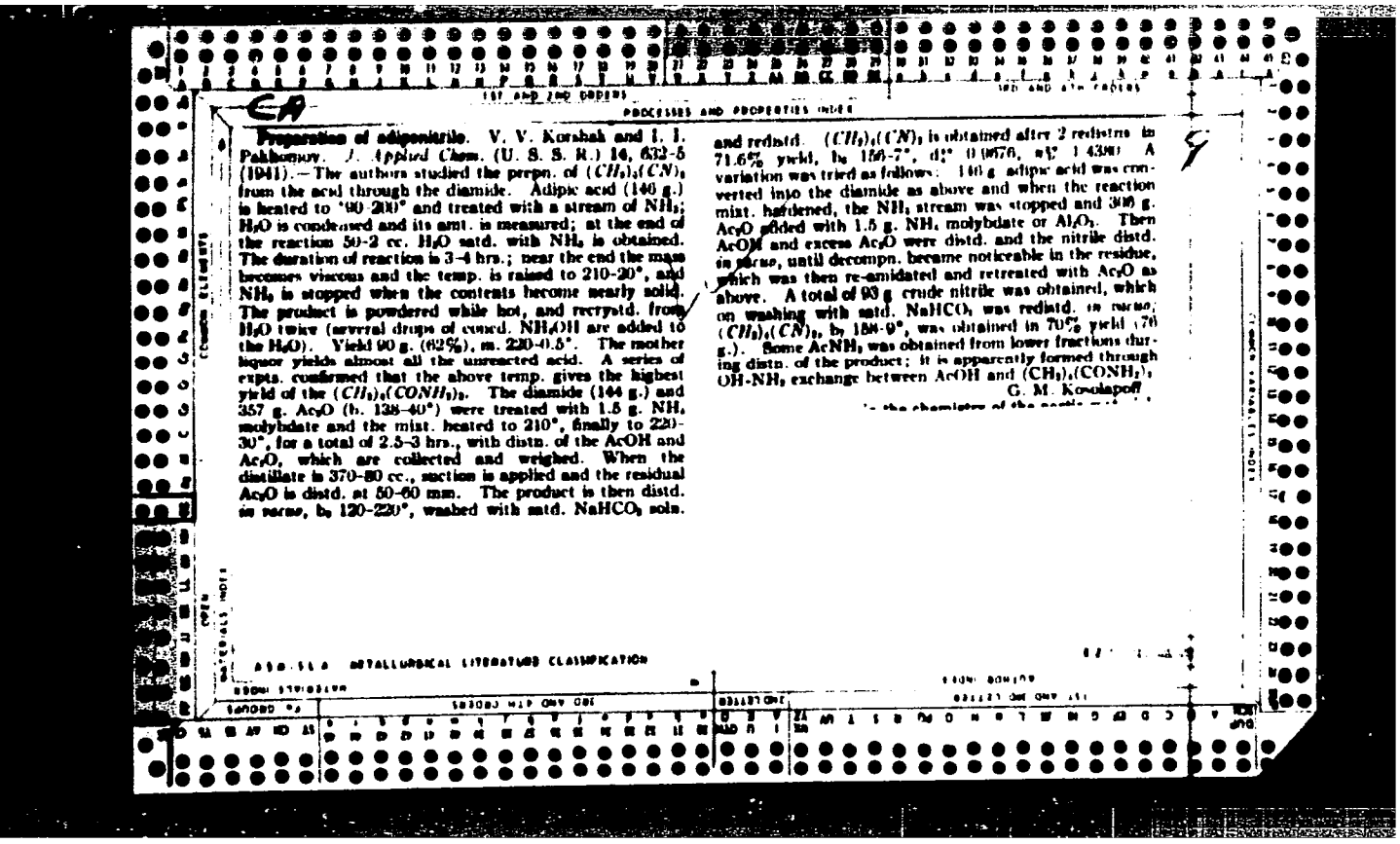
PAKHOMOV, I. I., TERENT'YEV, A. G.

Medical Instruments and apparatus - Periodicals

About the journal "Meditsinskaia promyshlennost' SSSR" (Pharmaceutical and medical supplies industry of the U.S.S.R."). Med. prom. No. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1952. 1953, Uncl.



CA

PROCESSES AND PROPERTIES INDEX

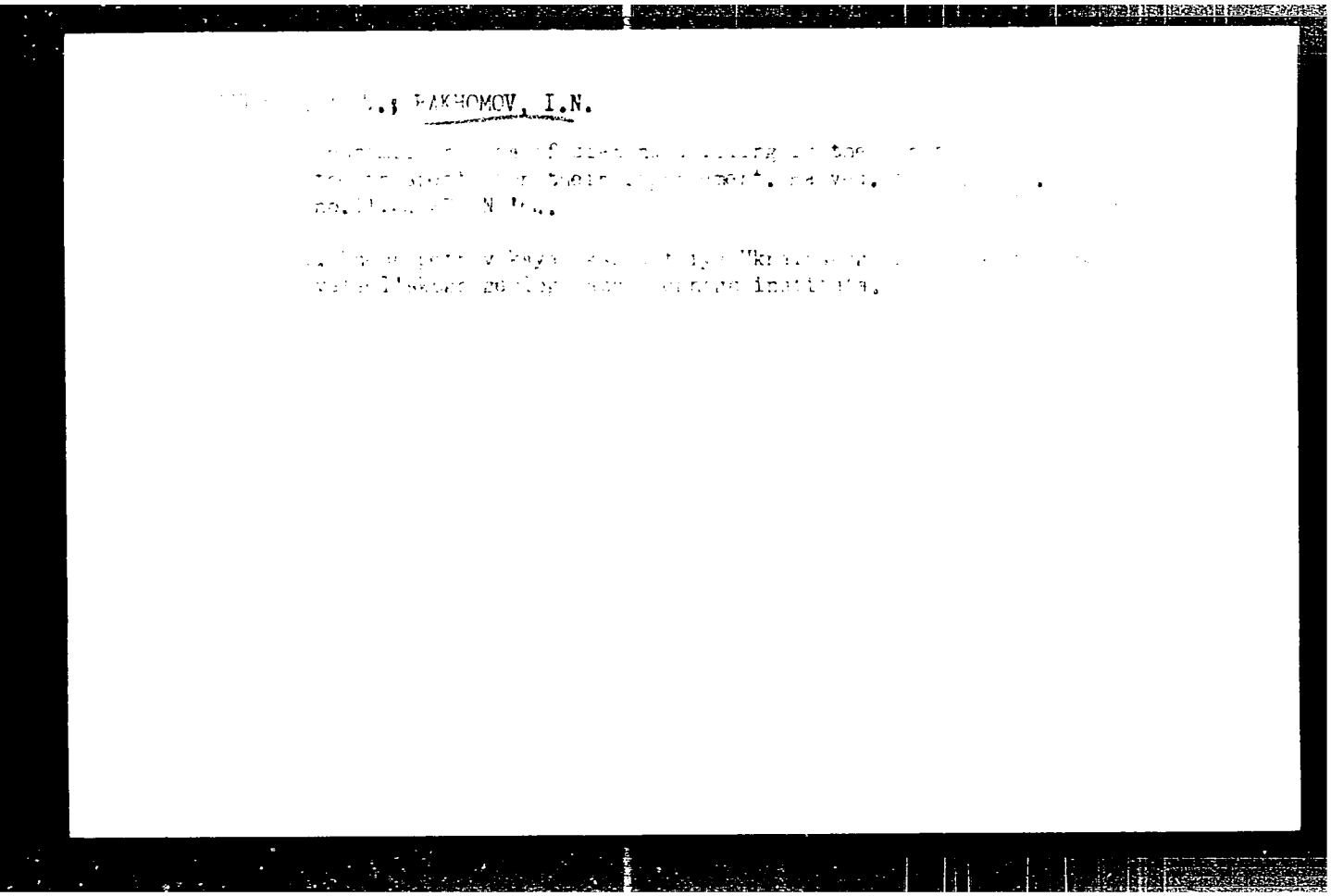
Preparation of adiponitrile. V. V. Korshak and I. I. Pakhomov. *J. Applied Chem.* (U. S. S. R.) 14, 632-5 (1941).—The authors studied the prepn. of $(CH_2)_4(CN)_2$ from the acid through the diamide. Adipic acid (140 g.) is heated to 190-200° and treated with a stream of NH_3; H_2O is condensed and its amt. is measured; at the end of the reaction 50-2 cc. H_2O satd. with NH_3 is obtained. The duration of reaction is 3-4 hrs.; near the end the mass becomes viscous and the temp. is raised to 210-20°, and NH_3 is stopped when the contents become nearly solid. The product is powdered while hot, and recrystd. from H_2O twice (several drops of concd. NH_4OH are added to the H_2O). Yield 90 g. (62%), m. 220-0.5°. The mother liquor yields almost all the unreacted acid. A series of expts. confirmed that the above temp. gives the highest yield of the $(CH_2)_4(CONH_2)_2$. The diamide (144 g.) and 357 g. Ac_2O (b. 138-40°) were treated with 1.5 g. NH_4 molybdate and the mixt. heated to 210°, finally to 220-30°, for a total of 2.5-3 hrs., with distn. of the AcOH and Ac_2O, which are collected and weighed. When the distillate is 370-80 cc., suction is applied and the residual Ac_2O is distd. at 50-60 mm. The product is then distd. in vacuo, b. 120-220°, washed with satd. $NaHCO_3$ soln. and redistd. $(CH_2)_4(CN)_2$ is obtained after 2 redistns in 71.6% yield, b. 156-7°, d_4^{20} 0.9576, n_D^{20} 1.4380. A variation was tried as follows: 140 g. adipic acid was converted into the diamide as above and when the reaction mixt. hardened, the NH_3 stream was stopped and 306 g. Ac_2O added with 1.5 g. NH_4 molybdate or Al_2O_3. Then AcOH and excess Ac_2O were distd. and the nitrile distd. in vacuo, until decompn. became noticeable in the residue, which was then re-amidated and retreated with Ac_2O as above. A total of 93 g. crude nitrile was obtained, which on washing with satd. $NaHCO_3$ was redistd. in vacuo; $(CH_2)_4(CN)_2$, b. 158-9°, was obtained in 70% yield (70 g.). Some $AcNH_2$ was obtained from lower fractions during distn. of the product; it is apparently formed through OH-NH_2 exchange between AcOH and $(CH_2)_4(CONH_2)_2$.

