacterial growth.

3/2

DLH

19781809

1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--HOMOPHASE AND HETEROPHASE ACYLATION OF ALIPHATIC AMINES -U-
AUTHOR--(03)-VASILKEVICH, I.M., PISKOVTINA, G.A., SMIRNOVZAMKOV, I.V.
COUNTRY OF INFO--USSR
SOURCE--DOPOV. AKAD. NAUK UKR. RSR, SER. B 1970, 32(3), 243-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ALIPHATIC AMINE, METHYLENE, BENZENE, ADSORPTION, ISOTHERM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0797 STEP NO--UR/0442/70/032/003/0243/0246
CIRC ACCESSION NO--AT0132895
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

212 015

CIRC ACCESSION NO--AT0132895

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONSTS. OF THE 2ND ORDER RATE OF ME(CH SUB2) SUBN NH SUB2 (I, N EQUALS 2-5) BENZOLATION IN C SUB6 H SUB6 WERE 1500-2000 I. PER MOLE SEC AT 18-23DEGREES. THE RATE OF INTERFACE BENZOLATION (H SUB2 O-C SUB6 H SUB6) DEPENDED ON I CONC. IN THE ADSORPTION LAYER ON THE PHASE INTERFACE. ADSORPTION ISOTHERMS OF I (N EQUALS 2-4) WERE DETD. ON THE INTERFACE H SUB2 O-C SUB6 H SUB6 AT 20DEGREES.

FACILITY: INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DIRECT MEASUREMENTS OF THE ION CONCENTRATION IN THE STRATOSPHERE
AND MESOSPHERE BY THE ACCUMULATED CAPACITY METHOD -U-
AUTHOR--SMIRNYKH, L.N.
COUNTRY OF INFO--USSR
SOURCE--KOSMICHESKIE ISSLEDOVANIYA, VOL. 8, MAY-JUNE 1970, P. 463-465
DATE PUBLISHED-----70
SUBJECT AREAS--ATMOSPHERIC SCIENCES, ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--ION CONCENTRATION, STRATOSPHERE, MESOSPHERE, CAPACITOR, DATA
PROCESSING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605013/C06 STEP NO--UR/0293/T0/003/000/0463/0465
CIRC ACCESSION NO--AP0140374
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140374

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF A FACILITY FOR MEASURING WEAK CURRENTS IN THE STRATOSPHERE AND MESOSPHERE BY MEANS OF ACCUMULATED CAPACITY AMPLIFIER, USING A CYLINDRICAL CAPACITOR FOR OBTAINING THE ACCUMULATED CAPACITY. THE BLOCK AND CIRCUIT DIAGRAMS OF THE FACILITY ARE GIVEN AND DISCUSSED. ADVANTAGES OVER OTHER EXISTING METHODS INCLUDE A SMALLER TIME CONSTANT AT THE INPUT OF THE ELECTROMETRIC AMPLIFIER USED TO MEASURE THE SATURATION CURRENT OF THE CAPACITOR, AND A MUCH SMALLER INSTRUMENT DRIFT, WHICH IS ESSENTIAL FOR DATA PROCESSING.

UNCLASSIFIED

USSR

UDC 539.3:534.231.1

SMIRNYKH, N. S.

"Impact of a Rod Against an Elastic Halfspace"

Nauch. tr. Kursk. politekn. in-t (Scientific Works of the Kursk Polytechnic Institute), 1971, sb. 1, part 2, pp 96-101 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11V38)

Translation: A study was made of the problem of impact of a rod against an elastic halfplane. It is proposed that the surface of the halfspace experiences only tangential displacements at the points where the rod does not contact the surface. Tangential and normal displacements are considered for the remaining points. The boundary of the halfspace is considered flat, the rod is considered cylindrical with its axis perpendicular to the surface of the halfspace. The input impedance of the halfspace is assumed elastic. The calculation is performed by the procedure proposed by P. V. Ponomarev. Graphs are presented for the stresses and velocities as sign functions for an iron rod during impact against a fine-grained sandstone.

1/1

1/2 045 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--TYPES OF HEAT ENERGY TRANSPORT IN METALLIC PLASMA DEPOSITED COATING
AND A CERTAIN QUALITATIVE EVALUATION OF THEIR HEAT CONDUCTIVITY -U-
AUTHOR--(G2)--SMIRONOV, E.V., IGMIN, V.YE.

COUNTRY OF INFO--USSR

SOURCE--INZHENERNG-FIZICHESKII ZHURNAL, VOL. 18, MAR. 1970, P. 436-441

DATE PUBLISHED---MARTO

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLASMA TORCH SPRAYING, HEAT TRANSFER THEORY, METAL COATING,
THERMAL CONDUCTIVITY, CRYSTAL LATTICE VIBRATION, RADIATIVE HEAT
TRANSFER, MOLECULAR KINETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1566

STEP NO--UR/0170/70/018/000/0436/0441

CIRC ACCESSION NO--AP0118549

UNCLASSIFIED

2/2 045

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0118549

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE MECHANISMS OF HEAT ENERGY TRANSPORT IN COARSE GRAINE ORIENTED COATING OBTAINED BY PLASMA DEPOSITION ON A SUBSTRATE UNDER ATMOSPHERIC CONDITIONS. SPECIFICALLY STUDIED ARE HEAT ENERGY TRANSPORT BY ELASTIC CRYSTAL LATTICE VIBRATIONS (BY PHONONS), HEAT ENERGY TRANSPORT BY ELECTRONS, MOLECULAR HEAT ENERGY TRANSPORT IN THE PORES OF COATINGS, AND HEAT ENERGY TRANSPORT BY RADIATION IN THE PORES OF PLASMA DEPOSITED METALS. QUALITATIVE ESTIMATES OF THE THERMAL CONDUCTIVITY OF THE COATINGS ARE OBTAINED.

