"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

UNCLASSIFIED PROCESSING DATE--04DEC70

1/2 010

TITLE--POLYACRYLATES -U-

AUTHOR-(05)-BODNARYUK, F.N., KORSHUNOV, M.A., BRITNEVA, T.P., VARSHAVSKIY, S.L., VIKHANSKIY, K.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,441

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

DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYACRYLATE RESIN, CHEMICAL PATENT, ESTERIFICATION, CARBOXYLIC ACID ESTER, ORGANIC SULFUR COMPOUND, GLYCOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1754 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136994

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6"

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2/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136994

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYACRYLATES ARE PREPD. BY CONVENTIONAL INTERESTERIFICATION OF ALKYL ESTERS OF MONO AND DICARBOXYLIC ACIDS WITH THIOGLYCOLS IN INERT SOLVENTS AND IN THE PRESENCE OF A CATALYST AND AN INHIBITOR.

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UDC 621.375.82

USSR

KORSHUNOV, V. A., KUZNETSOVA, T. I., MALYUTIN, A. A.

"On the Time Characteristics of a Ring Laser With a Clearing Filter"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 3, Moscow, "Sov. radio", 1972, pp 69-72 (from RZh-Fizika, No 1, Jan 73, Abstract No 1D878)

Translation: A theory of the development of self-synchronization of modes in a ring laser is presented. Formulas were obtained describing the establishment of a relationship between the right and left wave in the clearing process of a nonlinear filter. An experimental comparison of the time characteristics of the right and left wave of a ring laser is made with the aid of an electron-optical chamber. It is shown that with a high concentration of the clearing absorber there is a strong correlation between the time characteristics of the right and left wave which weakens with a decrease in the concentration of the absorber. Authors abstract.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

IL'ICHEV, N. N., KOROBKIN, V. V., KORSHUNOV, V. A., MALYUTIN, A. A., OKROASHVILI, T. G., and PASHININ, P. P., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Superbroadening of Spectrum of Ultrashort Pulses in Liquids and Glasses"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 4, 20 Feb 72, pp 191-194

Abstract: Experiments conducted by the authors showed that superbroadening of the spectrum of picosecond pulses at rather high radiation powers can be observed in practically any transparent dielectric. A neodymium self-mode-locking laser and two amplifier stages (length of active elements ~ 300 mm) were used in the experiments, permitting radiation with a total energy equal to 0.1-0.2 j in a train of 10-15 ultrashort pulses. ISP-51 and STE-1 type spectrographs were used to observe the spectral broadening. Liquids with various types of molecules and optical properties were used: carbon disulfide, nitrobenzene, benzene, toluene, isopropyl alcohol, carbon tetrachloride, water, and liquid nitrogen. Superbroadening of the spectrum was found in all these

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USSR

IL'ICHEV, N. N., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 4, 20 Feb 72, pp 191-194

substances except CS_2 and nitrobenzene. The superbroadening effect was also observed in a number of glasses and crystals (in K-8, F-1, L-26, K2SS-7 glasses and in fused quartz and calcium tungstate). It is suggested that the observed superbroadening is due to strong laser phase modulation rather than four-photon interaction.

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Acc. Nr.: AP0046778 K Ref. Code: UR0175

UDC 621.791.03.96

USSR

SKACHKO, YU. N., MOSHKIN, V. F., GARKALYUK, R. I., POPOV, N. V., MEDVEDEV, A. N., SKORUPSKIY, B. P., KORSHUNOV, V. A.

"High-Frequency Welding of Spiral-Seam Pipe with Butt Seam Joining"

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 63-65 (from Avtomaticheskaya Svarka, No 1, 1970, p 80)

Translation: This article contains a study of the characteristic features of strip formation and upsetting during high-frequency welding of spiral-seam pipe with butt seam joining. New forming schemes and new designs of the mechanical units of tube welding mills are proposed. The peculiarities of welding pipe are investigated in the case of disturbance of the geometry of the initial tape. There are 4 illustrations and a 6-entry bibliography.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

UNCLASSIFIED PROCESSING DATE--02OCT70

1/2 033

TITLE--KINETICS OF ANTIBODY FORMING CELLS IN THE CULTURE OF LYMPHOID CELLS OF THE SPLEEN -U-

AUTHOR-(04)-PINEGIN, B.V., UTESHEV, B.S., BABICHEV, V.A., KORSHUNOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 4, PP 68-72

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTIBODY, CELL CULTURE, LYMPHATIC SYSTEM, SPLEEN, CULTURE MEDIUM, HEMOLYSIS, AGAR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1673 STEP NO--UR/0016/70/000/004/0068/0072

CIRC ACCESSION NO--AP0106419

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

UNCLASSIFIED PROCESSING DATE--02OCT70

2/2 033

CIRC ACCESSION NO--AP0106419

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS DESCRIBE THE KINETICS OF ANTIBODY FORMING CELLS IN CULTURING LYMPHOID CELLS IN VITRO. SUSPENSION OF LYMPHOID CELLS OF THE SPLEEN WAS GROWN IN GLASSES ON 1PERCENT AGAR WITH THE USE OF HOTTINGER BROTH AS A NUTRIENT MEDIUM. THE NUMBER OF ANTIBODY FORMING CELLS WAS DETERMINED BY THE METHOD OF LOCAL HEMOLYSIS IN AGAR BY JERNE AND NORDIN'S METHOD. IN CULTURING UNDER THE MENTIONED CONDITIONS OF THE CELLULAR SUSPENSION OF THE SPLEEN OBTAINED FROM MICE ON THE 4TH DAY AFTER THE IMMUNIZATION, ANTIBODY FORMATION WAS OBSERVED FOR AT LEAST 16 DAYS. DURING THE FIRST DAY OF CULTURING THERE WAS A MARKED REDUCTION OF THE NUMBER OF ANTIBODY FORMING CALLS HOWEVER, THEIR NUMBER INCREASED AGAIN ON THE 7TH DAY, AND REMAINED CONSIDERABLE UP TO THE 16TH DAY, EXCEEDING THEIR NUMBER IN THE SPLEEN OF IMMUNIZED ANIMALS MANY TIMES.

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UDC 621.397.7:77.067

USSR

KORSHUNOV, V. N.

"Frequency Distortion Analysis of Color Phototelegraphic Transmission"

Moscow, Elektrosvyaz', No 10 1970, pp 54-60

Abstract: The author analyzes and estimates the amplitude-frequency and phase-frequency distortions which appear during the phototelegraphic transmission of color pictures in the tonal frequency channel, the coupling lines, and in the transmitting and receiving units. The results show that phase distortion in the tonal frequency channel and the channel forming filters of terminal color phototelegraphic equipment inadmissably worsen the reproduction quality of fine detail and color boundaries. In order to achieve high quality, the channel and filter have to be corrected with respect to phase in the frequency band effectively transmitted by color phototelegraphy. Aperture distortion in the analyzing and synthesizing units along with amplitude-frequency distortions in the channel-forming filters of the color phototelegraphic unit decrease the definition of reproduction (broadening the zone of boundary spread 1.2 - 2 times). These have to be corrected. Known black and white phototelegraphy standards can be used as a reference for correction accuracy. However, the given types of distortion partially compensate transient process overshooting which is evoked by the nonlinearity of the phase-frequency characteristic. Due to this, they must be corrected under conditions of phase balancing with re-

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

KORSHUNOV, V. N., Elektrosvyaz', No 10, 1970, pp 54-60

spect to the color phototelegraphy channel. Coupling lines, on the other hand, do not contribute significant distortion. These can be used in color phototelegraphy without correction of the frequency characteristics. The tonal frequency channel can be used without amplitude matching. Original article: four figures, two tables, 13 formulas, and seven bibliographic entries.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

1/2 018 UNCLASSIFIED PROCESSING DATE--12SEP70

TITLE--MECHANISM OF THE INFLUENCE OF CALCIUM IONS ON HYDROGEN LIBERATION DURING THE PREPARATION OF CHLORINE AND CAUSTIC BY ELECTROLYSIS WITH A

AUTHOR--KORSHUNOV, V.N., GLADKIKH, I.P., VOLKOV, G.I.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(1), 117-20

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AMALGAM, REACTION KINETICS, CHEMICAL DECOMPOSITION, CALCIUM CHLORIDE, CHLORIDE ELECTROLYSIS, GAS ANALYSIS, HYDROGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0330 STEP NO--UR/0364/70/006/001/0117/0120

CIRC ACCESSION NO--AP0055121

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

UNCLASSIFIED PROCESSING DATE--11SEP70

2/2 018

CIRC ACCESSION NO--AP0055121

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETICS OF THE CA AMALGAM DECOMPN. IN 5N CACL SUB2 SOLNS. HAS BEEN STUDIED AT 25, 50, 75 AND 90DEGREES; THE RATE CONSTS. OF THE REACTION CA(HG) PLUS 2H SUB2 O YIELDS CA(OH) SUB2 PLUS H SUB2 PLUS HG HAVE BEEN CALCD. IT IS CONCLUDED THAT THE INCREASE OF H CONTENT IN THE GASEOUS PHASE OF THE ELECTROLYTIC CELLS IS CAUSED BY THE CA(OH) SUB2 PPT. COVERING THE HG CATHODE.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

UNCLASSIFIED PROCESSING DATE--18SEP70

1/2 024

TITLE--HYDROGEN EVOLUTION FROM ALKALINE SOLUTIONS ON METALS OF HIGH OVERVOLTAGE -U-

AUTHOR-(03)-FRUMKIN, A.N., KORSHUNOV, V.N., BAGOTSKAYA, I.A.

K

COUNTRY OF INFO--USSR

SOURCE--ELECTROCHIM. ACTA 1970, 15(2) 289-301

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--HYDROGEN, INDIUM, AMALGRAM, CURRENT DENSITY, CHEMICAL REACTION MECHANISM, ELECTROCHEMISTRY, GALLIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/0279 STEP NO--UR/0000/70/015/002/0289/0301

CIRC ACCESSION NO--AP0053266

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

2/2 024 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0053266

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. H EVOLUTION FROM ALK. SOLNS. ON HG AT PH IS LESS THAN 10 IS DUE TO H ION DISCHARGE AND AT PH IS GREATER THAN 10 TO A CHEM. INTERACTION OF THE INTERMEDIATELY FORMED AMALGAMS OF ALKALI METALS WITH WATER. NO WATER MOL. DISCHARGE WAS OBSERVED TO OCCUR AT AN APPRECIABLE RATE. ON THE CONTRARY, ON A GA ELECTRODE AT PH IS GREATER THAN 10, H EVOLUTION IS DUE ENTIRELY TO WATER MOL. DISCHARGE. INDIUM AMALGAMS ARE AN INTERMEDIATE CASE, SINCE H EVOLUTION AT LOW C.DS. FOLLOWS THE ELECTROCHEM. MECHANISM AND AT HIGH C.DS. THE CHEM. MECHANISM. THE DETN. OF THE DEPENDENCE OF H OVERVOLTAGE ON SOLN. COMPN. SHOWS THE EXISTENCE OF THE SPECIFIC ADSORPTION OF CS PRIME POSITIVE IONS, AS WELL AS OF CATIONS OF ALK. EARTH METALS ON GA AND IN AMALGAM SURFACES.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

UDC 8.74

KORSHUNOV, YU. M., KORYACHKO, V. P.