G. M. Kosolapoff

KORESHKOV, V.I.; SHATSKAYA, L.N.; PAKHOMOV, I.M.

Concerning the strength of the frame of the KTN-2 mounted potato digger. Trakt. i sel'khozmash. 32 no.5:30-33 My '62.
(MIRA 15:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennogo mashinostroyeniya (for Koreshkov, Shatskaya). 2. Zavod "Belinsksel'mash" (for Pakhomov).
(Potato digger (Machine))



KHOMOV, I.N.

PAKHOMOV, I. V., Candidate Geolog-Mineralog Sci (diss) -- "The geology of the Kizel black-coal basin and its industrial evaluation on the basis of recent data", Sverdlovsk, 1959. 21 pp (Acad Sci USSR, Ural Affiliate), 150 copies (KL, No 23, 1959, 162)

PAKHOMOV, I.V., delegat XXII s"yezda Kommunisticheskoy partii Sovetskogo Soyuza

Introducing new equipment and improving production economics at the "Electric Heavy Machinery" Plant named after V.I. Lenin. Vest elektroprom. 33 no.1:1-4 Ja '62. (MIRA 14:1)

1. Direktor zavoda "Elektrotyazhmash" imeni V.I. Lenina (Electric machinery industry)

AUTHOR: Pakhomov, I.V., 132-58-5-4/14

TITLE: On the Method of Prospecting for Coal Deposits in the Kizel Basin (O metodike razvedki ugol'nykh mestorozhdeniy v kizelovskom basseyne)

PERIODICAL: Razvedka i Okhrana Nedr, 1958, Nr 5, pp 24-28 (USSR)

ABSTRACT: Owing to the complicated structure of the Kizel basin the author recommends the division of all coal deposits into three groups, according to the geologic structure of the basin. The method of prospecting varies for each of these groups. These methods are described in detail.

ASSOCIATION: Permskiy gornyy institut (Perm' Mining Institute)

AVAILABLE: Library of Congress

Card 1/1 1. Coal 2. Geological prospecting

PAVLOV, A.; PAKHOMOV, K.; LOBACHEVSKIY, S.; SOTNIKOV, B.; KALININ, F.

People of the seven-year plan. Stroitel' no.2:10-11 F '60.
(MIRA 13:5)

1. Nachal'nik otdela truda i zarplaty tresta Magnitostroy (for Sotnikov). 2. Nachal'nik Nauchno-issledovatel'skogo sektora tresta Magnitostroy (for Lobachevskiy). 3. Brigadir kompleksnoy brigady konechnoy produktsii tresta Mosstroy-17 (for Kalinin).
(Construction workers)

PAKHOMOV, K.

Change in the appearance of Siberian villages. Sel'.stroi. 13 no.3:12 Mr '59. (MIRA 12:5)

1. Nachal'nik Kirovskogo rayonnogo otdela po stroitel'stvu v kolkhozakh Irkutskoy oblasti.
(Kirovsk District--Farm buildings)

DEM'YANOV, L.A., kand.tekhn.nauk; AKHTYAMOV, U.S.; AGEYEV, I.V.; PAKHOMOV, K.A.; SARAFANOV, S.K.

Performance of IaAZ-204 engines fueled with light gasoline. Avt.prom. no.2:23-27 F '61. (MIRA 14:3)
(Automobiles—Engines)(Gasoline)

PAKHOMOV, K.S., mayor tekhnicheskoy sluzhby: ZHURAVLEV, K.A., mayor tekhnicheskoy sluzhby.

Concerning guaranteed periods for storage. Vest. Vozd. Fl. no.5:83 '61. (MIRA 14:8)
(Russia--Air Force--Aviation supplies and stores)

Pakhomov, L. A.

PHASE I BOOK EXPLOITATION SOV/4292

Tsentral'naya aerologicheskaya observatoriya

Trudy, vyp. 31 (Transactions of the Central Aerological Observatory, No. 31) Moscow, 1959. 91 p. 650 copies printed.

Additional Sponsoring Agency: USSR. Glavnoye upravleniye gidrometeorologicheskoy sluzhby.

Ed.: (Title page): S.M. Shmeter; Ed. (Inside book): M.I. Sorokina; Tech. Ed.: T. Ye. Zemtsova.

PURPOSE: This publication is intended for aerologists and aircraft instrument designers.

COVERAGE: This collection of 11 articles deals mainly with the problem of finding the best method of measuring atmospheric turbulence from aircraft. A detailed description of the aerological instruments used for this purpose is given. Wind observations by means of radio theodolite is discussed. References accompany individual articles.

Card 3/3

JA/dwm/mas
10-13-60

PAKHOMOV, L.A.

Inertia effect of the temperature pickup in aerological instruments on the results of inversion layer investigations. Trudy TSAO no.31:74-78 '59. (MIRA 12:9)
(Meteorological instruments)
(Atmospheric temperature)

BELYAYEV, V.P.; VINNICHENKO, N.K.; PAKHOMOV, L.A.

Electrometeorograph for helicopters (VEM). Trudy GGO no.135: 135-146 '62. (MIRA 15:8)
(Meteorological instruments)

PAKHOMOV, L.A.

Airplane apparatus for measuring the vector of wind. Trudy TSAO no.41:91-105 '62. (MIRA 16:10)

ACCESSION NR: AT4033562 S/2922/63/009/000/0124/0132

AUTHOR: Belyayev, V. P.; Vinnichenko, N. K.; Pakhomov, L. A.