UNCLASSIFIED

Acc. Nr.

AT0048615

Abstracting Service:

CHEMICAL ABST.

4/70

Ref. Code

URO442

81642 New data on the absolute age of volcanic rocks in the Dnieper-Donets depression. Kityk, V. I.; Gnishko, R. M.; Kutsyaba, I. V. (Inst. Geol. Geokhim. Goryuch. Resour., Lvov, USSR). *Dopov. Akad. Nauk Ukr. RSR, Ser. B* 1970, 32(1), 17-20 (Ukrain). The abs. age of volcanic rocks near the Upper Devonian saliferous deposits in the northwestern part of Dnieper-Donets syncline was detd. by K-Ar method from 4 samples, taken from holes drilled to various depths. The ages of basic tuff, olivine diabase, trachyte porphyry, and acidic tuff were detd. as 384, 350, 313, and 414 ± 14 million yr. The results obtained agreed with geol. evidence. The data of these abs. age detns. did not agree with the abs. age of the same volcanic rock (500-570 million yr) from salt domes in the same area detd. previously. The disagreement can be caused either by a highly improbable different cycle of magmatism in the salt dome areas or by a gross mistake during study of volcanic rocks in salt domes.

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J.L.

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X

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Organophosphorus Compounds

USSR

UDC: 632.95

POPOV, G. L., BAINA, N. F., and SMOBORQVSKIY, L. A.

"A Method for Preparing Mixed O-Alkyl-S-(β -Carboxy, β -Alkyl)ethylalkylthiophosphonates"

USSR Author's Certificate No 253062, filed 13 June 68, published 24 Feb 70 (from RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N640 P by T. A. Belyayeva"

Translation: Compounds with the general formula $RP(O)(OR')SCH_2CH(R'')COOH$ (I) (R and R' = alkyl; R'' = H, alkyl, aralkyl) are obtained from the reaction of O-alkyl-alkylthiophosphonates with α -subst. acrylic acids in the presence of bases. For example, 3.6 of acrylic acid is added to a mixture of 7 g of O-ethyl-methylthiophosphonate and 0.5 g of EtO-Na in 10 ml of C_6H_6 at 65° , heated for 12 hours at 65%, and washed with water, yielding 5.6 g of I (R' = Et, R = Me, R'' = H), $C_{15}H_{19}O_4PS$ are obtained in the presence of Et_3N as a catalyst, boiling point $103-4^\circ/0.025$, n_D^{20} 1.4785. I possess insecticidal properties.

1/1

Communications

USSR

UDC 621.369.96.01

VLASOV, O. V., SMOKIN, I. V.

Radiooborudovaniye letatel'nykh apparatov (Radio Equipment of Aircraft and Spacecraft), Moscow, Voenizdat Press, 1971, 360 pp, ill., 1 r. 23 k. (from RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10G2K)

Translation: All aircraft radio devices are grouped in three classes in the book: means of obtaining information, means of transmitting information and means of controlling aviation combat operations. The last class includes the radio equipment of the intercept systems (the recognition system, the intercept station, the range finders, the air-to-air guided missile equipment, radio detonators), homing and navigational equipment (radio compasses, radar for various purposes, systems using artificial Earth satellites), landing system equipment, aircraft defense systems (including means of radio countermeasures), and reconnaissance system equipment.

1/1

USSR

UDC: 621.372.852.5

PETRAKOVSKIY, G. A., SMOKOTIN, E. M., Institute of Physics imeni A. V. Kirenskiy, Siberian Department, Academy of Sciences of the USSR

"A Converter Which Changes Acoustic Oscillations to Electric Waveforms"

Moscow, Otkrytiya, Izobretaniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332529, division H, filed 1 Jul 70, published 14 Mar 72, pp 213-214

Translation: This Author's Certificate introduces a converter which changes acoustic oscillations to electric waveforms. The device contains an acoustic line, a transducer element, and a circuit for recording the change in the electromagnetic parameters of the transducer element. The electromagnetic parameters of the transducer element depend on the acoustic oscillations propagating in it. As a distinguishing feature of the patent, conversion losses are reduced by making the transducer element in the form of a single-crystal ferrite specimen fastened at the end of the acoustic line, and by connecting a microwave oscillator, detecting head, short circuiting device and microwave resonator to the arms of a double waveguide T-bridge in the registration circuit. The part of the acoustic line with the ferrite specimen is introduced into the microwave resonator.