"Selecting the Optimal Structure of Operation Automata"

V sb. Teor. kibernetika (Cybernetics Theory-collection of works), Kiev, 1971, pp 151-160 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V413)

Translation: A procedure is proposed for synthesis of the optimal structure of an operation automaton 0 which is a finite or infinite Muhr automaton which includes a set of elements receiving, storing and converting multibit information words (adders, registers, memories, converters, and so on). The problem of synthesizing the optimal structure of the automaton 0 is formulated in the following way: select the set of elements and the set of microprograms satisfying the limiting parameters: weight, size, cost, speed, and so on and minimizing the total "loss" of all parameters. The solution of the problem reduces to the problem of integral programming. The "loss" of the element parameters with respect to the parameters of the "ideal" element is characterized by a specially derived estimator.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR UDC: 681.3

KORSHUNOV, Yu. M., STEPASHKIN, A. I., VAKARIN, I. A., IOFA, A. L., MOLCHADSKIY, L. I., STEPANENKO, V. N., EMIKH, L. A.

"A Digital Spectral Analyzer"

Tr. Ryazan. radiotekhn. in-ta (Works of the Ryazan Radio Engineering Institute), 1970, vyp. 29, pp 158-168 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V554)

Translation: The paper describes a model of a specialized digital computer device designed for studying the frequency make-up of random signals. Expressions are presented for estimating the basic parameters of the device under various operating conditions. Authors' abstract.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

UDC 8.74

USSR

KORSHUNOV, YU. M., KORYACHKO, V. P.

"Problems of Estimating Parameters when Designing Digital Control Computers"

V sb. Kibern. tekhn. (Cybernetic Engineering -- collection of works), Kiev, 1971, pp 39-44 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V570)

No abstract

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

UDK 616.8-009.85:355.3

SOME ADAPTATIONAL DISTURBANCES OF THE NERVOUS SYSTEM IN YOUNG SOLDIERS

Yu. V. Korshunov, Major, Medical Service

Service in the army, as we know, makes heavy demands both on the physical and the neuropsychic condition of the soldier. Some young soldiers find it difficult to adapt to military service and they develop adaptational disturbances of the nervous system (O. S. Lebantov and L. I. Spivak). Such disturbances occur most often in the case of persons who had suffered a closed cerebral trauma, chronic intoxication or some disturbance of the nervous system. They can also be observed in the case of persons with physical or psychic infantilism. Adaptational disturbances can also occur among healthy persons, whose typological particulars are characterized by a weakness of the nervous system, inertia of the nerve processes, etc. (I. P. Pavlov, V. I. Barabash).

To discover evidence of adaptational disturbances of the nervous system is sometimes not easy, since they can pass unobserved. Still, they require the careful attention of the physician because they can serve as background for other, more serious, neuropsychic disturbances which can develop. According to data cited by numerous authors, pronounced forms of neuropsychic disturbances of this kind are quite rare. What a physician is faced with more often is neuropsychic insufficiency which may be difficult to diagnose and which is reflected in emotional instability, recklessness, occasionally pronounced intellectual insufficiency, immature judgments, alienation from the collective, etc. (F. G. Zubarov, E. F. Kamarezkin, V. S. Marakulin, A. D. Turbin). Among all patients who had received hospital treatment for neurosis (half of them, as a rule, acquire the disease before being called into service), neurotic disturbances among service personnel during their first year of duty, represent — according to various data — from 30 to 50 percent. (I. A. Wertheim, V. S. Marakulin, et al). In this connection, there arises the need for an early and active diagnosis of neuropsychic insufficiency in newly arriving recruits.

We have observed 230 such young soldiers, aged from 18 to 19, and gave them a number of psychological tests: a correction test, a single-unit number addition test (the Krepelin test), the recall of 10 words, and the reverse counting test (S. Ya. Rubinshteyn). The control group consisted of 100 men, serving their second and third year in the army. These particular tests were chosen because they make it possible to analyze the condition of higher nervous activity (B. N. Birman), the degree of emaciation of the cortex of the brain, and also individual psychological factors such as attention, memory, will power, etc. Before preparing the tests (sound recordings), and administering them, certain vegetative indices were determined: the cutaneous-galvanic reflex, pulse rate, breathing rate, and blood pressure. These tests were administered from the 1st to the 5th day, from the 30th to the 40th day, and also after 2 and 6 months following the man's arrival in the unit. The results obtained show that the number of errors and the time required to complete the tests was significantly higher in the case of young recruits than among older servicemen. (See table on the next page).

KORSHUNOV, YU. V.

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AT0032097 NUCLEAR SCI. ABST. 2-70 UR 0000

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6679 (SLAC-Trans-105) PRELIMINARY RESULTS OF A STUDY OF THE ρ-MESON RESONANCE USING COLLIDING ELECTRON-POSITRON BEAMS. Balakin, V. E.; Budker, G. I.; Korshunov, Yu. V.; Mishnev, S. I.; Pakhtusova, E. V.; Peslov, Yu. N.; Smorov, V. A.; Skrinskii, A. N.; Tumaikin, G. I.; Khabakhpashev, A. G. (Akademiya Nauk SSSR, Novosibirsk, Institut Yadernoi Fiziki). Translated by T. Watt for Stanford Linear Accelerator Center, Calif., from Russian Preprint No. 327. 12p. Dep. CFSTI.

The results are reported of a preliminary analysis of approximately 100,000 photographs from a spark-chamber study of the ρ-meson, using the electron-positron storage ring VEPP-2. The measurements were carried out for nine energy values between 506 and 514 MeV. Two types of events were analyzed: elastic electron-positron scattering and charged kain pair production. A least-squares fit of the results to the Breit-Wigner curve yielded the following values for the resonance parameters: $\Gamma = 4.1 \pm 0.5$ MeV and $\sigma_0 = 2.3 \pm 0.3$ μb. The total resonance cross section for the formation of the ρ-meson was found to be $6p = 4.8 \pm 0.6$ μb. (L.B.S.)

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR UDC 632.3/4.633

KUZNETSOVA, I. F., and KORSHUNOVA, A. F., Main Administration of Plant Protection, Ministry of Agriculture USSR, and All Union Institute of Plant Protection

"A Disease of Winter Wheat"

Moscow, Zashchita Rasteniy, No 2, Feb 73, p 49

Abstract: In some rayons of Odessa Oblast' and in the northwest of the Moldavian SSR, a disease of winter wheat was recorded in 1972 which affected on the average 30% (a maximum of 60%) of the wheat ears. On some farms the disease caused a loss of up to 1/3 of the harvest. An investigation of infected wheat of the variety Bezostaya 1 showed that the grain was generally (to 82%) puny and was infected with fusariosis to 8.2%. F. graminearum, F. avenaceum, and F. solani were isolated from the infected grain. Saprophytic microflora (Alternaria and Penicillium) predominated on the scales of the grain. F. graminearum and sterile Fusarium forms were also isolated from the scales. F. avenaceum, F. solani, and Ophibolus graminis were present in the discolored stalks and in the root nodes. Above-normal precipitation and high temperatures during the formation of the ears and grain ripening contributed to the outbreak of the disease.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

UDC 632.4:633.1(47+57)

USSR

VETROV, YU. F., KORSHUNOVA, A. E., MORSHCHATSKIY, A. A., KHOKHRYAKOV, M. K., and CHULKINA, V. A., All-Union Institute of Plant Protection, Leningrad, Irkutsk Agricultural Institute, All-Union Scientific Research Institute of Corn, Dnepropetrovsk, Altai Mountain Agricultural Experimental Station

"Root Rot of Grain in the USSR"

Leningrad, Mikologiya i Fitopatologiya, Vol 5, No 2, 1971, pp 148-155

Abstract: This is a comprehensive literature review of Soviet work in the field of grain root rot. During the last ten years, knowledge about root rot in wheat and other cereals has gradually increased. More than 55 works on this subject were published or submitted for publication in the USSR. Root rot occurs in zones of insufficient or unstable humidity. In the Irkutsk region 12.2-42.3%, and in some cases as much as 61.3-67.3% of the spring wheat is annually infected with root rot, whereas in the Saratov region, the losses are 0.5-4.0% and, in extreme cases, 7.0-10.0%. Losses in other areas of the Soviet Union are enumerated, together with the appropriate references. Helminthosporium sativum and Fusarium avenaceum were isolated in Eastern

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USSR

VETROV, YU. F., et al., Mikologiya i Fitopatologiya, Vol 5, No 2, 1971, pp 148-155

Siberia, as well as in the central steppes of the Ukraine, on many wild and cultivated grains, and Ophiobolus graminis, which attacks many grain cereals and is found also on corn root. O. graminis can survive in the soil for more than 10 years.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

GOLOTIN, A. Ye., KORSHUNOVA, G. D.

"Accelerated Methods of Testing Long-Term Strength at Room Temperature"

Tr. Sev.-Zap. Zaoch. Politekhn. In-ta [Works of Northwestern Correspondence Polytechnical Institute], No 16, 1971, pp 50-53, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V1518 by G. P. Mel'nikov).

Translation: The dependence of time to rupture on rupture stress is studied in the case of extended application of constant loads. Tests were performed on cylindrical specimens with notches made of type 15Kh2N5M steel and titanium alloy Ti + 6Al at 20°. The experiments were divided into two main stages: the first group of specimens was tested for long term strength, the second was subjected to active extension at various rates. The results of tests performed showed the impossibility of construction of long term strength curves on the basis of tests of active extension of these two alloys.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

Medical Service

KORSHUNOVA, N. I.

UDK 614.(624/616-003).06

CARBON MONOXIDE POISONINGS

M. P. Chernovskiy, Colonel, Medical Service
[illegible] P. Titov, Captain, Medical Service
N. I. Korshunova

Many authors believe that death from carbon monoxide poisoning can occur when the blood content shows from 30 to 50 percent of carboxyhemoglobin (M. V. Popov, 1940; N. I. [illegible], 1939; N. P. [illegible], 1944; L. V. Ivanushkin, 1944; A. [illegible], 1946, and others). Factors which can aggravate the poisoning are various diseases, psychic trauma, fatigue, etc. According to our own data, instances of carbon monoxide poisoning among military personnel occurred most often as a result of violations regarding the use of heating stoves ([illegible] percent) and inhalation of exhaust gases (10 percent). As a rule, the injured [illegible] were enlisted personnel (70 percent) as most of them [illegible]. The majority of poisonings took a very severe form and there was a number of fatal outcomes. Cited below are our observations.

Serviceman S. was serving a tour of duty as watchman in a building. The soldier who arrived to relieve him, found him dead in the drying room, on a bench. It was established that S., after coming on duty, turned on the stove and, before going to sleep, shut off the damper without checking to see whether all of the coal had burned up. Autopsy revealed intensive cadaveric spots, cherry-pink in color, thin, scarlet-colored blood in the vessels and cardiac chambers, an abundance of blood and brighter-red coloration of muscles and internal organs, as well as the presence of carboxyhemoglobin in the blood.

Serviceman P. arrived at 1 [illegible] to take over his shift in the garage of a fire brigade. At 6:00 [illegible], a soldier who came into the garage on service business, found that the motor of a GAZ-51 type vehicle was running. In the cab of the vehicle, was Serviceman P., in a state of unconsciousness. Artificial respiration was administered at once. However, it was not possible to revive the victim. Autopsy revealed a typical picture of carbon monoxide poisoning and the presence of carboxyhemoglobin in the blood.