TITLE: Helicopter electrometeorograph

SOURCE: Vsesoyuznoye nauchnoye meteorologicheskoye soveshchaniye. 1st, Leningrad, 1961. Pribory* i metody* nablyudeniy (Instruments and methods of observation); trudy* soveshchaniya, v. 9, Leningrad, Gidrometeoizdat, 1963, 124-132

TOPIC TAGS: meteorology, meteorological instrument, meteorograph, electrometeorograph, helicopter electrometeorograph

ABSTRACT: A helicopter electrometeorograph was developed by the Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory) in 1960. The instrument is used for highly accurate measurement of temperature, temperature fluctuations, pressure, air humidity and helicopter overload. All these parameters are converted into electric pulses. A block diagram is shown as Fig. 1 of the Enclosure. The instrument is broken down into units for easy placement on a helicopter where space is at a premium. The temperature sensors are three resistance thermometers manufactured from a special platinum wire 0.06 mm in diameter; the resistance of each thermometer is approximately 130 ohms (at t = 20C).

Card 1/3

ACCESSION NR: AT4033562

The humidity sensor is a specially processed animal membrane. A special support extending from the nose of the aircraft supports the temperature, temperature fluctuation and pressure sensors. The pressure sensor employs an aneroid unit of phosphor bronze. An MP-23 potentiometric sensor, placed at the center of gravity of the helicopter, is used to detect aircraft overloads. The range of measured overloads is ±1.5 g. The five meteorological parameters are recorded simultaneously with a K-12-21 oscillograph. Air temperature is determined with a maximum error less than ±0.5C in the range from -20 to +30C, temperature fluctuations are measured in the range ±3C with a maximum error less than ±0.2C in the frequency range from 0.01 to 5 cps, the relative humidity unit determines this parameter with a maximum error less than ±7% in the range 25 to 100%, the pressure unit measures pressure in the range 1025 to 700 mb with a maximum error not exceeding ±3 mb. The apparatus has been tested on 50 flights with a total duration of about 110 hours. Orig. art. has: 7 figures.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory)

SUBMITTED: 00 DATE ACQ: 16Apr64 ENCL: 01

SUB CODE: ES NO REF SOV: 000 OTHER: 000

Card 2/3

ACCESSION NR: AT4033562

ENCLOSURE: 01

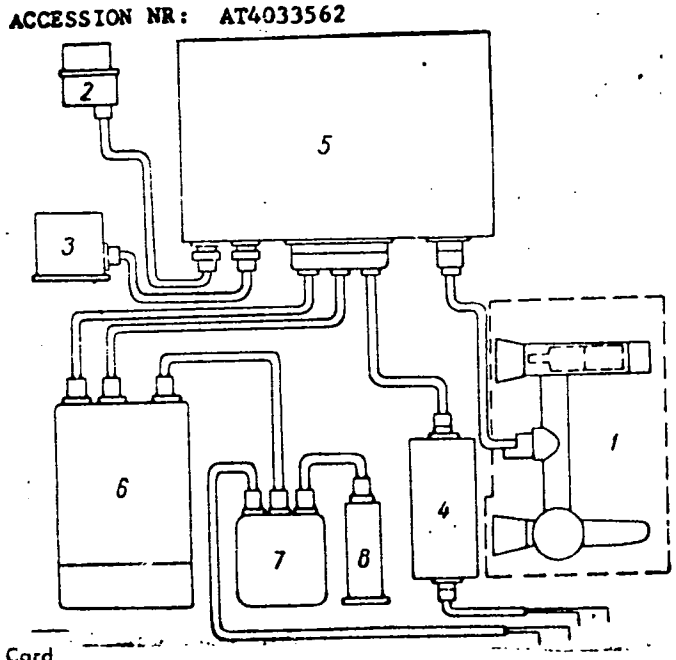


Fig. 1. Block diagram of helicopter electrometeorograph. 1 -- support extending from nose of helicopter with temperature, temperature fluctuation and humidity sensors; 2 -- potentiometric pressure sensor; 3 -- MP-23 potentiometric overload sensor; 4 -- power source; 5 -- measurement bridges; 6 -- K-12-21 optical recorder; 7 -- remote-control apparatus for recorder; 8 -- electric clock; 9 -- calibration unit.

Card 3/3

L 12421-65 EEO-2/EWT(d)/EWT(1)/FCC/EEC-4 Pn-4/Po-4/Pp-4/Pq-4/Pg-4/Pk-4/
P1-4 ASD(f)-2/ESD(t) GW/BC

ACCESSION NR: AT4046027 S/2789/64/000/055/0003/0017

AUTHOR: Pakhomov, L. A.

TITLE: Method of measuring the vertical velocity of a plane in the entire frequency spectrum of its changes

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy*, no. 55, 1964. Voprosy* fiziki oblakov (Problems of cloud physics), 3-17

TOPIC TAGS: vertical velocity measurement, atmospheric turbulence, aircraft vertical velocity, aircraft meteorological measurement

ABSTRACT: The defects of the overload variometer and integrator (the only instruments currently used to measure the vertical velocity of an airplane) are analyzed. It is shown that combining these two instruments into a single system makes it possible to solve the problem of measuring the vertical velocity of a plane in the entire spectrum of frequencies of its changes. A specific

Card 1/2

L 12421-65
ACCESSION NR: AT4046027

scheme for such a system is described. A test of the working model of the system indicated that, with the frequency ranges used, errors almost never exceeded 10%. Orig. art. has: 20 formulas, 6 figures, and 1 table.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory)

SUBMITTED: 00 ATD PRESS: 3121 ENCL: 00

SUB CODE: AC NO REF SOV: 005 OTHER: 002

Card 2/2

PAKHOMOV, Leonid Afenas'yevich; PINUS, Naum Zinov'yevich; SHMETER, Solomon Moiseyevich; KORNILENKO, V.S., red.; ZARKH, I.M., tekhn.red.

[Aerological research on the variability of the atmospheric refraction coefficient for ultrashort radio waves] Aerologicheskie issledovaniia izmenchivosti koeffitsienta prelomleniia atmosfery dlia ul'trakorotkikh radiovoln. Moskva, Gidrometeor. izd-vo, 1960. 101 p. (MIRA 14:1)
(Microwaves) (Refraction)

L 44178-66 EWP(e)/EWT(m) WW/WH

ACC NR: AP6011280 (A) SOURCE CODE: UR/0413/66/000/006/0157/0157

INVENTOR: Fialkov, A. S.; Davidovich, Ya. G.; Pakhomov, L. G.

ORG: none

TITLE: Treatment of carbon-graphite products. Class 21, No. 141194

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 157

TOPIC TAGS: carbon graphite product, ~~current treatment~~ carbon product, graphite, physical chemistry property, semiconductivity

ABSTRACT: This Author Certificate introduces a method for treating carbon-graphite products by passing a-c and d-c current through them. To obtain a sharply defined boundary of physical, chemical, and semiconductive properties along the length of the product, current of various magnitude is passed through various sections of the product at the same time that they are subjected to various degrees of cooling. [LD]

SUB CODE: 11/3/ SUBM DATE: 03Jan61/

Card 1/1

PETRUN'KIN, V.Yu.; MOLOTKOV, V.I.; PAKHOMOV, L.N.; PELLIKAN, S.G.

Low-power ferrite-equipped magnetic amplifiers for audio frequencies.
Trudy LPI no.194:69-74 '58. (MIRA 11:11)
(Magnetic amplifiers)

ACC NR: AP7002676 SOURCE CODE: UR/0109/67/012/001/0146/0149

AUTHOR: Petrun'kin, V. Yu.; Yesepkina, N. A.; Kruzhalov, S. V.; Pakhomov, L. N.; Chernov, V. A.