1/1

USSR

UDC 669.712

YEFIMOVSKAYA, T. V., LANIN, A. A., SHERMAZANYAN, YA. T., SHAKHPARPYAN, V. V., SHEKOYAN, M. G., and SMOKOVDINA, G. S., All-Union Order of the Labor Red Banner Scientific Research, Planning, Design, and Technological Institute of Sources of Current (VNIIT)

"Utilization of a High-Temperature Solar Installation for the Study of High-Melting Materials in an Oxidizing Medium (on the Basis of the Example of beta-Alumina)"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, Seriya Tekhnicheskikh Nauk, Vol 26, No 4, 1975, pp 3-7

Abstract: Experimental research has been conducted by the Armenian Department of the VNIIT in Yerevan, on the thermal dissociation of sodium and potassium beta-alumina in a high-temperature solar heating installation for the purpose of obtaining a solid electrolyte. Results of this research have demonstrated considerable stability of the beta-alumina under conditions of radiant heating in air: beta-alumina does not dissociate completely with an exposure of up to 30 minutes at the melting point (2,000-2050°C. Sodium beta-alumina is considerably less subject to dissociation than is potassium beta-alumina. 1 figure. 1 table. 2 references.

1/1

1/3 036 UNCLASSIFIED PROCESSING DATE--090CT70
 TITLE--ANALYSIS OF THE RESULTS OF SPECTRAL INVESTIGATIONS OF THE TWILIGHT
 AUREOLE IN THE EARTH'S ATMOSPHERE FROM THE SOYUZ 5 SPACESHIP, SPECTRAL
 AUTHOR--(05)-KONDRATYEV, K.YA., VOLYNOV, B.V., GALTSEV, A.P., SMOKTIY,
 O.I., KHRUNOV, YE.V.
 COUNTRY OF INFO--USSR

S
 SOURCE--LENINGRAD, STATE UNIVERSITY; MOSCOW, IZVESTIYA AKADEMII NAUK SSSR,
 FIZIKA ATMOSFERY I OKEANA, VOL VI, NO 4, 1970, PP 388-411
 DATE PUBLISHED--70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--TWILIGHT, SPACEBORNE ATMOSPHERIC OBSERVATION,
 SPECTROPHOTOMETRIC ANALYSIS, ATMOSPHERE/(U)SOYUZ 5 MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1994/0366

STEP NO--UR/0362/70/005/004/0388/0411

CIRC ACCESSION NO--AP0114858

UNCLASSIFIED

PROCESSING DATE--09OCT70

UNCLASSIFIED

2/3 036

CIRC ACCESSION NO--AP0114658
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THIS PAPER PRESENTS THE RESULTS OF SPECTROPHOTOMETRIC INVESTIGATION OF THE TWILIGHT AUREOLE OF THE EARTH'S ATMOSPHERE, MADE FOR THE FIRST TIME FROM THE "SOYUZ-5" SPACESHIP. THE AUTHORS ANALYZE THE COLLECTED EXPERIMENTAL DATA AS A FUNCTION OF WAVELENGTH, PERIGEE ALTITUDE OF THE LINE OF SIGHT ABOVE THE EARTH'S SURFACE, ANGLE OF SOLAR DEPRESSION AND OTHER PARAMETERS. THIS SIS FOLLOWED BY A COMPARISON OF THE VERTICAL PROFILES OF MONOCHROMATIC BRIGHTNESS OF THE TWILIGHT AUREOLE WITH THE RESULTS OF CORRESPONDING THEORETICAL COMPUTATIONS FOR THE L. ELTERMAN AEROSOL MODEL (1968). COLOR DIAGRAMS WERE CONSTRUCTED FOR THE TWILIGHT AUREOLE USING THE THEORETICAL BRIGHTNESS VALUES FOR DIFFERENT MODELS OF THE EARTH'S ATMOSPHERE AND EXPERIMENTAL DATA AND THE RESULTS OF VISUAL OBSERVATIONS MADE FROM THE "SOYUZ-5". THE PAPER HAS THE FOLLOWING BASIC SECTIONS:

- 1) OPTICAL CHARACTERISTICS OF THE MANUAL SPECTROGRAPH AND METHOD FOR PROCESSING SPECTROGRAMS;
- 2) BASIC RESULTS OF VISUAL OBSERVATIONS AND SPECTROPHOTOMETRIC STUDY OF THE TWILIGHT AUREOLE OF THE EARTH'S ATMOSPHERE;
- 3) THEORETICAL MODEL OF THE FIELD OF SPECTRAL BRIGHTNESS OF THE TWILIGHT AUREOLE IN THE EARTH'S ATMOSPHERE;
- 4) MOLECULAR ATMOSPHERE;
- 5) MOLECULAR ATMOSPHERE IN PRESENCE OF AEROSOL PARTICLES;
- 6) MOLECULAR ATMOSPHERE IN PRESENCE OF AEROSOL PARTICLES AND OZONE;
- 7) COMPARATIVE ANALYSIS OF COMPUTED AND EXPERIMENTAL DATA FROM SPECTROPHOTOMETRIC STUDY OF THE TWILIGHT AUREOLE.

MOST IMPORTANTLY, THE STUDY REVEALED THAT IT IS POSSIBLE TO OBTAIN RELIABLE VERTICAL PROFILES OF THE AEROSOL SCATTERING COEFFICIENT FROM SPACESHIPS.

UNCLASSIFIED

3/3 036

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC*ACCESSION NO--AP0114658

ABSTRACT/EXTRACT--THE METHOD IS EFFECTIVE IN ANALYZING THE VERTICAL
DISTRIBUTION OF OPTICALLY IMPORTANT ATMOSPHERIC COMPONENTS.