Some authors have established that, sometimes, automobile accidents may be due not so much to driver fatigue or drunkenness as to severe carbon monoxide poisoning. Thus, [illegible] K., in examining [illegible] drivers, discovered that they showed from 5 to 19 percent of carboxyhemoglobin in the blood, while the first evidence of CO poisoning, according to numerous reports, requires a carboxyhemoglobin level of 10 percent. We, too, had an opportunity to observe such a case.

Analysis of data at our disposal show that CO poisonings occurred, as a rule, as a result of violations of safety procedures, and only in individual cases was it sometimes due to lack of information as to the rules for using heating equipment.

For the purpose of preventing such accidents, it is indispensable to make a point of instilling in personnel a better understanding of the dangers and consequences of CO poisoning, step up the supervision as to the state and content of garages and not to permit the use of automobiles for keeping the personnel warm in closed buildings during their tours of duty.

Received in February 1969

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

1/2 053 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--MODIFICATION OF THE SUPRAMOLECULAR STRUCTURE AND MECHANICAL BEHAVIOR OF POLYCAPROLACTAM BY PHYSICAL METHODS -U-

AUTHOR-(04)-KARGIN, V.A., SOGOLOVA, T.I., SHAPOSHNIKOVA, E.K., KORSHUNOVA, N.I.

COUNTRY OF INFO--USSR

K

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3) 649-55

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS

TOPIC TAGS--MOLECULAR STRUCTURE, PLASTIC MECHANICAL PROPERTY, CAPROLACTAM, POLYMERIZATION, PLASTIC FABRICATION, MOLECULAR WEIGHT, POLYMER STRUCTURE, NUCLEATION, FILLER, POLYMER PHYSICAL PROPERTY, GRAPHITE, ALUMINUM OXIDE, KAOLIN, TALC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0298 STEP NO--UR/0459/70/012/003/0649/0655

CIRC ACCESSION NO--AP0111492

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

2/2 053 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111492

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHYS. PROPERTIES (IMPACT STRENGTH (I), HARDNESS (H), BENDING STRENGTH (B), RUB RESISTANCE (R)), OF POLYCAPROAMIDE (I), OBTAINED BY THE POLYMN. DIRECTLY IN THE MOLD WERE EFFECTIVELY REGULATED BY CHANGING THE TEMP. OF THE MOLDING MIXT. PREPN. THE MIXT. CONTAINED THE MONOMER, 0.3 MOLE PERCENT (ON MONOMER WT.) NA METAL, AND 0.3 MOLE PERCENT N,ACETYLCAPROLACTAM (POLYMN. ACTIVATOR) AND WAS PREPD. AT 110DEGREES-94DEGREES. THE MOLDING WAS CARRIED OUT 1.5 HR AT 180 PLUS OR MINUS 2DEGREES AND THE COOLING RATE WAS 2DEGREES-MIN. WHEN THE POLYMN. MIXT. WAS PREPD. AT 110-25DEGREES, I HAD HIGH I BUT LOW H AND B; 133-7DEGREES MIXT. PREPN. TEMPS. INCREASED H AND B, BUT DECREASED I; 185-97DEGREES MIXT. PREPN. TEMPS. INCREASED R CONSIDERABLY. THE MIXT. PREPN. TEMPS. NOT ONLY AFFECT THE MOL. WT. OF I, BUT ALSO ALTER ITS STRUCTURE. THE ADDN. TO THE POLYMN. MIXT. OF 0.5 WT. PERCENT POWD. PBO, AL SUB2 O SUB3, TIO SUB2, GRAPHITE, TALC, OR KAOLIN AS THE NUCLEATION CENTERS ALSO CHANGES I, H, B, AND R. THE USE OF ACTIVE SUPPORTS (TEFLON, GLASS, AL FOIL) AS THE MOLD LININGS ALSO MODIFIES THE STRUCTURE AND THE PHYS. PROPERTIES OF I.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

K

USSR

UDC 616.282.7-02:613,1[illegible]-091

STRAKHOV, A. B., KORENUKOVA, V. I., and ANTAKOVA, N. V., Chair of Normal Physiology, Gor'kiy Medical Institute imeni S. M. Kirov

"Morphological Changes in the Central Structures of the Auditory Analyse After Prolonged Exposure to Noise"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 4, 1970, pp 95-97

Abstract: Several groups of rats were continuously exposed to noise (1500 to 3000 Hz) for periods of up to 28 days. Significant changes were noted in the Nissl bodies (different forms of chromatolysis - perinuclear, peripheral, total), nuclei, (peripheral location, degeneration, pyknosis), and nucleoli two or three present in many cells. The intensity of the changes varied with the part of the brain and the duration of exposure. After 1 to 7 days they were most pronounced in the acoustic cortex, less so in the stem structures. After 15 to 28 days, the cortical changes were more diffuse, but in the subcortical formations - corpora quadrigemina, corpus geniculatum mediale, and area vestibularis - the changes gradually intensified.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

1/2 012 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--OXIDATION OF O, AMINOPHENOLS -U-

AUTHOR-(04)-KORSHUNOVA, Z.I., GLIBIN, YE.N., ZAKHS, E.A., GINZBURG, O.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970 6(3) 510-12

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--OXIDATION, AMINE, PHENOL, BENZOIC ACID, CARBOXYLIC ACID ESTER, THIN LAYER CHROMATOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1421 STEP NO--UR/0366/70/006/003/0510/0512

CIRC ACCESSION NO--AP0112415

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

2/2 012 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112415

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OXIDN. OF A MIXT. OF ET 2,AMINO ,3,HYDROXY,4,METHYLBENZOATE AND ET 2,AMINO,3,HYDROXY,4,CHLOROBENZOATE WITH K SUB3 FE(CN) SUB6 IN A BUFFERED SOLN. AP PH 7.2 GAVE A MIXT. OF DI ET 4,Y, 6,X,DISUBSTITUTED,2,AMINO,3,PHENOXA,ZONE 1,9,DICARBOXYLIC ACID ESTERS (I) IN WHICH I (X EQUALS Y EQUALS CL), I (X EQUALS Y EQUALS ME), AND I (X EQUALS ME, Y EQUALS CL) WERE ALSO OBTAINED AND ISOLATED BY THIN LAYER CHROMATOG.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

1/2 011 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--SYNTHESIS OF ANALOGS OF ACTINOMYCINS. IV. LYSINE DERIVATIVES OF ACTINOMYCIN -U-

AUTHOR-(03)-KORSHUNOVA, Z.I., ZAKHS, E.R., GINZBURG, O.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM 1970, 6(3) 504-10

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--ACTINOMYCES, LYCINE, BENZENE DERIVATIVE, CHEMICAL SYNTHESIS, AMINE, HYDROXYL RADICAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1422 STEP NO--UR/0366/70/006/003/0504/0510

CIRC ACCESSION NO--AP0112416

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

2/2 011 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112416

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDENSATION OF 3,BENZOLYOXY,4,METHYL,2,NITROBENZOYL CHLORIDE WITH RNH SUB2 GAVE 3,BENZYLOXY,4,METHYL,2,NITRO RNHCO SUBSTITUTED BENZENES (I). THE CATALYTIC HYDROGENATION AND DEBENZOYLATION OF I GAVE THE CORRESPONDING 2,AMINO,3,HYDROXY DRIVS. (II) WHICH WERE OXIDIZED WITH K SUB3 FE(CN) SUB6 AT PH 7.1 TO 1,9,(RNHCO,DISUBSTITUTED),2,AMINO,4,6,DIMETHYL,3H,PHENOXAZIN,3,ONES (R IS CH(CO SUB2 H) (CH SUB2) SUB4 NHAC, (CH SUB2) SUB4 CH(NHAC) CO SUB2 H, (CH SUB2) SUB4 CH(NHAC)CO SUB2 ET, CH(CO SUB2 H) (CH SUB2) SUB4 NHCO SUB2 C H SUB2 PH, OR 2,PIPERIDINON,6,YL).

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

UDC 621.396, 677.001.5

KORSI, L.V., SOKOLOV, V.G.

"Solution Of The Problem Of The Synthesis Of Isotropic Radiators By The Method Of Quadratic Programing"

Radiotekhnika i elektronika, Vol XVII, No 3, March 1972, pp 463-470

Abstract: An effective method of synthesis of a system of isotropic radiators is proposed. The method of a projected gradient is used to optimize the algorithm. Solutions of composite and phase synthesis of an array of radiators are obtained by this method. On the average, a solution of the problem of phase synthesis was achieved by 100 integrations which amounted to 5-7 minutes of computation on the BESM-6 computer. However, the directional diagram obtained at the 20th step differed very little from the final step. With machine execution the proposed method does not require a large volume of internal storage. For the computations at each step, only those arrays were used which were proportional to the number of radiators and not to the square of the number of radiators. In principle, two-dimensional arrays consisting of several thousands of elements can be synthesized on the BESM-6. 7 fig. 5 ref. Received by editors, 5 Feb 1971.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

1/2 017 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--THE E.S.R. LINE SHAPE FOR THE IMINOXYL RADICAL IN HIGH VISCOSITY MEDIA -U-

AUTHOR-(05)-ALEXANDROV, I.V., IVANOVA, A.N., KORST, N.N., LAZAREV, A.V., PRIKHOZHENKO, A.I.

COUNTRY OF INFO--USSR

R

SOURCE--MOLECULAR PHYS. (GB), VOL. 16, NO. 5, P. 681-91 (MAY 1970)

DATE PUBLISHED----MAY70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON SPIN RESONANCE, IMINE, FREE RADICAL, CALCULATION, VISCOUS FLUID, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0640 STEP NO--UR/0000/70/018/005/0681/0691

CIRC ACCESSION NO--AP0111833

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

2/2 017 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111833

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE E.S.R. LINE SHAPE OF THE IMINOXYL RADICAL IN VISCOUS LIQUIDS WAS INVESTIGATED AT SEVERAL TEMPERATURES. THE RESULTS ARE INTERPRETED BY THEORETICAL CALCULATION OF THE LINE SHAPE AT AN ARBITRARY VALUE BY USING A DIFFUSION MODEL FOR THE MOTION OF THE MOLECULES (11 REFS.). FACILITY: ACAD. SCI. USSR., MOSCOW.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR UDC 669.017

GORYACHKOVSKIY, YU. G., KOSTIKOV, V. I., and FILIMONOV, YE. F., Moscow Institute of Steel and Alloys, Department of High Temperature Materials

"Experimental Evaluation of the Surface Energy of Graphite"

Ordzhonikidze, IVUZ, Tsvetnaya Metallurgiya, No 5, 1973, pp 81-83

Abstract: The surface energy of polycrystalline graphite was determined from the formula

$$\sigma_T = \frac{F^2L^2}{3\ Eb^2h^3}$$

where σ_T is the free surface energy of the solid, F is the critical cleavage force, L is the length of the initial fracture, E is the modulus of elasticity, b is the width of the sample, and h is the half-width of the sample. Three types of graphite having a porosity of 20-22% were used. The average value of σ_T from 250 samples of each graphite is as follows: ARV, 2050 ergs/cm^2; MG, 1725 ergs/cm^2; and MPG, 2130 ergs/cm^2. Annealing the samples at 2300°C lead

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

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GORYACHKOVSKIY, YU. G., et al., TVUZ, Tsvetnaya Metallurgiya, No 5, 1973, pp 81-83

to a significant reduction (on the order of 25%) in σ_T. The value of σ_T was essentially independent of organic surface-active compounds.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

UDC 678:539.26

KORSUKOV, V.YE., VEITERGREN', V.I. (Leningrad), Physicotechnical Institute imeni A.F. Ioffe, Academy of Sciences, USSR

"The Measurement of Stresses at the Apex of Main Cracks in Polymers by the Specroscopic Method"

Kiev, Problemy Prochnosti, No 2, 1971, pp 51-54

Abstract: An attempt was made to determine the stresses on the interatomic bindings at the apex of a main crack for loaded polymers. The stress was evaluated on the basis of the shift of the natural-oscillation frequency of the skeleton of polymer chains under a load. It turned out that the external load is distributed nonuniformly along the chemical bindings. The majority of the bindings is equally loaded, the value of the stresses upon them is 6-10 times greater than the external stress. At the same time, there is a small number of bindings, the load upon which is several hundred times greater then the external stress. 4 figures, 2 tables, 12 bibliographic entries.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

UDC 612.014.2+616.-92.3

PRAKAPCHUK, A. Ya (Deceased), GRYNGAUZ, M. Ya., YROMENKA, S. A., and KORSUN, U. F.