ORG: none

TITLE: Formation of the traveling wave in a complex optical resonator

SOURCE: Radiotekhnika i elektronika, v. 12, no. 1, 1967, 146-149

TOPIC TAGS: laser, ring laser, traveling wave, ~~laser, traveling wave ring fiber~~ resonator, optic resonator

ABSTRACT: An analysis is made of a method for calculating a ring resonator with supplementary external mirrors to obtain traveling wave excitation. The method is based on the theory of long lines as applied to the analysis of conditions for natural oscillation of the system. The essential part of the external arrangement is a system of two mirrors: one, with a partial transmission, is inclined to the beam, and the other, which is fully reflecting, is placed perpendicularly to the beam. A system of equations is given for the wave amplitudes as functions of the distance between the mirrors and their transmission and reflective indexes. The scattering matrix of the system is determined relative to the complex wave number, the real and imaginary parts of which represent, respectively, the natural frequency and the attenuation factors. The problem is solved for certain special cases, and from these solutions the relationship between the wave number and the parameters of the entire system (expressed

Card 1/2 UDC: 621.372.4.029.67

ACC NR: AP7002676

through a constant) can be deduced. Generally, however, the unavoidable reflection from the end facer of the resonator produces a reverse wave which must be eliminated before the operating traveling wave can travel only in one direction. This can be achieved either by coatings or by causing the reflected beams to deviate from the resonator axis and thus be ousted from the system. A rectangular ring laser, with near-optimal parameters, equipped with two supplementary mirrors as described, and with the end reflection eliminated by inclination of the active medium with respect to the resonator optical axis, was experimentally investigated under actual traveling-wave operation. Orig. art. has: 3 figures and 10 formulas. [WA-14]

SUB CODE: 20/ SUBM DATE: 29Jun66/ ORIG REF: 001/ OTH REF: 002/

Card 2/2

ACC NR: AP7001312 SOURCE CODE: UR/0057/66/036/012/2171/2174

AUTHOR: Bonch-Bruyevich, A. M.; Petrun'kin, V. Yu.; Arzumanov, V. N.; Yesepkina, N. A.; Imas, Ya. A.; Kruzhalov, S. V.; Pakhomov, L. N.; Chernov, V.A.

ORG: none

TITLE: A study of a neodymium glass laser with external feedback

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 12, 1966, 2171-2174

TOPIC TAGS: solid state laser, glass laser, neodymium glass laser, traveling wave laser, laser r and d

ABSTRACT: A study was made of a traveling-wave external-feedback neodymium glass laser, the experimental setup of which is shown in Fig. 1. The external cavity consisted of four mirrors arranged in a rectangular pattern (1.5 x 0.5 m). The output mirror (5') was 80% reflective and the three other mirrors were 99% reflective. The active medium was a cylindrical glass rod 240 mm long and 25 mm in diameter. The laser was pumped by two IFK-15,000 flashlamps fed from a condenser bank having a total stored energy of 30 kj. A Faraday-effect cell, consisting of a quartz plate and a polarizer (six plane-parallel Brewster-angle plates) was used to achieve traveling-wave operation. A DFS-8 spectrograph (dispersion 6 Å/mm) and a Fabry-Perot interferometer were used to observe the emission spectra of the laser at various pumping levels and with the Faraday cell in and out of the feedback circuit. It was shown that the emission spectra of traveling-wave lasers are virtually line spectra and

UDC: 621.378.32

ACC NR: AP7001312

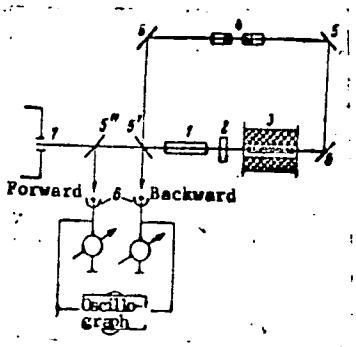


Fig. 1. Experimental setup of a traveling-wave laser

1 - Working substance; 2 - quartz plate;
3 - Faraday cell; 4 - polarizer;
5 - 5" - mirrors; 6 - photocells;
7 - spectrograph slit.

that the spiking sequence is better ordered than that of standing-wave lasers. A reduction of the spectrum to a single narrow line, which has been observed in traveling-wave ruby lasers, was not encountered in the present laser. Such narrowing in the traveling-wave operation will not occur unless the luminescence line of the working substance broadens, as it does in rubies. The high-intensity lines observed in the experiments corresponded to the uniform broadening of luminescence lines of the dopant. Orig. art. has: 5 figures. [YK]

SUB CODE: 20/ SUBM DATE: 01Jun66/ OTH REF: 003/ ATD PRESS: 5110

Card 2/2

SOV/120-58-2-22/37

AUTHORS: Ipatov, V. A., Pakhomov, L. P.

TITLE: A Photoelectric Instrument for the Determination of the Concentration of Mercury Vapour in Air (Fotoelektricheskiy pribor dlya opredeleniya kontsentratsii parov rtuti v vozdukhe

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 2, pp 91-94 (USSR)

ABSTRACT: A description is given of a portable instrument which can be used to determine quickly and conveniently the concentration of mercury vapour in air. The instrument is based on the absorption by a vapour of ultraviolet radiation having a wavelength of 2537 Å. The intensity of the radiation is measured by a photomultiplier. The output of the photomultiplier is fed to an electric circuit which uses only diode and triode transistors. The circuit used is shown in detail in Fig.3. The scale of the instrument is linear and full scale deflection corresponds to 120 μg/m³. A complete analysis of mercury vapour concentration in a given room can be carried out in 30-40 sec.

Card 1/2

SOV/120-58-2-[illegible]/39

A Photoelectric Instrument for the Determination of the [illegible] of Mercury Vapour in Air.

There are 4 figures, no tables and 3 references, of which 2 are English and 1 is Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physico-Technical Institute of the Academy of Sciences of the USSR)

SUBMITTED: May 13, 1957.

Card 2/2 1. Air--Analysis 2. Mercury vapor--Determination
3. Photoelectric equipment--Applications

25025

S/057/61/031/007/006/02
B108/B209

9,4120

AUTHORS: Golant, V. Ye., Orlov, N. I., Pakhomov, L. P.

TITLE: Production of a high-density plasma by a hot-cathode discharge in a magnetic field

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 7, 1961, 797-80

TEXT: The authors present the results of an investigation of a hot-cathode discharge in a magnetic field. In such a discharge with a current density of over 1 a/cm^2 in an inhomogeneous magnetic field ($H/H_c > 1$; H-magnetic field strength in the region under examination, H_c - magnetic field strength near the cathode), a plasma concentration of over 10^{14} cm^{-3} may be attained theoretically. It was the aim of the present investigation to determine the concentration of charged particles in such a plasma. The emitting area of the cup- or ring-shaped cathode was 1.5 cm^2, its temperature over 2000°C. The distance between the tungsten anode and cathode was 2 cm. The measurements were made in both a homogeneous and an inhomogeneous mag-

Card 1/3

25025 S/057 61/031/007/006/021
B106/B201

...n of a high-density,

...netic fields of up to 2000 oersteds. The discharge was kept in a hydrogen atmosphere of $5 \cdot 10^{-4}$ mm Hg at a voltage of between 50 and 100 volts. In a homogeneous field, the discharge had the shape of a beam with ... rims; concentration at a current of ... was 10^{13} cm^{-3}. In the case of an inhomogeneous magnetic field, the plasma cord was found to be cylindrically symmetric, however, with variable thickness, due to an azimuthal drift of the particles in the inhomogeneous field. In an inhomogeneous field of up to 2000 oersteds, the concentration of the plasma as measured ... microwave scanning exceeded 10^{14} cm^{-3}. Finally, the authors thank ... Artsimovich for the optical measurements, V. V. Rozhdestvenskiy for the ... ing M. M. Larionov for having measured the background radiation, and Academician V. P. Konstantinov for discussion. There are 7 figures and 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR Leningrad (Institute of Physics and Technology imeni A. F. Ioffe AS USSR Leningrad)