UNCLASSIFIED

89

1/2 041

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--ANALYSIS OF THE RESULTS OF SPECTRAL STUDIES OF THE TWILIGHT AUREOLE OF THE EARTH'S ATMOSPHERE FROM THE SOYUZ 5 SPACECRAFT -U-

AUTHOR--(05)--VOLYNOV, B.V., KONDRATYEV, K.YA., GALTSEV, A.P., SMDKTIY, O.I., KHRUNOV, YE.V.
COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIYA, FIZIKA ATMOSFERY I OKEANA, VOL. 6, APR. 1970, P. 388-411
DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--SPECTRUM, TWILIGHT, SPECTROPHOTOMETRIC ANALYSIS, SPACEBORNE ATMOSPHERIC OBSERVATION/(U)SOYUZ 5 MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3003/0425

STEP NO--UR/0362/70/006/000/0388/0411

CIRC ACCESSION NO--AP0129650

UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0129650
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SUMMARY OF THE RESULTS OF
 SPECTROPHOTOMETRIC MEASUREMENTS OF THE TWILIGHT AUREOLE OF THE EARTH'S
 ATMOSPHERE AS FIRST PERFORMED FROM THE SOYUZ 5 SPACECRAFT. AN ANALYSIS
 IS MADE OF THE EXPERIMENTAL DATA THUS OBTAINED AS A FUNCTION OF
 WAVELENGTH, PERIGEE HEIGHT OF THE LINE OF SIGHT ABOVE THE EARTH'S
 SURFACE, ANGLE OF DEPRESSION OF THE SUN, AND OTHER PARAMETERS. THE
 VERTICAL PROFILES OF THE MONOCHROMATIC BRIGHTNESS OF THE TWILIGHT
 AUREOLE ARE COMPARED WITH THE RESULTS OF CORRESPONDING THEORETICAL
 CALCULATIONS FOR ELTERMAN'S (1968) AEROSOL MODEL. COLOR DIAGRAMS AND
 COLOR PICTURES OF THE TWILIGHT AUREOLE ARE CONSTRUCTED USING THEORETICAL
 BRIGHTNESS VALUES FOR VARIOUS MODELS OF THE EARTH'S ATMOSPHERE, AND ALSO
 USING EXPERIMENTAL DATA AND THE RESULTS OF VISUAL OBSERVATIONS CARRIED
 OUT FROM THE SOYUZ 5 SPACECRAFT. FACILITY: LENINGRADSKII
 GOSUDARSTVENNYI UNIVERSITET, LENINGRAD, USSR.

UNCLASSIFIED

1/2 024
UNCLASSIFIED
PROCESSING DATE--23OCT70
TITLE--DIFFUSE REFLECTION AND TRANSMISSION OF LIGHT BY A PLANETARY
ATMOSPHERE FOR A THREE MEMBERED SCATTERING CHARACTERISTIC -U-
AUTHOR--(02)-KOLESOV, A.K., SMOKTIY, O.I.
COUNTRY OF INFO--USSR
SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 2, 1970, P. 397-406
DATE PUBLISHED-----70
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS
TOPIC TAGS--PLANETARY ATMOSPHERE, LIGHT TRANSMISSION, LIGHT REFLECTION,
LIGHT SCATTERING, ALBEDO
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1757
STEP NU--UR/0033/70/04T/002/0397/0406
CIRC ACCESSION NO--AP0125373
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125373

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF SOBOLEV'S, (1968, 1969) RIGOROUS THEORY OF ANISOTROPIC SCATTERING OF LIGHT TO THE SOLUTION OF THE PROBLEM OF DIFFUSE REFLECTION AND TRANSMISSION OF LIGHT BY A PLANETARY ATMOSPHERE. THE ANALYSIS IS PERFORMED FOR A THREE MEMBERED SCATTERING CHARACTERISTIC. EXACT FORMULAS FOR THE TRANSMITTANCE AND REFLECTANCE (FOR AN ARBITRARY PARTICLE ALBEDO) ARE DERIVED, TOGETHER WITH FORMULAS FOR THE ALBEDO OF A PLANETARY ATMOSPHERE, THE SPHERICAL ALBEDO, AND THE ILLUMINATION OF THE PLANETARY SURFACE. FACILITY: Leningradskii Gosudarstvennyi Universitet, Leningrad, USSR.

UNCLASSIFIED

1/2 047

UNCLASSIFIED

PROCESSING DATE--16NOV70

TITLE--TWILIGHT COLORIMETRY FROM HORIZON SPECTRA OBTAINED ON BOARD THE SOYUZ 5 SPACECRAFT -U-

AUTHOR--(04)-KONDRATYEV, K.YA., GALTSEV, A.P., SMOKTIY, D.I., KHRUNOV, YE.V.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, DOKLADY, VOL. 191, APR. 11, 1970, P. 1044-1047

DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--TWILIGHT, COLORIMETRY, ATMOSPHERIC MODEL, SPACEBORNE ATMOSPHERIC OBSERVATION/(U)SOYUZ 5 MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3003/0867

STEP NO--UR/0020/70/191/000/1044/1047

CIRC ACCESSION NO--AT0129936

UNCLASSIFIED

2/2 047

CIRC ACCESSION NO--AT0129936

UNCLASSIFIED

PROCESSING DATE--15NOV70

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

ABSTRACT. CALCULATION OF THE COLORIMETRIC CHARACTERISTICS OF THE TWILIGHT AUREOLE FOR SEVERAL MODELS OF THE VERTICAL STRUCTURE OF THE ATMOSPHERE AND THE OBSERVATION CONDITIONS ON BOARD SOYUZ 5. THE CHROMATICITY COEFFICIENTS (X, Y, Z) OF THE TWILIGHT AUREOLE ARE COMPUTED FOR A PURELY SCATTERING MOLECULAR ATMOSPHERE WITH AND WITHOUT THE PRESENCE OF NONABSORBING AEROSOL PARTICLES AND OZONE. THE RESULTS ARE GIVEN IN GRAPHICAL FORM.