"The State of Histohematic Barriers in Guinea Pigs After the Action of Ionizing Radiation on the Organism"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Biologicheskikh Nauk, No 1, 1971, pp 79-81

Abstract: Cutaneous permeability with respect to radioactive isotopes of phosphorus, sulfur, and arsenic was studied under certain physiological and pathological conditions of the organism. Sixty-eight guinea pigs were used. Prior to the beginning of the experiments the animals were subjected to x-ray irradiation with total doses of 500 and 900 rad. Twenty-four to 48 hours later, the isotopes (in doses of 1.8 millicurie in ointment bases) were applied to shaved skin. It was established that the skin is permeable to these isotopes, the degree of permeability depending on the activity of the isotope, the duration of skin exposure to the action of the isotope, and the type of the ointment base

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

PRAKAPCHUK, A. Ya (Deceased), GRYNGAUZ, M. Ya., YROMENKA, S. A. and KORSUN, U. F., Izvestiya Akademii Nauk BSSR, Seriya Biologicheskikh Nauk, No 1, 1971, pp 79-81

used. The largest accumulation of isotopes in the brain, in diminishing order of radioactivity, were found in the hypophysis, gray matter, cerebellum, medulla oblongata, spinal cord, and white matter.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

1/2 018

UNCLASSIFIED

TITLE—ELECTRICAL CONDUCTIVITY OF ZINC SULFIDE SINGLE CRYSTALS -U-

PROCESSING DATE--20NOV70

AUTHOR-(04)-KORSUN, V.M., MALTSEV, YE.K., ROMANCHENKO, V.A., PEREKRESTOVA, L.G.

COUNTRY OF INFO—USSR

SOURCE—IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 131-3

DATE PUBLISHED———70

SUBJECT AREAS—PHYSICS

TOPIC TAGS—ELECTRIC CONDUCTIVITY, ZINC SULFIDE, SINGLE CRYSTAL, FORBIDDEN BAND

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—1997/1398

STEP NO--UR/0139/70/013/002/0131/0133

CIRC ACCESSION NO--AT0120191

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

2/2 018 UNCLASSIFIED

CIRC ACCESSION NO--AT0120191 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACCUMULATION OF SPACE CHARGE IN A CONST. ELEC. FIELD AND THE CURRENT VOLTAGE CHARACTERISTICS IN A LARGE RANGE OF FIELDS WERE DETD. THE ELEC. COND. WAS DETD. BETWEEN 20 AND 250DEGREES; THE ACTIVATION ENERGY OF THE PROCESS WAS BETWEEN 1.25 AND 1.41 EV. THE STRUCTURE OF THE FORBIDDEN BAND IS DISCUSSED.

FACILITY: DNEPROPETROVSK. GOSUNIV., DNEPROPETROVSK, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

AP0050717 Abstracting Service: CHEMICAL ABST. 5/10

Ref. Code 4R0365

K

105581e Effect of infrared radiation on the electroluminescence of ZnS-Cu,Cl phosphors. Korsun, V. M.; Ushakov, Yu. V. (USSR). *Zh. Prikl. Spektrosk.* 1970, 12(1), 113-16 (Russ). The effects of ir activity on the photoluminescent brightness of ZnS-Cu,Cl phosphors indicated that the quenching effectiveness of the ir increased with its intensity. Max. quenching was accomplished at ~0.8 μ.

J. Beller

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

1/3 027 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ADDITIONAL IONIZATION SOURCE IN THE IONOSPHERIC E REGION. I -U-

AUTHOR-(02)-KORSUNOVA, L.P., IVANOVKHOLODNYY, G.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, GEOMAGNETIZM I AERONOMIYA, VOL X, NO 3, 1970, PP 532-533

DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--E LAYER, IONIZATION, SOLAR ACTIVITY, VERTICAL SOUNDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0528 STEP NO--UR/0203/70/010/003/0532/0533

CIRC ACCESSION NO--AP0132721

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

2/3 027 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132721

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDER EQUILIBRIUM CONDITIONS IN THE E REGION THE SQUARE OF THE ELECTRON CONCENTRATION IS PROPORTIONAL TO THE RATE OF ION FORMATION N SUBE PRIME2 EQUALS Q-ALPHA PRIME, WHERE ALPHA PRIME IS THE EFFECTIVE RECOMBINATION COEFFICIENT. THIS PAPER GIVES COMPUTATIONS OF THE PROFILE OF THE RATE OF ION FORMATION UNDER THE INFLUENCE OF SOLAR RADIATION Q MASS OF THE SUN (H) AND EXPERIMENTAL N SUBE (H) PROFILES IN ORDER TO CLARIFY HOW THE LATTER Q MASS OF THE SUN VALUES CORRESPOND TO REAL CONDITIONS IN THE E REGION. IN THIS FIRST PART OF THE STUDY THE AUTHORS EXAMINE CONDITIONS FOR THE YEARS OF MAXIMUM SOLAR ACTIVITY; THE SECOND PART EXAMINES CONDITIONS FOR LOW ACTIVITY. THE STUDY IS BASED ON N SUBE MEASUREMENTS MADE USING GROUND VERTICAL SOUNDINGS AT IRKUTSK IN THE SUMMER OF 1968 AND DATA FROM SOME ROCKET EXPERIMENTS MADE DURING THE SUMMER MONTHS OF 1957-1960. THE ANALYSIS WAS BASED ON MEAN N SUBE VALUES AT H EQUALS 100-115 KM ON THE BASIS OF ROCKET AND GROUND MEASUREMENTS; ABOVE THE LAYER MAXIMUM (H IS APPROXIMATELY EQUAL TO 115 KM) ONLY ROCKET DATA WERE USED. SINCE THE IONOSPHERIC DATA USED APPLY FOR THE MOST PART TO INTERMEDIATE SOLAR ACTIVITY, F IS APPROXIMATELY EQUAL TO 150 TIMES 10 PRIME NEGATIVE 22 W-M PRIME2 CPS, THE MEAN GEOMETRICAL Q MASS OF THE SUN VALUES FOR F EQUALS 80 AND 200-250 WERE USED AS VALUES OF THE ION FORMATION FUNCTION Q MASS OF THE SUN. ON THE BASIS OF Q(H) OBTAINED IN THIS WAY IT IS POSSIBLE TO COMPUTE THE PARAMETER M IN THE EXPRESSION Q ALPHA CH PRIME NEGATIVE MZ MASS OF THE SUN FOR Z MASS OF THE SUN EQUALS 55-90DEGREES. THIS CHARACTERIZES THE RATE OF CHANGE IN Q MASS OF THE SUN.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

3/3 027 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132721

ABSTRACT/EXTRACT--FOR EXPLAINING THE MEASURED N SUBE IT IS NECESSARY TO HAVE LARGER Q THAN CAN BE ENSURED BY SHORT WAVE SOLAR RADIATION. ACCORDINGLY, AT THE ALTITUDES OF THE E REGION FOR Z MASS OF THE SUN GREATER THAN 60DEGREES AN ADDITIONAL IONIZATION SOURCE MUST EXIST. THE CONTRIBUTION FROM THIS SOURCE AT THE MENTIONED ALTITUDES IS ESTIMATED. IT CAN BE CONCLUDED THAT THE ADDITIONAL SOURCE AT THE E REGION ALTITUDES FOR LARGE ZENITH ANGLES Z MASS OF THE SUN GREATER THAN OR EQUAL TO 75DEGREES MAKES ITS PRINCIPAL CONTRIBUTION TO IONIZATION AT H IS APPROXIMATELY EQUAL TO 100-110 KM. THE SOURCE INTENSITY ON THE AVERAGE IS DEPENDENT ON THE SOLAR ACTIVITY LEVEL. FACILITY: INSTITUTE OF APPLIED GEOPHYSICS.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

Acc. Nr.: AP0042552

Ref. Code: UR0203

JPRS 50162

Variations of Effective Recombination Coefficient in E Region

(Abstract: "Diurnal Variations in the Effective Recombination Coefficient in the E Region of the Ionosphere as a Function of Electron Temperature," by L. P. Korsunova, Institute of Applied Geophysics; Moscow, Geomagnetizm i Aeronomiya, Vol X, No 1, 1970, pp 151-154)

A number of authors have now estimated the effective recombination coefficient for the ionosphere. The value α of photochemical recombination can be determined with an accuracy to a factor of 1.5 on the basis of mass spectrometer measurements of the ion composition aboard rockets and on the basis of laboratory measurements of the coefficients of the rate of dissociative recombination α_i^*. An analysis of determinations of α_{eff} by different methods was given by G. S. Ivanov-Kholodnyy in Geomagnetism i Aeronomiya, 7, 1967, 83. However, the α values given in that study require re-examination because the author used data on the neutral temperature of the gas whereas the electron temperature should be used; he also employed outdated information on the α_i^* value at low temperatures. The problem is re-examined here, using data on the diurnal variations of T_e in the E region obtained during years of low solar activity ($F \leq 150$ W/m^2 cps) un-

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AP0042552

der quiet geomagnetic conditions ($K_p \leq 3$) in the middle latitudes (φ = 30-50°). These measurements were used in determining the mean T_e profile in the daytime ionosphere. The vertical distribution of neutral temperature was used in computing nighttime α'_{eff}. The effective recombination coefficient was determined taking into account the reduced $T_e(h)$ profiles and the dependence of the coefficients of the rate of the dissociative recombination reaction α_i^* on temperature. All daytime and nighttime E-region parameters are summarized in a table for altitudes 100-130 km (each 5-km interval). In particular, the table shows that the use of new α_{O^+} estimates leads to α'_{eff} values approximately twice as large as indicated by earlier computations. Regardless of the type of approximation, there is an obvious increase in α'_{eff} at nighttime in comparison with daytime. The diurnal variations of α'_{eff} differ from the results given by Ivanov-Kholodnyy because he made no allowance for day-to-night T_e changes in the E-region.