Card 2/3

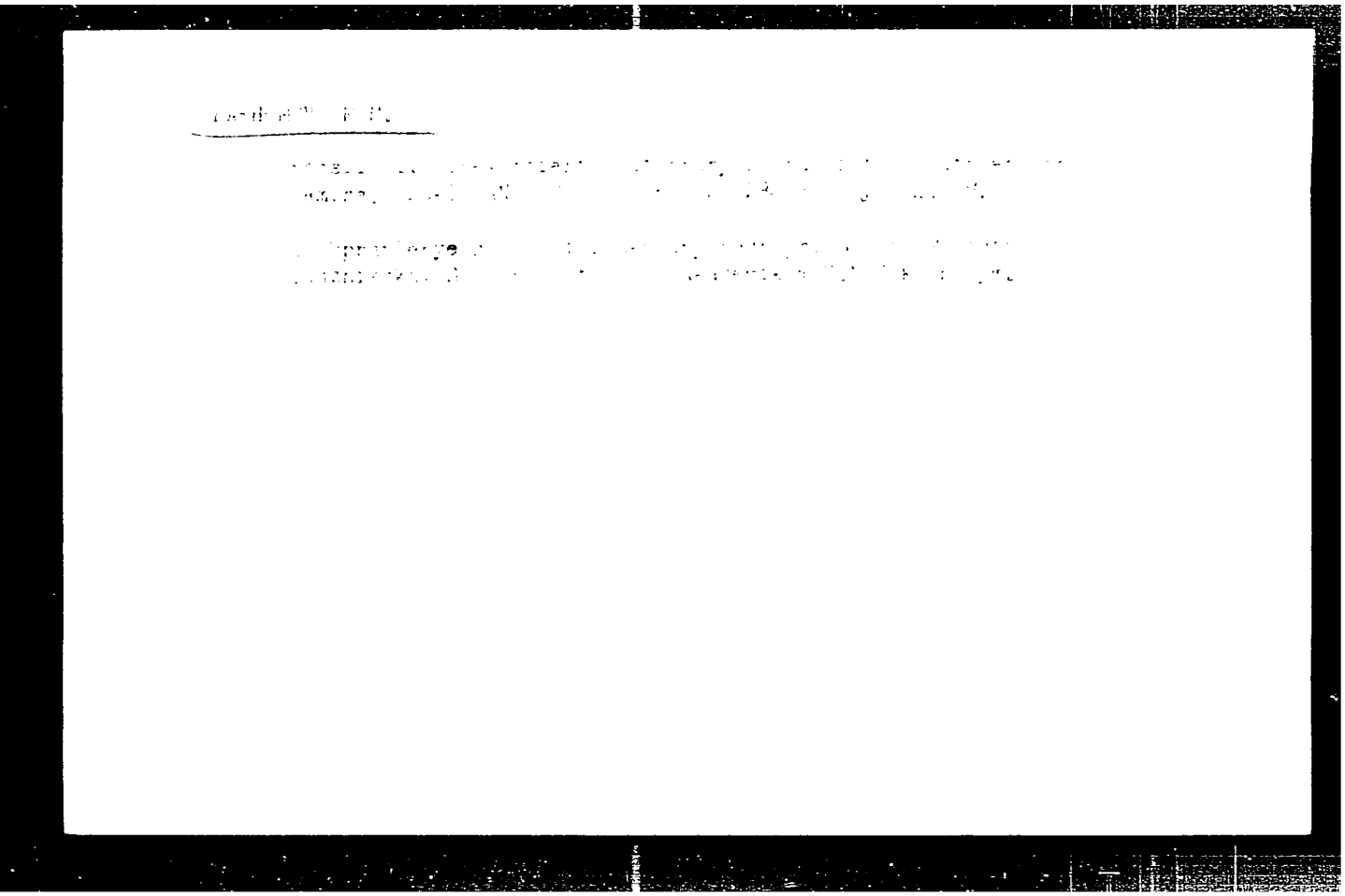
PAKHOMOV, M.

Machine-Tractor Stations

Tractor brigade in the effort to obtain a high yield. MTS 12, no. 2, 195.

9. **Monthly List of Russian Accessions**, Library of Congress, August 1953. Unclassified.

2



AGAKHANYANTS, O. Ye.; PAKHOMOV, M.M.; TROFIMOV, A.K.

Paleogeography of the Pamirs during the Holocene. Izv. Vses. geog. ob-va 96 no.6:505-509 N-D '64 (MIRA 18:1)

PAKHOMOV, M.M.

"Vegetation and climate of the Lamskiy during the Upper Pleistocene and the recent epoch; according to spore and pollen analysis data. Izv. AN SSSR Ser. geog. No.4:84-89 Jl-Ag '55.

1. Institut geologii AN Yakutskoy SSR.

PAKHOMOV, M.M.

Paleogeography of the Quaternary period in the eastern Pamirs.
Dokl. AN SSSR 141 no.5:1191-1193 D '61. (MIRA 14:12)

1. Predstavleno akademikom V.N. Sukachevym.
(Pamirs--Paleogeography)

MEDEL', Vladimir Borisovich. Prinimal uchastiye GRIGOR'YEV, Ye.T., inzh.; PAKHOMOV, M.P., doktor tekhn. nauk, retsenzent; BOGDANOV, V.P., kand. tekhn.nauk, retsenzent; LISOVSKIY, A.S., kand. tekhn. nauk; KROVORUCHKO, N.M., inzh., red.; VOROTNIKOVA, L.F., tekhn. red.

[Design of the mechanical part of electric rolling stock] Proektirovanie mekhanicheskoi chasti elektropodvizhnogo sostava. Moskva, Transzheldorizdat, 1963. 422 p. (MIRA 16:10)
(Electric railroads--Rolling stock)

PAKHOMOV, M.P., doktor tekhn.nauk

Generalization on the operation of a.c. and d.c. contact network jointing posts. [Trudy] LIIZHT no.193:145-153 '62. (MIRA 15:12)

1. Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta.
(Siberia, Eastern—Electric railroads—Current supply)

PAKHOMOV, M.P., doktor tekhn. nauk

Taking voltage losses in the overhead contact system into account in plotting the speed curve. Trudy NIIZHT 26:63-66 '62. (MIRA 16:8)

(Electric railroads---Train speed)

PAKHOMOV, M. P., Doc Tech Sci -- (diss) "Research into vertical oscillations and interaction of electric trains on track." Moscow, 1960. 35 pp; (Ministry of Railroads, Moscow Order of Lenin and Order of Labor Red Banner Railroad Transport Engineers Inst im I. V. Stalin); 170 copies; price not given; bibliography at end of text; (KL, 27-60, 151)

PAKHOMOV, M.P.

Effect of the elasticity of track on the free vertical vibration of the electric locomotive. Izv.vost.fil.AN SSSR no.7:93-100 '57.
(MIRA 10:10)

1. Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta.
(Railroads--Track) (Electric locomotives--Vibration)

SOV/124-58-1-1259

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 1, p 156 (USSR)

AUTHOR: Pakhomov, M. P.

TITLE: The Impact of an Electric Locomotive on the Track in the Vicinity of a Rail Joint (Vozdeystviye elektrovoza na put' v zone styka)

PERIODICAL: Vestn. Vses. n.-i. in-ta zh.-d. transp., 1957, Nr 4, pp 30-34

ABSTRACT: The author presents a method for the computation of the force exerted by a wheel having a nonuniform rolling surface, an elliptical tire, etc., on a track having a variable or constant stiffness.

Reviewer's name not given

Card 1/1

PAKHOMOV, M.P., dots, kand. tekhn. nauk

Experimental investigations of electric locomotive vibrations and their effect on the track. Trudy MIIT no.103:44-64 '58.
(MIRA 11:12)

(Electric locomotives--Vibration)
(Railroads--Track)

124-58-6-6322

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 6, p 6 (USSR)

AUTHOR: Pakhomov, M. P.