UNCLASSIFIED

2/2 042

CIRC ACCESSION NO--AT0124741

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0 ABSTRACT. SUMMARY OF VISUAL OBSERVATIONS OF THE TWILIGHT AUREOLE FROM THE SOYUZ 5 SPACECRAFT ON JAN. 15 AND 16, 1969. THE CHANGES IN THE APPEARANCE OF THE TWILIGHT AUREOLE UNDER CLOUDLESS CONDITIONS AND IN THE PRESENCE OF SOLID AND BROKEN CLOUDLINESS ARE REVIEWED. CERTAIN DIFFERENCES NOTED IN THE COLOR PICTURE THUS OBTAINED AS COMPARED WITH THE FIRST HAND FINDINGS OF ASTRONAUTS ARE CITED. FACILITY: LENINGRADSKII GOSUDARSTVENNYI UNIVERSITET, LENINGRAD, USSR.

UNCLASSIFIED

per minute. A new type of...
two rows of concentrically arranged...
arrange lead to each row. The increased blending rate improved

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tion of the vertical evolution of brightness and color of the twilight aureole as the sun emerged from below the horizon. Some of the results can be summarized as follows. Near the earth's surface the principal contribution to brightness of the twilight aureole is from long-wave radiation. With an increase in the altitude of the stratospheric aerosphere density decreases and the brightness of the twilight aureole is at a wavelength of 4000 nm. A brightness minimum is observed at a wavelength of 4500 nm, caused by ozone absorption in the ultraviolet band. The depth of this minimum is dependent on the altitude of the particular layer of the atmosphere above the earth's surface. Spectral brightness is greatly dependent on the azimuth of the direction of sighting and the angle of solar depression, sharply increasing with a decrease of the latter. The altitude corresponding to the spectral brightness maximum is also dependent on the angle of solar depression and wavelength, decreasing with an increase of the latter.

SMOKTIY O.I.

Acc. No.: AT0045335

Ref. Code: HR0020

Visual and Instrumental Observations of Twilight Aureole

Observations and Spectrophotometric Measurements of the Twilight Aureole of the Earth's Atmosphere from the "Soyuz-5" Spaceship," by K. Ya. Kondrat'yev, Corresponding Member, Academy of Sciences USSR, B. V. Volynov, A. P. Gal'tsay, V. V. Kol'tsay, O. I. Smoktiy and Ye. V. Khrunov; Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 2, 1970, pp. 327-330)

The program for "Soyuz-5" included an optical experiment in space for studying the spectral (color), angular and spatial evolution of the brightness picture of the twilight atmosphere. This program included simultaneous photographic and spectrophotometric studies of the twilight aureole of the earth's atmosphere in the wavelength range 400-650 mμ, accompanied by visual observations. The program for working with the manual spectrograph provided for a survey of the twilight aureole of the earth's atmosphere in the direction of the sun from the time of appearance of the aureole until the total emergence of the spaceship on the illuminated side of the earth. The twilight aureole was also photographed on black-and-white and color film. Visual observations included an evaluation

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PROCESSING DATE--09OCT70

TITLE--ANALYSIS OF THE RESULTS OF SPECTRAL INVESTIGATIONS OF THE TWILIGHT
AUREOLE IN THE EARTH'S ATMOSPHERE FROM THE SOYUZ 5 SPACESHIP, SPECTRAL
AUTHOR--(05)--KONDRATYEV, K.YA., VOLYNOV, B.V., GALTSEV, A.P., SMOKTIY,
O.I., KHRUNOV, YE.V.
COUNTRY OF INFO--USSR

S
SOURCE--LENINGRAD, STATE UNIVERSITY; MOSCOW, IZVESTIYA AKADEMII NAUK SSSR,
FIZIKA ATMOSFERY I OKEANA, VOL VI, NO 4, 1970, PP 388-411
DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--TWILIGHT, SPACEBORNE ATMOSPHERIC OBSERVATION,
SPECTROPHOTOMETRIC ANALYSIS, ATMOSPHERE/(U)SOYUZ 5 MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/0366