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1/2 030 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ON MORPHOLOGICAL CHANGES BETWEEN CENTRAL STRUCTURES OF THE AUDITORY ANALYZER IN PROLONGED INTENSIVE EFFECT OF NOISE -U-

AUTHOR-(03)-STRAKHOV, A.B., KORSHUNOVA, V.I., ANTAKOVA, N.V.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49, NR 5, PP 95-97

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--WHITE NOISE, AUDITORY SYSTEM, NEURON, MORPHOLOGY, CELL PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0570 STEP NO--UR/0219/70/049/005/0095/0097

CIRC ACCESSION NO--AP0131193

UNCLASSIFIED

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2/2 030 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131193

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EXPERIMENTAL CONDITIONS THE AUTHORS STUDIED THE EFFECT OF PROLONGED NOISE ON THE DEVELOPMENT OF MORPHOLOGICAL CHANGES IN NEURONS OF DIFFERENT REGIONS OF THE AUDITORY ANALYZER IN ALBINO RATS. MANY DAY EFFECT OF NOISE LEADS TO THE DEVELOPMENT OF CHANGES IN THE NISSL'S SUBSTANCE, NUCLEI AND NUCLEOLI OF NERVE CELLS. IN EXPOSURES LASTING FROM 1 TO 7 DAYS THE MOST SIGNIFICANT ALTERATIONS WERE REVEALED IN THE ACOUSTIC REGIONS OF THE CORTEX OF GREAT HEMISPHERES. IN LARGE TERMS OF THE EFFECT (15-28 DAYS) CORTICAL CHANGES GRADUALLY DIMINISHED, WHEREAS IN THE SUBCORTICAL FORMATIONS OF THE BRAIN THEY GRADUALLY INTENSIFIED. IT IS ASSUMED THAT PROTRACTED EFFECT OF INTENSIVE NOISE LEADS TO BLOCK ON THE SUBCORTICAL LEVEL OF AFFERENT IMPULSATION THIS MAKING IT POSSIBLE TO CARRY OUT RESTORATIVE PROCESSES IN THE CORTICAL LAYER OF THE AUDITORY ANALYZER.

FACILITY: GORKY MEDICAL INSTITUTE.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

UDC: 537.533.3

KORSHUNOVA, Ye. N., SIVOV, A. N.

"Limits of Applicability of an Asymptotic Description of a Thin Lens"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, pp 863-866

Abstract: In the quasioptical approximation, a dielectric lens is treated as a phase corrector, i. e. the amplitude and phase of the field passing through the lens are assumed to be equal in the cross section to the amplitude and phase of a plane wave at the output of an infinite equivalent dielectric plate. Strictly speaking, this approximation is true only for $ka \gg 1$, $a/b \gg 1$ (a and b are the longitudinal and transverse dimensions of the lens, $k = 2\pi/\lambda$). The authors determine the limits of applicability of the approximation by rigorously analyzing the problem of diffraction of a plane wave by a dielectric cylinder of elliptical cross section. For this purpose, use is made of a system of two one-dimensional Fredholm's integral equations of second kind which constitute the essence of the two-dimensional problem of diffraction by a dielectric body. The analysis relates to the case of E-polarization, i. e. the case where the electric vector is parallel to the generatrices of the cylinder. The results show that even for rather

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USSR

KORSHUNOVA, Ye. N., SIVOV, A. N., Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, pp 863-866

modest values of ka and a/b (of the order of 5) the asymptotic description of the lens gives an error in phase and amplitude calculations at the output of the order of 10%. The results of the paper were presented to the Fifth All-Union Symposium on Wave Diffraction and Propagation (June 1970). The authors thank B. Z. Katsenelenbaum for interest in the work.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR UDC 621.791:539.378:669.721+669.71

KORSUNSKAYA, I. G., Engineer, LYULICHEV, A. N., Candidate of Chemical Sciences, and MAKSIMENKO, G. I., Engineer, Physico Technical Institute of Low Temperatures, Academy of Sciences UkrSSR

"Diffusion Welding of Magnesium With Aluminum in Vacuum"

Moscow, Svarochnoye Proizvodstvo, No 7, Jul 70, pp 19-20

Abstract: Diffusion welding was carried out on a polished aluminum (99.99% pure) sample lying free on a polished magnesium (99.99% pure) sample in a vacuum chamber (10^{-2} - 10^{-6} torr) at 440°C. A microscopic section of the welded joint is shown. The disappearance of discontinuity at 440°C was observed directly in vacuum, using the MVT metallographic microscope. It is concluded that in order to realize a diffusion welding of magnesium with aluminum it is not necessary to apply pressure for the mechanical destruction of oxide films, and that a contact between metal surfaces is quite sufficient. 4 figures, 2 refer.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--OBSERVATION OF THE SUPPRESSION OF THE INELASTIC CHANNEL OF A NUCLEAR REACTION IN RESONANT NUCLEAR SCATTERING OF GAMMA RAYS IN A

AUTHOR-(04)-VOITOVETSKIY, V.K., KORSUNSKIY, I.L., NOVIKOV, A.I., PAZHIN, YU.F.

COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. 11, NO. 3, P. 149-53 (FEB. 1970)

DATE PUBLISHED----FEB70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS

TOPIC TAGS--NUCLEAR RESONANCE, NUCLEAR REACTION, NUCLEAR SCATTERING, GAMMA RAY, SINGLE CRYSTAL, TIN ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1788 STEP NO--US/0000/70/011/003/0149/0153

CIRC ACCESSION NO--AP0133693

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

2/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133693

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO OBSERVE THE EFFECT OF THE NUCLEAR REACTION CHANNEL SUPPRESSION FOR THE CASE WHEN NUCLEAR RESONANT SCATTERING IS DECISIVE, ALSO TO INVESTIGATE ALL THE POSSIBLE MECHANISMS OF WAVE FIELD FORMATION LEADING TO THE SUPPRESION OF THE INELASTIC CHANNELS IN THE CRYSTAL, THE AUTHORS HAVE PERFORMED AN EXPERIMENT WITH A PERFECT TIN SINGLE CRYSTAL CONTAINING 88PERCENT SN PRIME119 (MAGNITUDE OF F SUBNUC PRIMER GREATER THAN F SUBE IN A CRYSTAL WITH THIS SN PRIME119 CONTENT).

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USSR

UDC 669.721.5:536.422.1

MAKSIMENKO, G. I., LYULICHEV, A. N., CURPRININ, F. I., and KORSUNSKAYA, I. G.
Kharkov

"Effect of Surrounding Medium on the Process of Thermal Failure of the Surface of Magnesium Alloys in a Vacuum"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 72, pp 106-112

Abstract: The purpose of this work was to study the effect of the surrounding medium on the initial stage of sublimation, i.e., on the process of thermal failure of the surface of magnesium alloys in a vacuum. The magnesium alloy tested was MA-2. Specifically investigated were the effects of vacuum depth, temperature of the surfaces and medium surrounding the sample, and composition of residual gases in the vacuum chamber. The better the vacuum the better chance there is to exclude the formation of oxide films on the sample due to diffusion processes. Temperature of the sample and surrounding medium increase the possibility of oxide formation as well as the composition of residual gases. Of the three effects studied, the composition of the residual gases contributes the most toward thermal failure of the alloy's surface. It was noted that the composition of the residual gases between the sample and cryogenic tanks differed substantially from that of the gases on the opposite side of the sample. 5 figures, 4 bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

UDC 537.533.3

KORSUNSKIY, A. M., KHIZHNYAK, N. A.

"Limiting Fluctuation Amplitudes of a Multivelocity Electron Flow in Crossed Electric and Magnetic Fields"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 40, No 1, Jan 70, pp 77-82

Abstract: The transition, of a double-beam system placed in an external magnetic from the linear stage of oscillations to the nonlinear, field of finite magnitude is investigated. The study is conducted within the framework of quasilinear theory, since the oscillations have a somewhat broad wave-number spectrum. Monochromatic oscillations, to which quasilinear theory is directly applicable, are considered. The system is assumed to consist of N-electron beams with unperturbed densities ρ_{i0} (i = 1, 2, ...N) and with unperturbed velocities v_{i0} moving at an angle θ to the direction of the external magnetic field H_0. The development of longitudinal oscillations in the beams is discussed and the process of establishing stationary oscillations for this system is studied. A relationship is established between the square of the limiting amplitude of the oscillations and the beam parameters, the increment in growth, and the angle θ. Limiting amplitudes

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USSR

KORSUNSKIY, A. M., KHIZHNYAK, N. A., Zhurnal Tekhnicheskoy Fiziki, Vol 40, No 1, Jan 70, pp 77-82

are calculated for the oscillations and criteria are established under which the amplitude of the monochromatic wave reaches saturation without decaying into harmonics, even though the saturation is caused by the interaction of the basic wave with its harmonic. It is shown that intersection of the beam trajectories does not occur in the range of parameters considered.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

KORSUNSKIY, M. I.; GENKIN, Ya. Ye.; MUZYCHUK, R. V.

"Multiple Character of the Spectra of the Characteristic Electron Energy Loss in Transition Metals of the Yttrium-Palladium Series"

Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR: Seriya Fiziko-Matematicheskaya; November-December, 1972; pp 6-13

ABSTRACT: The shapes of the spectra of the characteristic electron energy losses during reflection from large samples of metals of the yttrium-palladium series were determined. The calculations were made on the assumption that the most probable types of characteristic electron energy loss in the kilovolt range are one type of energy loss by surface excitation and three by internal excitation. The parameters of the first inelastic peaks of all four types of characteristic electron energy loss for which the calculated spectra agree satisfactorily with the experimental ones were determined.

The energy losses at the surface of a sample are related to the excitation of surface plasmons. The first and second types of internal losses are related to the excitations of the plasma of the collective electrons and collective excitations of the locally bound electrons respectively. The question of the authenticity and nature of the third type of internal loss is discussed.

The article includes two figures and two tables. There are 16 references.

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SR UDC 539.26

KORSUNSKIY, M. I., GENKIN, YA. YE., ZHURAKOVSKIY, YE. A., and LIFSHITS, V. G.

"X-Ray L_{β_2} Band of Niobium and K_{α} Band of Carbon in the Compound NbC"

Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Fizико-Matematicheskaya, No 4, Jul-Aug 72, pp 68-70

Abstract: The purpose of the article was to study the L and K spectra of Nb and C respectively in Nb-C system alloys and interpret them from the standpoint of the partial collectivization of valence electrons. The L_{β_2} band of Nb and K_{α} band of C in niobium monocarbide are broken down into components subject to the rigid requirements of the CLC model on the equality of the general energy parameters of both bands. Ideas about collective, locally bonding, and core electrons are used to interpret the emission bands of niobium and carbon. Band shape distortions are taken into consideration and the parameters of the parts of these bands that reflect electron states are determined. The widths of the short-wave parts of the L_{β_2} band of niobium and

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KORSUNSKIY, M. I., et al., Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Fiziko-Matematicheskaya, No 4, Jul-Aug 72, pp 68-70

K_{α} band of carbon are 4.2 ± 0.3 ev, which in the free electron approximation corresponds to a collectivization of $\sim 0.86 \pm 0.05$ electron per total volume of niobium and carbon atoms in the alloy.

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KORSUNSKIY A.A.

Acc. Nr: AP0043675 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 558-567

ON THE EQUATIONS OF TRANSVERSE ELECTROMAGNETIC FIELDS IN MEDIA

Korsunskiy, A. A.