TITLE: The Effect of the Elasticity of the Roadbed on the Free Vertical Vibrations of an Electric Locomotive (O vliyanii uprugosti puti na svobodnyye vertikal'nyye kolebaniya elektrovoza)

PERIODICAL: Izv. vost. fil. AN SSSR, 1957, Nr 7, pp 93-106

ABSTRACT: Bibliographic entry

1. Railroads--Elasticity 2. Locomotives--Vibration
3. Elasticity--Test results

Card 1/1

PAKHOMOV, M.P., kand. tekhn. nauk (Novosibirsk).

Action of the HB electric locomotive on the track. Zhel. dor. transp. 39 no.12:42-45 D '57. (MIRA 11:1)
(Electric locomotives)

PAKHOMOV, M.P., kand.tekhn.nauk

Action of the wheels of electric locomotives (diesel locomotives, cars) on a track with nonuniform elasticity. Vest.TSNII MPS 20 no.5:38-40 '61. (MIRA 14:8)

1. Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta.
(Railroads--Track) (Railroads--Rolling stock)

PAKHOMOV, M.P., kand. tekhn. nauk, dots.

Interaction of the rail with a flat wheel. Vest. TSNII MPS 18 no.5:22-27 Ag '59. (MIRA 13:1)

1. Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta.
(Railroads--Rails) (Car wheels)

PAKHOMOV, M.P., kandidat tekhnicheskikh nauk.

Action of an electric locomotive on the track at the joint area. Vest. TSNII MPS 16 no.4:30-34 Je '57. (MLRA 10:8)
(Railroads--Track)

L 36211-65 EWT(l)/EWT(m)/EPR/EPA(w)-2/EEC(t)/EWP(t)/EWP(b) Pab-10/Ps-4
IJP(c) JD
ACCESSION NR: AP5007099 S/0109/65/010/003/0530/0536

AUTHOR: Pakhomov, M. T.

TITLE: Secondary electron emission penetrating thin MgO films

SOURCE: Radiotekhnika i elektronika, v. 10, no. 3, 1965, 530-536

TOPIC TAGS: electron emission, secondary emission

ABSTRACT: The results of an experimental investigation of the secondary penetrating emission (at 10^{-6} torr) from 200—400-Å-thick MgO films covering an aluminum-oxide backing or a fine-structure copper gauze are reported. It is found that: 1) The MgO films on an aluminum-oxide backing have a maximum secondary-emission ratio (SER) of 3.8 at 2.2 kev. 2) The same films on copper gauze (with a 100-μ pitch) have a SER of 6.3—7.8 at 2.0 kev which is due to the saving of losses in the backing and to a better MgO-film structure. 3) After holding the MgO films in dry-room air, their SER decreases; the films can be

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L 36211-65
ACCESSION NR: AP5007099

reactivated by vacuum-heating at 320—340C for 30 min; both processes depend on the actual proportion of Mg and MgO in the film. Orig. art. has: 7 figures. [03]

ASSOCIATION: none

SUBMITTED: 03Feb64 ENCL: 00 SUB CODE: SS, NP

NO REF SOV: 003 OTHER: 004 ATD PRESS: 3220

Card 2/2

L 17013-66 EWT(l)/EWT(m)/EWA(d)/EWP(t)/EWA(h) IJP(c) HJW/JD

ACC NR: AP6001586 SOURCE CODE: UR/0120/65/000/006/0167/0169

AUTHOR: Melamid, A. Ye.; Pakhomov, M. T.

ORG: none

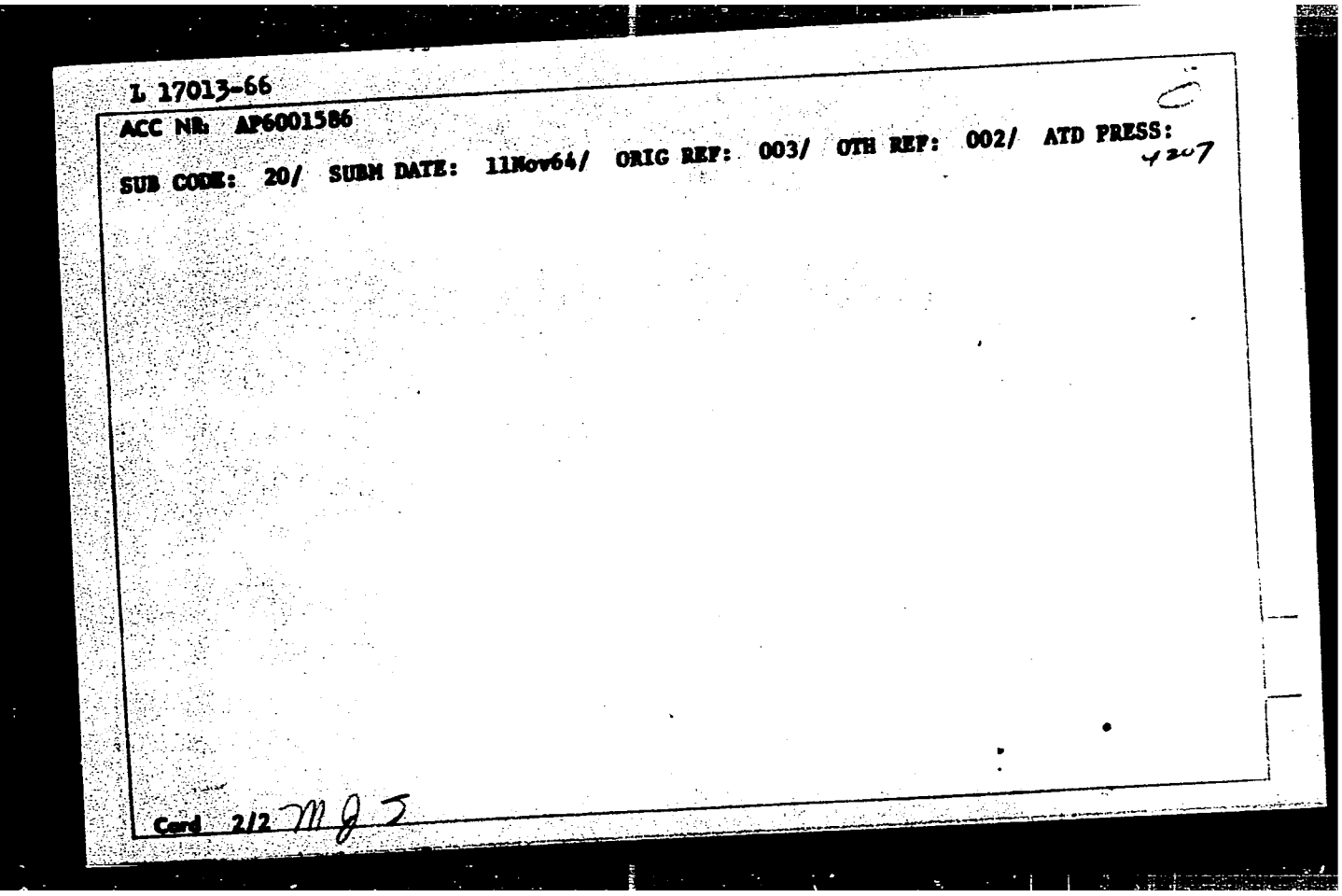
TITLE: Small-size photomultiplier with oxygen-silver-cesium photocathode

SOURCE: Pribory i tekhnika eksperimenta, no. 6, 1965, 167-169

TOPIC TAGS: photomultiplier

ABSTRACT: A photomultiplier with high stability and increased threshold sensitivity is described. The multiplier consists of a semitransparent oxygen-silver-cesium photocathode 5 mm in diameter and a multiplying system provided with the dynodes made of AMCK alloy. Because of its small dimensions and some design innovations, the multiplier can withstand impacts up to 50 g and vibrations up to 1 kc. In the production of the multiplier, special attention was paid not only to the accurate distillation of cesium vapor excess but also to reducing to a minimum the amount of cesium oxide formed on the dynodes. Photocathodes with a sensitivity of 20—35 μamp/lm were thus produced. Tests showed an instability of only I 0.3% for six hours of continuous operation at an anode current of 1 μamp. A high threshold sensitivity (6×10^{-12}—2.5×10^{-11} lm/cps 1/2) was achieved in conjunction with a high infrared sensitivity. Threshold sensitivity for an optimum signal-to-noise ratio was at its maximum at an operating voltage of 1200—1400 v. The multiplier is recommended as a detector of very weak light flux. Orig. art. has: 4 figures and 1 table. [KM]

Card 1/2 UDC: 621.383.292



L 17013-66
ACC NR: AP6001586
SUB CODE: 20/ SUBM DATE: 11Nov64/ ORIG REF: 003/ OTH REF: 002/ ATD PRESS: 4207
Card 2/2 MJ

PAKHOMOV, N.