STEP NO--UR/0362/70/006/004/0388/0411

CIRC ACCESSION NO--AP0114658

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PROCESSING DATE--090CT70

2/3 036

CIRC ACCESSION NO--AP0114658

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER PRESENTS THE RESULTS OF SPECTROPHOTOMETRIC INVESTIGATION OF THE TWILIGHT AUREOLE OF THE EARTH'S ATMOSPHERE, MADE FOR THE FIRST TIME FROM THE "SOYUZ-5" SPACESHIP. THE AUTHORS ANALYZE THE COLLECTED EXPERIMENTAL DATA AS A FUNCTION OF WAVELENGTH, PERIGEE ALTITUDE OF THE LINE OF SIGHT ABOVE THE EARTH'S SURFACE, ANGLE OF SOLAR DEPRESSION AND OTHER PARAMETERS. THIS IS FOLLOWED BY A COMPARISON OF THE VERTICAL PROFILES OF MONOCHROMATIC BRIGHTNESS OF THE TWILIGHT AUREOLE WITH THE RESULTS OF CORRESPONDING THEORETICAL COMPUTATIONS FOR THE L. ELTERMAN AEROSOL MODEL (1968). COLOR DIAGRAMS WERE CONSTRUCTED FOR THE TWILIGHT AUREOLE USING THE THEORETICAL BRIGHTNESS VALUES FOR DIFFERENT MODELS OF THE EARTH'S ATMOSPHERE AND EXPERIMENTAL DATA AND THE RESULTS OF VISUAL OBSERVATIONS MADE FROM THE "SOYUZ-5". THE PAPER HAS THE FOLLOWING BASIC SECTIONS:

- 1) OPTICAL CHARACTERISTICS OF THE MANUAL SPECTROGRAPH AND METHOD FOR PROCESSING SPECTROGRAMS;
- 2) BASIC RESULTS OF VISUAL OBSERVATIONS AND SPECTROPHOTOMETRIC STUDY OF THE TWILIGHT AUREOLE OF THE EARTH'S ATMOSPHERE;
- 3) THEORETICAL MODEL OF THE FIELD OF SPECTRAL BRIGHTNESS OF THE TWILIGHT AUREOLE IN THE EARTH'S ATMOSPHERE;
- 4) MOLECULAR ATMOSPHERE;
- 5) MOLECULAR ATMOSPHERE IN PRESENCE OF AEROSOL PARTICLES;
- 6) MOLECULAR ATMOSPHERE IN THE PRESENCE OF AEROSOL PARTICLES AND OZONE;
- 7) COMPARATIVE ANALYSIS OF COMPUTED AND EXPERIMENTAL DATA FROM SPECTROPHOTOMETRIC STUDY OF THE TWILIGHT AUREOLE.

MOST IMPORTANTLY, THE STUDY REVEALED THAT IT IS POSSIBLE TO OBTAIN RELIABLE VERTICAL PROFILES OF THE AEROSOL SCATTERING COEFFICIENT FROM SPACESHIPS.

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3/3 036

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PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0114658

ABSTRACT/EXTRACT--THE METHOD IS EFFECTIVE IN ANALYZING THE VERTICAL
DISTRIBUTION OF OPTICALLY IMPORTANT ATMOSPHERIC COMPONENTS.

UNCLASSIFIED

89

PROCESSING DATE--13NOV70

UNCLASSIFIED

1/2 041

TITLE--ANALYSIS OF THE RESULTS OF SPECTRAL STUDIES OF THE TWILIGHT AUREOLE
OF THE EARTH'S ATMOSPHERE FROM THE SOYUZ 5 SPACECRAFT --U-

AUTHOR--(05)-VOLYNDOV, B.V., KONDRATYEV, K.YA., GALTSEV, A.P., SMOKTIY,
D.I., KHRUNDOV, YE.V.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, FIZIKA ATMOSFERY I OKEANA, VOL. 6,
APR. 1970, P. 388-411

DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--SPECTRUM, TWILIGHT, SPECTROPHOTOMETRIC ANALYSIS, SPACEBORNE
ATMOSPHERIC OBSERVATION/(U)SOYUZ 5 MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/0425

STEP NO--UR/0362/70/005/000/0388/0411

CIRC ACCESSION NO--AP0129650

UNCLASSIFIED

2/2 041
CIRC ACCESSION NO--AP0129650 UNCLASSIFIED PROCESSING DATE--13NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SUMMARY OF THE RESULTS OF
SPECTROPHOTOMETRIC MEASUREMENTS OF THE TWILIGHT AUREOLE OF THE EARTH'S
ATMOSPHERE AS FIRST PERFORMED FROM THE SOYUZ 5 SPACECRAFT. AN ANALYSIS
IS MADE OF THE EXPERIMENTAL DATA THUS OBTAINED AS A FUNCTION OF
WAVELENGTH, PERIGEE HEIGHT OF THE LINE OF SIGHT ABOVE THE EARTH'S
SURFACE, ANGLE OF DEPRESSION OF THE SUN, AND OTHER PARAMETERS. THE
VERTICAL PROFILES OF THE MONOCHROMATIC BRIGHTNESS OF THE TWILIGHT
AUREOLE ARE COMPARED WITH THE RESULTS OF CORRESPONDING THEORETICAL
CALCULATIONS FOR ELTERMAN'S (1968) AEROSOL MODEL. COLOR DIAGRAMS AND
COLOR PICTURES OF THE TWILIGHT AUREOLE ARE CONSTRUCTED USING THEORETICAL
BRIGHTNESS VALUES FOR VARIOUS MODELS OF THE EARTH'S ATMOSPHERE, AND ALSO
USING EXPERIMENTAL DATA AND THE RESULTS OF VISUAL OBSERVATIONS CARRIED
OUT FROM THE SOYUZ 5 SPACECRAFT. FACILITY: Leningradskii
GOSUDARSTVENNYI UNIVERSITET, Leningrad, USSR.