A perturbation theory is developed for the case of interaction between a transverse electromagnetic field and the medium; the interaction is assumed to be small only with respect to the medium. The theory yields on the one hand an integral equation relative to observed macroscopic quantities, and on the other permits one to express the equation nuclei in terms of a series in the coupling constant. The method is used for deriving the Maxwell equations and radiation transfer equations and also for analyzing the process of coherent generation of harmonics.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

UNCLASSIFIED PROCESSING DATE--04DEC70

1/2 021

TITLE--RELATION BETWEEN THE PHASE DIAGRAM AND COMPOSITION PROPERTY DIAGRAM OF THE INDIUM TIN SYSTEM -U-

AUTHOR-(03)-DUTCHAK, YA.I., KORSUNSKIY, A.M., KLIM, M.M.

K

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(5), 36-41

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--PHASE DIAGRAM, INDIUM, TIN, CRYSTAL LATTICE STRUCTURE, ELECTRIC CONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0634 STEP NO--UR/0139/70/013/005/0036/0041

CIRC ACCESSION NO--AT0137719

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

2/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0137719

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VISCOSITY COEFF. (NU) AND THE ELEC. COND. (N) WERE MEASURED IN THE SYSTEM IN-SN IN THE WHOLE CONCN. RANGE BY THE ROTATION VIBRATIONAL METHOD AT M.P. TO 700DEGREES OR BY THE ROTATING MAGNETIC FIELD METHOD AT 20-700DEGREES, RESP. A SUDDEN CHANGE IN BOTH NU AND N WAS OBSD. AT X EQUALS 40-55 AT.PERCENT SN. ON PLOTS NU VS. X AND N VS. X CONSTRUCTED AT EQUAL TEMP. DIFFERENCES ABOVE THE LIQUIDUS LINE, AN ANOMALOUS INCREASE IN BOTH NU AND N WAS OBSD. AT X EQUALS 20-48 CORRESPONDING TO THE SUPPOSED EXISTENCE OF THE BETA PHASE. THE GIBBS FREE ENERGY OF THE VISCOUS FLOW INCREASES LINEARLY WITH TEMP. AND THE CURVES LN NU VS. 1 OVER T ARE STRAIGHT LINES FOR ALL SAMPLES EXCEPT FOR THOSE WITH X EQUALS 20-40 ABOVE 500DEGREES. THESE DEVIATIONS FROM LINEARITY ARE DUE TO CHANGES IN THE NEAREST NEIGHBOR STRUCTURE IN THE LATTICE. FACILITY: L'VOV. GOSUNIV. IM. FRANKO, LVOV, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

1/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--OBSERVATION OF THE SUPPRESSION OF THE INELASTIC CHANNEL OF A NUCLEAR REACTION DURING RESONANCE NUCLEAR SCATTERING OF GAMMA RAYS IN A

AUTHOR-(04)-VOYTOVETSKIY, V.K., KORSUNSKIY, I.L., NOVIKOV, A.I., PAZHIN, YU.F.

COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 970, 11(3), 149-53

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SINGLE CRYSTAL PROPERTY, GAMMA IRRADIATION, GAMMA SCATTERING, TIN ISOTOPE, RESONANCE SCATTERING, PARTICLE ABSORPTION, INELASTIC SCATTERING, RADIATION DETECTOR, COLLIMATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0241 STEP NO--UR/0386/70/011/003/0149/0153

CIRC ACCESSION NO--AP0105317

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

2/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105317

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE INTENSITY OF REFLECTION ON THE RELATIVE VELOCITY OF GAMMA RAYS EN THE SOURCE, AND IN A PERFECT SINGLE CRYSTAL, 420 MU THICK CONTG. 88PERCENT PRIME119 SN WAS STUDIED AT 90DEGREESK IN AN ASSEMBLY, WHICH DIFFERED FROM THAT DESCRIBED PREVIOUSLY (VOITOVETSKII, ET AL., 1965) BY THE REPLACEMENT OF THE CRYSTAL MONOCHROMATOR BY A SLOT COLLIMATOR. IN THE SPECTRUM REGION WHE R RESONANCE SCATTERING MAGNITUDE OF F R OVER N IS LARGER THAN E SCATTERING, F.SUBE, WHEN INDEPENDENT ABSORPTION ON SEP. NUCLEI IS AT A MAX., AND WAVES FORM PRIMARILY BY NUCLEI C TERING, ABSORPTION IS WEAK. THIS WAS ASCRIBED TO SUPPRESSION OF INELASTIC CHANNELS. IN THE REGION WHERE MAGNITUDE OF F R OVER N IS SMALLER THAN F SUBE, WAVE FIELDS ARE FORMED PRIMARILY BY F SUBE.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR UDC: 621.396.67:624.97(088.8)

SHKUD, M. A. and AORSUNSKIY, I. M.

"Insulators for Radio Mast Guys"

/Gos. proyektn. in-t/ Avt. sv. SSSR (State Design Institute, Author's Certificate, USSR) Class H1c, 13/07, (H 01 b 17/12), No. 271605, Application 20.05.69, Publication 3.09.70 (From RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3B925)

Translation: The proposed insulator contains flanges connected by braces, basic (operating) and supporting porcelain insulators, and the elements with which they are attached to the cable guy. For the purpose of improving the mechanical reliability, the attaching element is made in the form of a metallic sleeve placed inside the basic (operating) and supporting insulators through which the cable guy passes.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR UDC 621.371

KORSUNSKIY, LEV NAUMOVICH

"Propagation Of Radio Waves During Communication With Earth Satellites"

Rasprostraneniye radiovoln pri svyazi s iskusstvennymi sputnikami zemli (cf. English above), Izd. "Sov.radio," Moscow, 1971, 208 pp, 4 tabs., 105 fig., 103 ref. 62 kop.

Abstract: In the book an account is given of the principal problems of the propagation of radio waves during the accomplishment of radio communication with earth satellites. The destabilizing effect of the earth's atmosphere on the operating frequency, polarization, the distance and the direct of propagation of a wave during radio communication with a high-flying earth satellite is described, as well as the conditions of propagation of a wave in the waveguide formed by the earth's surface and the F_2 ionospheric layer during radio communication with a low-flying earth satellite. The necessary data are presented for an energy calculation of the length of radio communication with an earth satellite, and problems are considered connected with the motion of satellites and the time of their existence in orbit, the effect of the antenna directivity, the choice of the most favorable operating frequency, and others. The causes are analyzed which give rise to fading of the signal during radio

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USSR

KORSUNSKIY, LEV NAUMOVICH, Rasprostraneniye radiovoln pri svyazi s iskusstvennymi sputnikami zemli, 1971, 208 pp, 4 tabs., 105 fig., 103 ref. 62 kop.

communication with an earth satellite, and an evaluation is given of the frequency of total fading and the effect of the fading on the quality of communication. Some recommendations are presented with respect to the organization of the communication system with a low-flying earth satellite in the short wave band. The book is intended for engineers concerned with problems of propagation of radio waves and of communication, and also for students of higher engineering educational institutions.

TABLE OF CONTENTS

	page
Foreword	3
Introduction	5
Chapter one: Effect Of Atmosphere On Waves Passing Through It	10
1.1 Some Information From A Solution Of A Waveguide Equation	10
1.2 Some Information From The Theory Of Random Functions	15
1.3 Standard Errors Which Are Caused By The Earth's Atmosphere	23
1.4 Fluctuations	32
1.5 Effect Of Anisotropy Of The Ionosphere On A Passing Wave	45

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

KORSUNSKIY, LEV NAUMOVICH, Rasprostranenive radiovoln pri svyazi s iskusstvennymi sputnikami zemli, 1971, 208 pp, 4 tabs., 105 fig., 103 ref. 62 kop.

Chapter two: Quantitative Analysis Of Errors Caused By The Earth's Atmosphere 52
2.1 Discussion Of Admission Of A Model Of The Earth's Atmosphere 52
2.2 Computation Of Errors Of Standard Refraction 58
2.3 Computation Of Standard Errors With Respect To Distance 62
2.4 Computation Of Standard Errors With Respect To Frequency 67
2.5 Computation Of Fluctuation Of Angle Of Refraction 73
2.6 Computation Of Fluctuation Of Distance 76
2.7 Computation Of Fluctuation Of Frequency 78
2.8 Computation Of Effect Of Anisotropy Of Ionosphere On Passing Wave 81
2.9 Absorption Of Radio Waves In Atmosphere 87
2.10 Effect Of Aurora and High-Altitude Atomic Explosion 96

Chapter three: Energy Computation Of Line Of Radio Communication With Earth Satellite 100
3.1 Laws Of Motion Of Earth Satellite 102
3.2 Determination Of Time Of Existence Of Earth Satellite 109
3.3 Effect Of Antenna Directivity 113

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USSR

KORSUNSKIY, LEV NAUMOVICH, Rasprostranenive radiovoln pri svyazi s iskusstvennymi sputnikami zemli, 1971, 208 pp, 4 tabs., 105 fig., 103 ref. 62 kop.

3.4 Effective Noise Temperature At Receiver Input 121
3.5 Choice Of Most Favorable Frequency Range 128
3.6 Doppler Effect 132
3.7 Signal Lag 135
3.8 Signal Equation 136
3.9 Special Features Of Propagation Of Waves During Radio Communication Of Aircraft--Earth Satellite 142
3.10 To The Problem Of Communication Between Earth Satellites 152
Chapter four: Some Problems Of Radio Communication With Low-Flying Earth Satellites 154
4.1 Effect Of Bounding Surfaces On Propagation Of Electromagnetic Energy 155
4.2 Waves Between Two Parallel Planes 155
4.3 Ionosphere And Earth As Limiting Surfaces 159
4.4 Maximum Frequency In The Case Of Spherical Limiting Surfaces 159
4.5 Ionosphere--F_2 Layer 160

4/5

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR

KORSUNSKIY, LEV NAUMOVICH, Rasprostraneniye radiovoln pri svyazi s iskusstvennymi sputnikami zemli, 1971, 208 pp, 4 tabs., 105 fig., 103 ref. 42 kop.

4.6 Determination Of Maximum Use And Optimum Frequency For A Given Route [trass] During Reflection From F_2 Layer 168
4.7 Minimum Frequencies Which Are Used 169
4.8 Realization Of Radio Communication With Aircraft At Frequencies Above Optimum Working Frequency 172
4.9 Satellite Above Maximum Of F_2 Layer 173
4.10 Taking Account Of Speed Of Motion Of One Of The Correspondents During Computation Of Line Of Radio Communications 174
4.11 Fading Of Signals 175
4.12 Some Problems Of Organization Of Communication 182
Appendix 195
Bibliography 201

5/5

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR UDC 517.946

KORSUNSKIY, L. M., MALYSHEV, I. G.

"An Integral Representation of the Solutions of the Cauchy Problem for a Parabolic Equation With Variable Coefficients"

Kiev, Matematicheskaya Fizika, No 10, 1971, pp 143-148

Abstract: Integral representations are obtained for solutions of the Cauchy problem for a parabolic equation with a variable coefficient in an infinite layer in the cases of a plane and a space. A theorem is proved for a layer in the plane. Since the proof is analogous in the spatial case, only the final result is given. The representations can be used in the qualitative study in the numerical solution of certain specific Cauchy problems.