The housing and public services of Ryazan are on the upgrade.
Zhil.-kom.khoz. 7 no.8:3-5 '57. (MIRA 10:10)

1. Sekretar' Ryazanskogo gorkoma Kommunisticheskoy partii Sovetskogo Soyuza.
(Ryazan--Municipal services)

PAKHOMOV, N.; BALAKSHIN, N.

First Russian expedition by G.IA. Sedov to the North Pole.
Mor. flot 22 no.8:40-41 Ag '62. (MIRA 15:7)
(Arctic regions—Russian exploration)
(Sedov, Georgii Iakovlevich)

PAKHOMOV, N.

Improvement of the public areas of one's own city is the business of all workers. Zhil.-kom. khoz. 12 no.10:3-5 O '62. (MIRA 16:2)

1. Pervyy sekretar' Ryazanskogo gorodskogo komiteta Kommunisticheskoy partii Sovetskogo Soyuza.
(Ryazan--Landscape gardening)

PAKHOMOV, N.

Itogi navigatsii 1935 g. i zadachi zimnei sudoremontnoi kampanii. [The results of navigation in 1935 and the problems of the winter ship repair campaign]. (Planovoe khoz-vo, 1935, no. 11-12, p. 89-105).
Maritime transport (p. 93)
DLC: HC331.P52

SC: Soviet Transportation and Communications, Library of Congress, Reference Department, Washington, 1952, Unclassified

SHIMKO, I.G.; PAKHOMOV, N.A.

Introduction of new methods for process improvement at the Kiev Combine. Khim. volok. no.4:6-7 '63. (MIRA 16:8)

1. Kiyevskiy kombinat iskusstvennogo i sinteticheskogo volokna (for Shimko). 2. Kiyevskiy filial Gosudarstvennogo institut po proyektirovaniyu predpriyatiy iskusstvennogo volokna (for Pakhomov).

PAKHOMOV, N. I.

Direktivy pravitel'stva i zadachi vodnogo transporta. [Directives of the government and the problems of waterway transportation]. Moskva, 1936. 27 p. DLC: Slavic unclass.

Itogi navigatsii 1935 g. i zadachi zimnei sudoremontnoi kampanii. [Results of the navigation in 1935 and the problems of the winter campaign for ship repair.] (Planovoe khoz-vo, 1935, no. 11-12, p. 89-105). DLC: HC331.P52

Ocherenye zadachi vodnogo transporta. [Next problems of waterway transportation]. (Planovoe khozvo, 1934, no. 12, p. 41-51). DLC: HC331.P52

SO: Soviet Transportation and Communications, A Bibliography, Library of Congress, Reference Department, Washington, 1952, Unclassified.

PAKHOMOV, N.M.

Selecting the efficient and safe parameters for solid borehole charges.
Khim.prom. no.1:33-39 Ja '64. (MIRA 17:2)

VOLODIN, V.Ye.; PAKHOMOV, N.M.; DERESHKEVICH, Yu.V.; PASECHNIK, K.A.; BUKHARIN, Ye.V.; MOISEYEVA, Ye.I.. Prinimali uchastiye: GRISHIN, M.Ye., inzh.; PROTOSAVITSKAYA, Ye.A., inzh.; GOFEN, D.A., inzh.; VINARSKIY, V.I., inzh.; PLUTENKO, V.P., inzh.. MOSHCHANSKIY, N.A., nauchnyy red.; TYAPKIN, B.G., red.izd-va; GURVICH, E.A., red.izd-va; MEDVEDEV, L.Ya., tekhn.red.

[Anticorrosive coatings for construction elements and apparatus; handbook] Antikorroziinye pokrytiia stroitel'nykh konstruktsii i apparatury; spravochnoe posobie. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1959. 266 p. (MIRA 13:4)

1. Russia (1917- R.S.F.S.R.). Glavnoye upravleniye po montazhu tekhnologicheskogo oborudovaniya i proizvodstvu montazhnykh rabot. 2. Proyektno-konstruktorskoye byuro tresta Montazhkhimzashchita (for Volodin, Pakhomov, Dereshkevich, Pasechnik, Bukharin, Moiseyeva).

(Protective coatings) (Building materials)

PAKHOMOV, N.M.; STOYKO, I.V.

Introduction of an enlarged borehole pattern at the open-cut mine of the Rozdol Sulfur Combine. Khim.prom. no.10:773-776 O '62. (MIRA 15:12)
(Rozdol—Sulfur mines and mining)

L 52096-65 EPF(c)/EPR/EWT(m)/EWP(j)/T/EWP(v) Pc-4/Pr-4/Pa-4 RM/WW
ACCESSION NR: AP5015265 UR/0286/65/000/009/0047/0047

AUTHORS: Pakhomov, N. M.; Garber, Yu. I.; Gol'denberg, N. L.; Bret, T. V. 30 B

TITLE: A method for obtaining coatings. Class 22, No. 170597 75

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 9, 1965, 47

TOPIC TAGS: metal coating, concrete / arsamite, FR 12 cement

ABSTRACT: This Author Certificate presents a method for obtaining arsamite-based coatings on metallic or concrete surfaces. To improve the adhesion of the coatings to metal and concrete, arsamite is spread over a layer of cement FR-12.

ASSOCIATION: none

SUBMITTED: 27Jul63 ENCL: 00 SUB CODE: IE,MM

NO REF SOV: 000 OTHER: 000

FR-12-Plastic glue

Card 1/1

PAKHOMOV, N.M.

Determining the operating efficiency of the excavator in relation to the degree of crushing of the rock. Shakht.stroi. 6 no.1:14-16 Ja '62. (MIRA 14:12)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut gornokhimicheskogo syr'ya.
(Excavating machinery)

KOPERIN, V.V., inzh.; PAKHOMOV, N.M., inzh.

Anticorrosion work in Finland. Mont. i spets. rab. v stroi. 24 no.9:22-26 S '62. (MIRA 15:9)
(Finland--Corrosion and anticorrosives)

ALEKSEYEV, S.N.; ANTIPIN, V.A.; ARTAMONOV, V.S.; BALALAYEV, G.A., inzh.; VOLODIN, V.Ye.; GOL'DENBERG, N.L.; GORINA, B.S.; GOFEN, D.A.; GRISHIN, M.Ye.; DERESHKEVICH, Yu.V.; DORONENKOV, I.M.; KLINOV, I.Ya., doktor tekhn. nauk, prof.; LEYKIKH, V.E.; LUTONIN, N.V.; MOLOKANOV, A.V., dots.; NOGIN, A.Ya.; PAKHOMOV, N.M.; PROTOSAVITSKAYA, Ye.A.; ROMOV, I.V.; CHAPLITSKIY, L.A.; TSEYTLIN, A.G.; STRAV'YE, P.K.; MOSHCHANSKIY, N.A., doktor tekhn. nauk, prof., red.; PEREVALYUK, M.V., red.izd-va; TEMKINA, Ye.L., tekhn.red.