UNCLASSIFIED

1/2 024
 TITLE--DIFFUSE REFLECTION AND TRANSMISSION OF LIGHT BY A PLANETARY
 ATMOSPHERE FOR A THREE MEMBERED SCATTERING CHARACTERISTIC -U-
 AUTHOR--(102)-KOLESOV, A.K., SMOKTIY, D.I.
 COUNTRY OF INFO--USSR
 SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 2, 1970, P. 397-406
 DATE PUBLISHED-----70

PROCESSING DATE--23OCT70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS
 TOPIC TAGS--PLANETARY ATMOSPHERE, LIGHT TRANSMISSION, LIGHT REFLECTION,
 LIGHT SCATTERING, ALBEDO

CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAHE--2000/1757
 STEP NO--UR/0033/70/047/002/0397/0406
 CIRC ACCESSION NO--A20125373
 UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125373

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF SOBOLEV'S, (1968, 1969) RIGOROUS THEORY OF ANISOTROPIC SCATTERING OF LIGHT TO THE SOLUTION OF THE PROBLEM OF DIFFUSE REFLECTION AND TRANSMISSION OF LIGHT BY A PLANETARY ATMOSPHERE. THE ANALYSIS IS PERFORMED FOR A THREE MEMBERED SCATTERING CHARACTERISTIC. EXACT FORMULAS FOR THE TRANSMITTANCE AND REFLECTANCE (FOR AN ARBITRARY PARTICLE ALBEDO) ARE DERIVED, TOGETHER WITH FORMULAS FOR THE ALBEDO OF A PLANETARY ATMOSPHERE, THE SPHERICAL ALBEDO, AND THE ILLUMINATION OF THE PLANETARY SURFACE. FACILITY: Leningradskii Gosudarstvennyi Universitet, Leningrad, USSR.

UNCLASSIFIED

1/2 047 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--TWILIGHT COLORIMETRY FROM HORIZON SPECTRA OBTAINED ON BOARD THE
SOYUZ 5 SPACECRAFT -U-
AUTHOR--(04)-KONDRATYEV, K.YA., GALTSEV, A.P., SMOKTIY, O.I., KHRUNOV,
YE.V.
COUNTRY OF INFO--USSR
SOURCE--AKADEMIYA NAUK SSSR, DOKLADY, VOL. 191, APR. 11, 1970, P.
1044-1047
DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY
TOPIC TAGS--TWILIGHT, COLORIMETRY, ATMOSPHERIC MODEL, SPACEBORNE
ATMOSPHERIC OBSERVATION/(U)SOYUZ 5 MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/0867

STEP NO--UR/0020/70/191/000/1044/1047

CIRC ACCESSION NO--AT0129936

UNCLASSIFIED

2/2 047 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AT0129936

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CALCULATION OF THE COLORIMETRIC CHARACTERISTICS OF THE TWILIGHT AUREOLE FOR SEVERAL MODELS OF THE VERTICAL STRUCTURE OF THE ATMOSPHERE AND THE OBSERVATION CONDITIONS ON BOARD SOYUZ 5. THE CHROMATICITY COEFFICIENTS (X, Y, Z) OF THE TWILIGHT AUREOLE ARE COMPUTED FOR A PURELY SCATTERING MOLECULAR ATMOSPHERE WITH AND WITHOUT THE PRESENCE OF NONABSORBING AEROSOL PARTICLES AND OZONE. THE RESULTS ARE GIVEN IN GRAPHICAL FORM.

UNCLASSIFIED

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 1/2 042
 TITLE—VISUAL ESTIMATES OF THE COLOR OF THE TWILIGHT SKY ACCORDING TO
 OBSERVATIONS FROM THE SOYUZ 5 SPACECRAFT --U--
 AUTHOR—(04)—KONDRATYEV, K.YA., GALTSEV, A.P., SMOKTIY, G.I., KHRUNOV,
 YE.V.
 COUNTRY OF INFO—USSR
 SOURCE—AKADEMIIA NAUK SSSR, DOKLADY, VOL. 191, APR. 1, 1970, P. 824, 825
 DATE PUBLISHED--01APR70
 SUBJECT AREAS--ATMOSPHERIC SCIENCES, METHODS AND EQUIPMENT, SPACE
 TECHNOLOGY
 TOPIC TAGS--TWILIGHT, COLOR PHOTOGRAPHY/(U)SOYUZ 5 MANNED SPACECRAFT
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--2000/1084
 CIRC ACCESSION NO--AT0124741
 STEP NO--UR/0020/T0/192/000/0824/0825
 UNCLASSIFIED

2/2 042

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124741

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SUMMARY OF VISUAL OBSERVATIONS OF THE TWILIGHT AUREOLE FROM THE SOYUZ 5 SPACECRAFT ON JAN. 15 AND 16, 1969. THE CHANGES IN THE APPEARANCE OF THE TWILIGHT AUREOLE UNDER CLOUDLESS CONDITIONS AND IN THE PRESENCE OF SOLID AND BROKEN CLOUDLINESS ARE REVIEWED. CERTAIN DIFFERENCES NOTED IN THE COLOR PICTURE THUS OBTAINED AS COMPARED WITH THE FIRST HAND FINDINGS OF ASTRONAUTS ARE CITED. FACILITY: LENINGRADSKII GOSUDARSTVENNYI UNIVERSITET, LENINGRAD, USSR.