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USSR UDC: 621.315.592

KORSUNSKIY, M. I., SOMINSKIY, M. M., Institute of Nuclear Physics, Academy of Sciences of the Kazakh SSR, Alma-Ata

"Anomalous Dember Effect in Anomalously High Photovoltages in Cadmium Telluride Films"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 7, No 3, Mar 73, pp 480-487

Abstract: The phenomenon of generation of anomalously high photovoltages in CdTe films is considered in an effort to decide whether the barrier or diffusion mechanism is responsible for this effect. Measurements of the photomagnetic effect with front and back illumination show the presence of anomalous photodiffusion in these films. The illuminance curves for CdTe films also accord with the Dember mechanism of anomalously high photovoltages. The anomalous Dember effect also enables explanation of a number of other characteristics which do not agree with the barrier model.

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USSR

KORSUNSKIY, M. I. and KLIMENKO, V. V.

"Effect of the Parameters of the U-Center Potential Function on the Semiconductivity of Amorphous Selenium Films"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 3, 1973, pp 710-714

Abstract: A U-center is defined here as a macroscopic formation capable of capturing minority current carriers. These centers and their characteristics determine the nature of the photoconductivity of amorphous selenium films activated by mercury. The purpose of this theoretical work is to explain the boundary conditions of the U-center parameters at which anomalous and negative types of photoconductivity make their appearance. A table of these parameters is given which shows that anomalous photoconductivity is possible only if the specimen has U-centers whose potential function has certain parameters; the potential function is defined as the potential "trench" surrounding the barrier. The authors conducted calculations of the parameters at which negative photoconductivity is possible; the calculations were made for temperatures of 100 and 300°K. Curves defining the regions of the U-center parameters at which the two types of photoconductivity appear are plotted.

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USSR UDC 548.733

KORSUNSKIY, M. I., GENKIN, YA. YE., and ANDRYUSHIN, V. N.

"Short-Wave X-Ray Spectrometer for Bragg Angles Ranging From 0 to 43°"

Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Fiziko-Matematicheskaya, No 6, Nov-Dec 72, pp 82-83

Abstract: In order to study X-ray K-spectra in a wide range of angles, the authors designed and made an X-ray spectrometer which can be used at Bragg angles ranging up to 43°. The distinguishing feature of the spectrometer is the fact that the gearing used to provide the counter position on the Rowland circle necessary for the focusing conditions represents a link motion in the form of a rhombus. The $K\beta_{2}^{I,II}$ and $K\beta_{4}^{I,II}$ lines of molybdenum taken on the described spectrometer in the fourth order of reflection are given as an illustration.

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USSR

UDC: 535.321:535.341

DUYSEBAYEVA, Zh., KORSUNSKIY, M. I., MOTULEVICH, G. P.

"Optical Properties of Palladium"

Leningrad, Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 535-538

Abstract: The optical constants n and κ ($n - i\kappa$ is the complex index of refraction) of palladium were measured at room temperature in the spectral region from 1 to 9 μm. The specimen was a sheet of electropolished palladium of 99.99% purity measuring 80 x 18 x 3 mm. A layer of about 50 μm was removed by micropolishing to provide a clean surface layer free from work hardening. Ten series of measurements were made. The following characteristics of conduction electrons were calculated from the measured values of n and κ in the region of 4-9 μm: concentration N, effective collision frequency ν, and average velocity on the Fermi surface v_F. The interband luminous conductivity σ_b and interband permittivity ε_b were determined from the measured values of n and κ in the region of 1-3.5 μm. A complex conduction band is found which consists of two bands whose parameters are given. The authors thank A. A. Shubin who provided the equipment for measuring optical constants, and I. D. Mash for her assistance with the work.

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USSR

ZASHKVARA, V. V., TSVEYMAN, Ye. V., KORSUNSKIY, M. I., RED'KIN, V. S.

"Spectra of Characteristic Energy Losses for Electrons Reflected From Surfaces of La, Ce, Pr, and Nd"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 6, Jun 72, pp 1812-1814

Abstract: Electron reflection spectra are studied for La, Ce, Pr, and Nd. The specimens were heated in a vacuum to temperatures close to their melting point to clean the oxides from the surface. Spectra of characteristic energy losses are given for a primary electron energy of 900 ev and specimen temperature of 850°C in the range of energy losses of 0-50 ev. The results are compared with inelastic scattering spectra obtained previously for Gd and Dy. It is found that the La spectrum is similar to that of Gd, but with a more complex structure at energies above 15 ev. The spectra of the other three lanthanons are similar to that of Dy. The La spectrum shows maxima at 5.3, 10.2, and 22.1 ev which are not observed in the spectra of Ce, Pr, and Nd. Comparison with the analogous spectrum for barium indicates that the most intense peaks, observed at 8-9 ev, may be the result of losses to excitation of volumetric plasma oscillations in the metals. Interpretation of the remainder of the spectra is less clear.

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USSR

KORSUNSKIY, M. I., Academician of the Academy of Sciences of the Kazakh SSR, GENKIN, Ya. Ye., ZAVODINSKIY, V. G., Institute of Nuclear Physics of the Academy of Sciences of the Kazakh SSR, Alma-Ata

"On the Critical Temperature of Superconductivity of Transition Metals of the Yttrium-Palladium Series"

Moscow, Doklady Akademii Nauk SSSR, Vol 204, No 5, Jun 72, pp 1081-1083

Abstract: In a previous paper (Fizika Tverdogo Tela, Vol 13, 1971, p 1241) the authors proposed a model which they call the KLO model from the first letters of the Russian words for "collectivized", "locally binding" and "core" (valence electrons). Successful application of this model to calculation of the phonon spectrum of niobium led the authors to the work covered in this paper, i. e. estimation of the absolute values of the parameters of superconductivity of transition metals in the yttrium-palladium series. Formulas are given for the critical temperature as a function of the parameter of electron-phonon interaction λ, and for λ as a function of the number of collectivized electrons. A comparison with experimental data shows excellent agreement.

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Nuclear Physics

USSR UDC: None

ZASHKVARA, V. V., [redacted], RED'KIN, V. S., and CHOMIN, K. Sh.

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

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

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

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USSR UDC: 539.292

TSVEYMAN, Ye. V.; KORSUNSKIY, M. I., Academician of the Kazakh Academy of Sciences; ZASHKVARA, V. V., and REDKIN, V. S.

"Auger Electron Spectra for Some Rare-Earth Metals"

Moscow, Doklady Akademii Nauk SSSR, vol 204, No 4, 1972, pp 828-830

Abstract: Because no spectra of Auger electrons for the rare-earth metals have as yet been made, the authors have developed them for elements Pr, Nd, Gd, Dy, Yb, La, and Hf in an energy range of up to 530 ev. All of the metal specimens, except the Hf, were of rolled film 0.3-0.5 mm thick. The Hf specimen was made of the powdered metal pressed and then sintered at a temperature of 1500° C in a $2 \cdot 10^{-6}$ mm Hg vacuum for several hours. The excitation of the Auger electrons was done by an electron beam of 1-2 mA and 1.6 kev directed at right angles to the specimen surface, and the secondary electrons were recorded by an electrostatic energy analyzer of the cylindrical mirror type. The spectra of these metals is plotted and a table comparing the experimentally measured and the computed peak energies is presented. The authors are associated with the Institute of Nuclear Physics, Kazakh Academy of Sciences, Alma Ata.

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USSR

KORSUNSKIY, M. I., GENKIN, Ya. Ye., ZAVODINSKIY, V. G.

"Theory of Characteristic Energy Losses in Transition Metals"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 10, Oct 71, pp 3043-3048

Abstract: The interaction of quasioptical phonons with collectivized electrons is investigated, the form of the corresponding peak in the spectrum of the characteristic energy losses is discussed, and the effect of crystal deformation on the frequency of the quasioptical oscillations is considered. All these subjects are examined on the basis of a model of collectivized, locally bonded, and shell electrons, proposed specifically to explain the mechanism of the collective excitation of locally bonded electrons forming the electronic sublattice. This model was originally proposed in an earlier article by the above-named authors in the above-named journal (12, 1970, p 3047) when attempts to explain the spectra of the characteristic losses in transition metals using con-

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USSR

KORSUNSKIY, M. I. et al, Fizika Tverdogo Tela, Vol 13, No 10, Oct 71, pp 3043-3048

cepts of plasma oscillations in solids failed. In the present article, the authors begin their analysis with the Hamiltonian of the interaction of the collectivized electron with the lattice of the locally bonded electrons, the exchange effects being neglected. The authors are connected with the Institute of Nuclear Physics, Academy of Sciences, Kaz. SSR, Alma-Ata.

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USSR

TSVEYMAN, Ye. V., RED'KIN, V. S., ZASHKVARA, V. V., KORSUNSKIY, M. I.,
Institute of Nuclear Physics, Academy of Sciences of the Kazakh SSR,
Alma-Ata

"Spectra of Characteristic Losses of Electron Energy in Gadolinium and Dysprosium"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 9, Sep 71, pp 2793-2795

Abstract: The method of reflection of a primary electron beam from massive specimens is used to determine the spectrum of characteristic losses of energy in the rare-earth elements Gd and Dy. Measurements of the spectra for different primary electron energies in the 150-600-ev range were taken at scattering angles of 39 and 141° on an electrostatic β-spectrometer. Energy resolution of the instrument was 0.25 percent. The presence of oxide contaminants on the surface of the specimen was determined from the Auger peak of oxygen. It was found that when the specimens were heated to a temperature of about 1000°C in a vacuum of $5 \cdot 10^{-5}$ mm Hg, there is a noticeable reduction in the intensity of this peak (more pronounced in Gd), which shows a considerable reduction in oxygen concentra-

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TSVEYMAN, Ye. V. et al., Fizika Tverdogo Tela, Vol 13, No 9, Sep 71, pp 2793-2795

tion on the surface of the specimens. The peaks which appear on the spectra are interpreted as energy losses due to excitation of plasmons on the surface of the metal, on the surface of the oxide, in the body of the metal, at the metal-vacuum interface, etc. Two figures, bibliography of six titles.

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USSR

SOTNIKOV, V. G., RED'KIN, V. S., ZASHKVARA, V. V., CHAYKOVSKIY, E. F., KORSUNSKIY, M. I.

"Decrease in Carbon Concentration in Surface Layers of Mo_2C and W_2C"

Leningrad, Fizika Tverdogo Tela, No. 4, Apr 71, pp 1058-1061

Abstract: The characteristic energy loss spectrum of Mo_2C and W_2C samples was studied by the method of reflecting a primary beam of electrons of 800 ev energy for two scattering angles 39 and 141°. The samples were made by high-temperature heating of polycrystalline strips of pure Mo and W in benzene vapors. In taking the spectra the samples were heated up to 800, 1250, 1600, 1800, and 2000°C in a vacuum of 10^{-6} torr. It was established that an increased concentration of hydrogen is contained in the surface layer in the initial samples. In the process of high-temperature heating of the samples there is observed desorption of carbon from the surface layer, with the result that the concentration composition of the surface layer approaches the pure metal (Mo, W). When the temperature is raised to 2000°C and the sample is held for one and one-half hours at this temperature, the desorption of carbon from the surface layer continues until the stability of

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USSR

SOTNIKOV, V. G., et al, Fizika tverdogo tela, No. 4, Apr 71, pp 1058-1061

the characteristic energy loss spectrum obtained for the scattering angle of 141° indicates the relative stability of the concentration content of carbon in deep layers of the samples.

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USSR

RED'KIN, V. S., ZASHKVARA, V. V., KORSUNSKIY, M. I., TSVEYMAN, Ye. V.,
Institute of Nuclear Physics of the Academy of Sciences Kazakh SSR, Alma-Ata

"Energy Spectrum of Auger Electrons of Osmium Up to Energies of 300 ev"

Leningrad, Fizika Tverdogo Tela, No. 5, May 71, pp 1511-1513

Abstract: The spectrum of Auger electrons of osmium was obtained up to energies of 300 ev using an electrostatic energy analyzer of the cylindrical mirror type which had been used earlier to measure the spectra of characteristic energy losses of electrons in certain metals of the transition groups. The resolution of the spectrometer was 0.3%. A graph of the spectrum shows ten fairly well defined peaks located on the line of decreasing background intensity of the inelastically scattered electrons. It was established that the energy position of the observed peaks does not change with a change in the energy of the primary electron beam from 1 to 2.4 kev, thus making it possible to interpret the majority of the peaks as excitation of Auger transitions. A triplet of low intensity peaks in the energy range 260-240 ev is interpreted as *KLL* Auger transitions excited in residual carbon contamination of the surface of the sample. A group of

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USSR

RED'KIN, V. S., et al, Fizika tverdogo tela, No. 5, May 71, pp 1511-1513

peaks in the osmium spectrum with energies 153, 158, and 167 ev is interpreted as belonging to the *NNN* series of transitions. A table is given showing the experimental values of the energy of transitions of the *NNN* series increased by the magnitude of the work function for an electron from osmium (~5 ev), and these values are compared with energies calculated on the basis of tables of the energy levels in osmium. Peaks observed at 215 and 228 ev are interpreted as possible $N_V N_{VI} O_V$ (221 ev) and $N_{IV} N_{VI} O_V$ (238 ev). It was difficult to identify low-energy peaks at 9 and 21 ev, and these require additional study.

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USSR UDC 621.315.592

KORSUNSKIY, M. I., Academician of the Academy of Sciences, Kazakh SSR, VOLCHEK, A. D., KLIMENKO, V. V., Institute of Nuclear Physics, Academy of Sciences, Kazakh SSR'

"The Spectral Dependence of the Quantum Yield for the Process of Casting Electrons into Y-Centers in Activated Films of Amorphous Selenium"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 3, 1971, pp 565-566

Abstract: The aim of the article is to ascertain whether the values of the probability of penetration of the electron into the Y-center and of the lifetime of an electron excited by a light quantum are functions of the light-quantum energy. It is found that the probability of penetration of the electron into the Y-center and the lifetime of an electron excited by a light quantum either do not change at all with energy, or change very little. Consequently, electrons excited by light quanta with energies greater than 2.2 ev penetrate into the Y-centers through a specific energy level, which apparently is the bottom of the conductivity zone of selenium. One figure, 11 bibliographic entries.

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Molecular Physics

USSR

KORSUNSKIY, M. I.; et al

"Effect of a Finite Source of a Beam of Charged Particles on the Focussing of the Beam in an Electrostatic Spectrometer with a Cylindrical Field"

Leningrad, Zhurnal Tekhnicheskoy Fiziki; January, 1971; pp 187-92

ABSTRACT: The authors studied the effect of a finite source of charged particles on the quality of the image in an electrostatic spectrometer with a cylindrical field having the property of second-order angular focussing. The resolution, luminosity, and luminous emittance were evaluated. A comparison of the ionic optical parameters of a cylindrical spectrometer with a spherical capacitor was made.

The article includes 18 equations, 3 figures, and one table. There are 3 references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR UDC 66.017

KORSUNSKIY, M. I., GENKIN, Ya. Ye., and OMAROV, M. M.

"X-Ray L-Spectra of Niobium and the Electron Structure of the Compound Nb_3Sn"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 89-91

Translation: The X-ray emission L-spectra of niobium in the compound Nb_3Sn are studied. The X-ray spectral data produced are used in forming conclusions about the electron structure of the alloy Nb_3Sn. It is established that in the region of the Fermi boundary, the weight of the d-states in the wave functions of collectivized electrons is near unity. The width of the energy zone of collectivized electrons is on the order of 7 ev, corresponding to a concentration of ~ 1.6 $\pm$ 0.2 almost-free electrons per atom of the alloy. The weight of p-states in the wave functions of electrons creating local bonds is great, and there is an admixture of d-states. The authors believe that this facilitates the formation of directed chain bonds between niobium atoms.

1 figure; 5 biblio. refs.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201510013-6

USSR UDC 538.21

KORSUNSKIY, M. I., GENKIN, Ya. Ye., LARIN, M. P., and MILOVANOVA, I. A.

"Magnetic Properties of Alloys of the Nb-Mo System"

Alma-Ata, Akademii Nauk Kazakhskoy SSR -- Seriya Fiziko-Matematicheskaya, No 2, March-April 1971, pp 40-43

Abstract: Experimental measurements of the magnetic susceptibility of pure metals and alloys of the Nb-Mo system at 20°C and -196°C are presented. The magnetic susceptibility of these metals and alloys decreases by 2.8 times with a decrease in the Nb concentration from 100 to 37%.

On varying the temperature from 20° to -196°C the magnetic susceptibility of pure Nb increases by approximately 4%, and that of pure Mo decreases by approximately 4%. Beginning with a Nb concentration of ~70%, the magnetic susceptibility decreases as the temperature drops. At an Nb concentration of 37%, the susceptibility decreases by 80%.

The experimental values of the magnetic susceptibility were compared with experimental data for the electronic heat capacity for alloys of the Nb-Mo

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USSR

KORSUNSKIY, M. I., et al, Akademii Nauk Kazakhskoy SSR -- Seriya Fiziko-Matematicheskaya, No 2, March-April 1971, pp 40-43

system. The ratio of the magnetic susceptibility to the heat capacity, which is independent of the density of states, was found to be a function of concentration and temperature.

2/2

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Nuclear Physics

USSR UDC 537.533.331

ZASHKVARA, V. V., KORSUNSKIY, M. I., RED'KIN, V. S., and LAVROV, V. P., Institute of Nuclear Physics of the Academy of Sciences Kazakh SSR, Alma-Ata

"Ion-Optical Properties of an Electrostatic Energy Analyzer for Beams of Charged Particles With Focusing of the Ring-Axis Type"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, No 12, Dec 70, pp 2591-2592

Abstract: A calculation of the ion-optical characteristics of a cylindrical analyzer providing ring-axis focusing for various angles of entry of the beam into the region of the field is presented. The property of cylindrical analyzer to depict a thin ring source placed on the surface of the inner cylinder at a point on the axis of symmetry is denoted by the term "focusing of the ring-axis type." Formulas are given for the relative focus distance, the coefficient of relative linear dispersion with respect to energy, the quadratic angular aberration coefficient, and the cubic angular aberration coefficient. Graphs of these functions are given. They show that focusing of the ring-axis type of the first order with respect to angular divergence of the beam in an electrostatic analyzer with a cyclindrical field can be achieved over a wide range of angles of entry of the beam of charged particles.

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USSR

ZASHKVARA, V. V., et al, Zhurnal Tekhnicheskoy Fiziki, No 12, Dec 70, pp 2591-2592

The angle of entry of 39° is of particular interest, since under these conditions the quadratic angular aberration is equal to zero and close to the minimum value of the cubic angular aberration.

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USSR

KORSUNSKIY, M. I.; et al (Institute of Nuclear Physics, Kazakh Academy of Sciences, Alma-Ata; All-Union Scientific Research Institute of Monocrystals, Khar'kov)

"Carbon Desorption in TaC According to Data on the Spectra of Characteristic Energy Losses in Electrons for Various Scattering Angles"

Leningrad, Fizika Tverdogo Tela; January, 1971; pp 166-71

ABSTRACT: Using a method of reflecting a primary beam of electrons with an energy of 1 kev, for two scattering angles ($\Phi = 39°$ and 141°), the authors made an experimental study of the spectra of characteristic energy losses in electrons of samples of a carbide of tantalum close to TaC in content and obtained as the result of prolonged annealing of films of pure tantalum in benzene vapors. The samples were heated to a high temperature during the process of photographing the spectra. It was established that a layer several atoms in thickness near the surface of the samples was enriched by excess carbon. In the high-temperature heating of the samples desorption of carbon from the layer near the surface was observed, as a result of which the concentrated content of the layer near the surface approached pure tantalum.

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KORSUNSKIY, M.I., VOLCHEK, A.D., and KLIMENKO, V.V.

"Quantum Output in the Long-Lasting Trapping of Carriers as a Function of the Spectrum"

Alma-Ata, Izvestiya AN KazSSR, Seriya Fiziko-Matematicheskaya, No 6, 1970, pp 45-49

Abstract: The quantity β', representing the quantum output, is a function of the photoelectric energy h , where h is Planck's constant and ν the frequency of the incident radiation. The purpose of this paper is to define precisely the function $\beta'(h\nu)$ and thus to establish the relative position of the energy level for a long-lasting trap and for amorphous selenium. By calculating various values for β_0' from the equation

$$\beta_0'(h\nu) = \beta'(h\nu)/\beta'(h\nu_0),$$

where β_0' is the relative value of the quantum output and ν_0 is a standard frequency, the authors plot the common logarithm of β_0' as a function of ν. They conclude that there are two channels through which the carrier can enter the trap: by tunneling through the barrier at the level of the conducting zone floor; by tunneling through the barrier at the energy level E_c', the nature of which is not known but is quantitatively indicated in a diagram accompanying the article.

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KORSUNSKIY, M. I.; et al

"Parameters of R-Centers of Activated Films of Amorphous Selenium"

Leningrad, Fizika Tverdogo Tela; January, 1971; pp 252-5

ABSTRACT: The negative photoconductivity of films of amorphous selenium activated by mercury vapor at a temperature of 273°K was studied. It was shown that the observed negative photoconductivity is caused by the presence, in the films studied, of retention centers (R-centers) capable of retaining for an indefinitely long time electrons captured by them. From the stationary values of the negative photoconductivity the parameters of the R-centers were determined and compared with the results of measurements concerning the kinetics of anomalous photoconductivity.

Results of the study are summarized in a table. The article includes 3 equations and 4 figures. There are 6 references.

1/1

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TITLE--SPECTRA OF CHARACTERISTIC ELECTRON LOSSES IN RUTHENIUM, RHODIUM, AND PALLADIUM -U-

AUTHOR-(03)-ZASHKVARA, V.V., KORSUNSKY, M.I., REDKON, V.S.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHARACTERISTIC ELECTRON ENERGY LOSS SPECTRA OF RU, RH, AND PD WERE PLOTTED; EACH SHOWED SEVERAL PEAKS IN THE RANGE 5-80 EV. THE FIRST TWO (LARGEST) ENERGY LOSSES WERE IDENTIFIED AS BEING OF A PLASMA NATURE. ON PASSING FROM A SCATTERING ANGLE OF 40 TO 140DEGREES, THE POSITION OF THE FIRST LARGE PEAK REMAINED CONSTANT, BUT THAT OF THE SECOND MOVED IN THE HIGH ENERGY DIRECTION. PEAKS IN THE NEIGHBOURHOOD OF 50 EV WERE ATRRIBUTED TO IONIZATION AND OTHERS AT 60 EV TO TWO FOLD PLASMA EXCITATION.

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