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SMOKTIY O. I.

Acc. Nr.: AT0045335

Ref. Code: UR0020

JPRS 50052

Visual and Instrumental Observations of Twilight Aureole

(Abstract: "Some Results of Visual Observations and Spectrophotometric Measurements of the Twilight Aureole of the Earth's Atmosphere from the 'Soyuz-5' Spaceship," by K. Ya. Kondrat'yev, Corresponding Member, Academy of Sciences USSR, B. V. Volynov, A. P. Gal'tay, V. V. Kol'tsov, O. I. Smoktiy and Ye. V. Khrunov; Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 2, 1970, pp. 327-330)

The program for "Soyuz-5" included an optical experiment in space for studying the spectral (color), angular and spatial evolution of the brightness picture of the twilight atmosphere. This program included simultaneous photographic and spectrophotometric studies of the twilight aureole of the earth's atmosphere in the wavelength range 400-650 mμ, accompanied by visual observations. The program for working with the manual spectrograph provided for a survey of the twilight aureole of the earth's atmosphere in the direction of the sun from the time of appearance of the aureole until the total emergence of the spaceship on the illuminated side of the earth. The twilight aureole was also photographed on black-and-white and color film. Visual observations included an evalua-

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tion of the vertical evolution of brightness and color of the twilight aureole as the sun emerged from below the horizon. Some of the results can be summarized as follows. Near the earth's surface the principal contribution to brightness of the twilight aureole is from long-wave radiation. With an increase in the altitude of the sighted layer atmospheric density decreases and the brightness of the twilight aureole is at a wavelength of ~ 480 m μ . A brightness minimum is observed at a wavelength of ~ 600 m μ , caused by ozone absorption in the Chappuis band. The depth of this minimum is dependent on the altitude of the particular layer of the atmosphere above the earth's surface. Spectral brightness is greatly dependent on the azimuth of the direction of sighting and the angle of solar depression, sharply increasing with a decrease of the latter. The altitude corresponding to the spectral brightness maximum is also dependent on the angle of solar depression and wavelength, decreasing with an increase of the latter.

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NIKIFOROV, B. V., SMOKTIV, V. V., GULIYEV, G. P., ORLOV, V. S.,
SIZENKO, A. S., SAFRONOV, YU. YA., KOLESNIK, V. D., BASHENAKOV,
YU. V., RUDNITSKIY, YA. N., FAYERSHTEYN, A. D., KAGAN, I. I.,
Institute of Ferrous Metallurgy in Dnepropetrovsk and Krivoy
Rog Metallurgical Plant

"Operating Experience With a 55-Ton Converter With Increased
Blowing Rate"

Moscow, Stal', No 3, Mar 70, pp 215-218

Abstract: Metallurgists of the Institute of Ferrous Metallurgy
in Dnepropetrovsk and Krivoy Rog Metallurgical Plant have
developed a technique for smelting in 55-ton converters with
the oxygen feed rate almost doubled from 2.8-3 to 5-6 cu m/t
per minute. A new-type tuyere is used, the nose of which has
two rows of concentrically arranged nozzles with independent
oxygen feed to each row. The increased blowing rate improves
slag formation. The yield of acceptable product and the degree
of improvement in slag formation are determined by the struc-
tural characteristics of the noses. Nose No. 5 was found to be
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NIKIFOROV, B. V., et al., Stal', No 3, Mar 70, pp 215-218

the most effective of all those tested. The use of a tuyere with nose No. 5 reduces the blowing time by 40 percent and increases converter productivity by 20.5 percent. Steels K St. 5sp, K St. 3sp, 35GS, K St. 5 ps, K St. 3ps, K St. 0m, 08kp, 10kp, K2, K3, KExp., K3kdr, T, and Sv-08A were obtained without any decrease in the yield of acceptable product, deterioration of metal quality, or decrease in refractory lining resistance. In newly designed shops provision should be made for a gas circuit capacity and oxygen feed system sufficient for the operation of converters with a blowing rate of 5-6 cu m/(t. min).

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1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SYNTHESIS OF SOME UNSATURATED 1,6,DISUBSTITUTED 2,5,DITHIOBIUREAS
-U-
AUTHOR--(02)-SMOLANKA, I.V., YERSHOVA, I.I.
COUNTRY OF INFO--USSR
SOURCE--UKR. KHIM. ZH. 1970, 36(3), 273-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC SULFUR COMPOUND, UREA DERIVATIVE, METAL ION, ORGANIC SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/0903 STEP NO--UR/0073/70/036/003/0273/0275
CIRC ACCESSION NO--AP0137931
UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AP0137931

UNCLASSIFIED

PROCESSING DATE--04DEC70

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

ABSTRACT.

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SEVERAL OF THE LATTER COMPOS. FORM

THE FOLLOWING SHOWN ON MICROFICHE.

INSOL. COMPOS. WITH CU PRIME2 POSITIVE,
POSITIVE, BI, AT, AND PB IONS AND MAY BE USEFUL IN GRAVIMETRIC
ANALYSIS.

FACILITY: UZHGOROD. GOS. UNIV., UZHGOROD, USSR.

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