[Corrosion protection in the construction of industrial buildings] Zashchita ot korrozii v promyshlennom stroit l'-stve. Moskva, Gosstroiizdat, 1963. 406 p. (MIRA 16:12)

(Corrosion and anticorrosives)
(Industrial buildings)

PAKHOMOV, N.M.

Calculating blasting charges in accordance with the distance separating them. Khim.prom. no.2:114-120 F '62. (MIRA 15:2)
(Blasting)

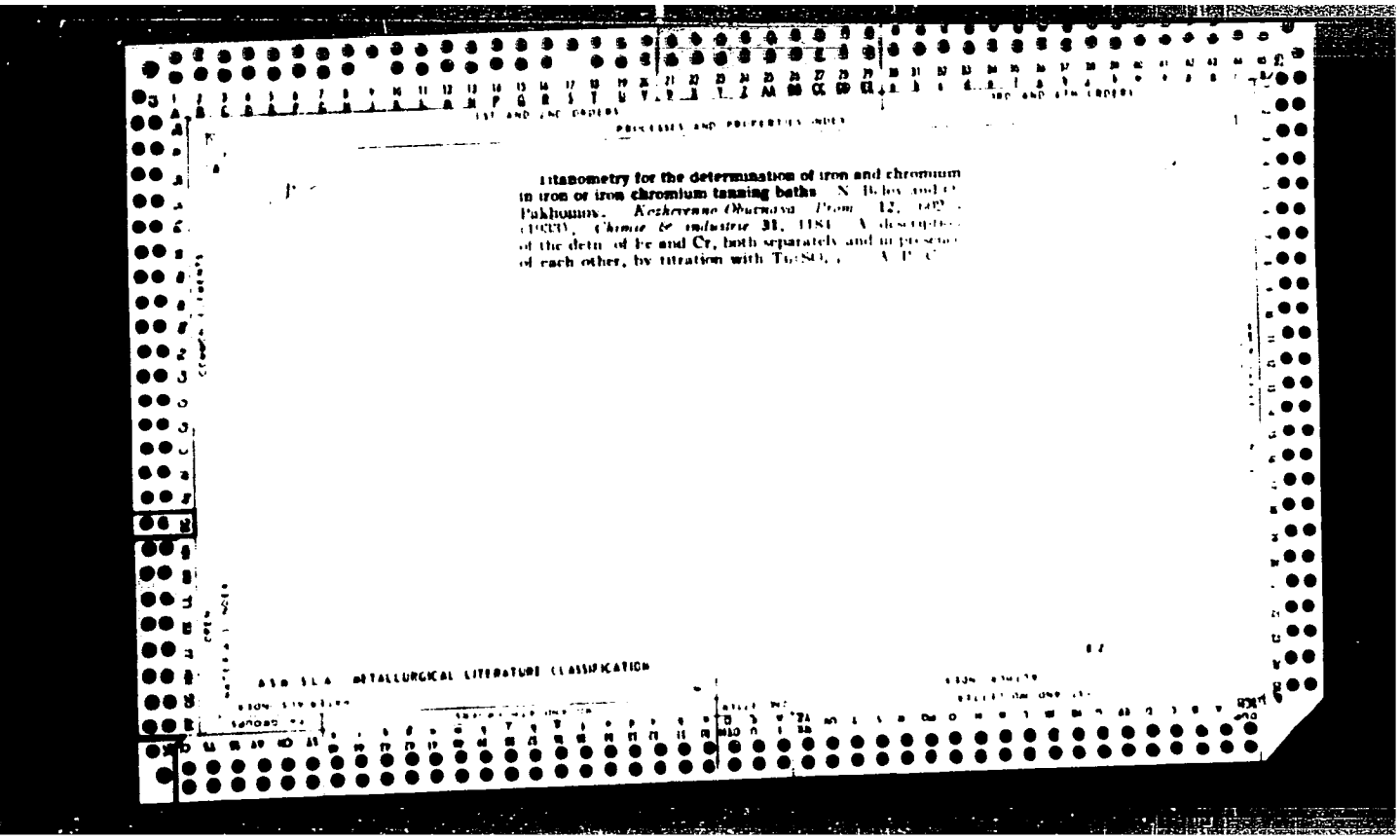
VOLODIN, V.Ye.; DERESHKEVICH, Yu.V.; PAKHOMOV, N.M.; PASECHNIK, K.A.; BUKHARIN, Ye.V.; MOISEYEVA, Ye.I. Prinimali uchastiye: GRISHIN, M.Ye., inzh.; PROTOSAVITSKAYA, Ye.A., inzh.; GOFEN, D.A., inzh.; VINARSKIY, V.I., inzh.; PLUTENKO, V.P., inzh.. MOSHCHANSKIY, N.A., nauchnyy red.; TYAPKIN, B.G., red.izd-va; GURVICH, E.A., red.izd-va; MEDVEDEV, L.Ya., tekhn.red.

[Anticorrosive coatings for engineering structures and apparatus; a manual] Antikorrozilnye pokrytiia stroitel'nykh konstruktsii i apparatury; spravochnoe posobie. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1959. 266 p. (MIRA 12:8)

1. Russia (1917- R.S.F.S.R.) Ministerstvo stroitel'stva. 2. Proyektno-konstruktorskoye byuro tresta Montazhkhimzashchita (for Volodin, Dereshkevich, Pakhomov, Pasechnik, Bukhatin, Moiseyeva). (Protective coatings) (Factories--Equipment and supplies)

PAKHOMOV, N.V., agronom.

Great victory of state farms on virgin and idle lands. Nauka i pered. op. v sel'khoz. 6 no.12:30-31 D '56. (MLRA 10:1)
(Reclamation of land)



Titanometry for the determination of iron and chromium in iron or iron chromium tanning baths N. B. [illegible] and [illegible] Pakhomov. *Kozhevenno Obuvnaya Prom.* 12, [illegible] (1957). *Chimie & industrie* 31, 1181. A description of the detn. of Fe and Cr, both separately and in presence of each other, by titration with $Ti_2(SO_4)_3$. [illegible]

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

PAKHOMOV, O. I., IVASHKIN. A. M., FEDORENKO, V. I., SHKUD, M. A., GEL'MAN, F. A., RYABOV, K. M., and KUCHUK, Ye. N.

Antenna Switch, Patent, Class $21a^{4}$. 72_{04}, no. 103460, Elektrosvyaz' No. 1, Jan 57.

PAKHOMOV, P.A., inzh.

Theory of float valves of drawatts. Vod. i san. tekh. no.4:6-9 Ap '64 (MIRA 18:1)

PAKHOMOV, Petr Aleksandrovich; POLTORATSKAYA, E., red.; GRISHKO, T., tekhn.red.

[Eliminating air from hot-water heating systems] Vozdukhoudalenie iz sistem vodianogo otopleniia. Kiev, Gos.izd-vo lit-ry po stroit. i arkhit. USSR, 1963. 58 p. (MIRA 16:5)
(Hot-water heating)

40373-66 EWT(1)/EWT(m)/EWP(t)/ETI IJP(c) AT JD

ACC NR: AP6025263 SOURCE CODE: UR/0057/66/036/007/1312/1314

AUTHOR: Pakhomov, P.L.; Fugol', I. Ya.; Shevchenko, Yu.F.

ORG: none

TITLE: Temperature dependence of the diffusion cross section of metastable helium atoms in helium

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 7, 1312-1314

TOPIC TAGS: helium, metastable state, gas diffusion, plasma diffusion, particle cross section

ABSTRACT: The authors have measured the diffusion cross section (defined as v/3ND, where v is the mean atomic velocity, N is the gas density, and D is the diffusion constant) of metastable (2^3S_1) helium atoms in helium gas at 77, 64, and 20° K by a plasma technique that has been described in detail by I.Ya.Fugol', P.L.Pakhomov, and G.P. Reznikov (Opt. i spektr., 16, 941, 1964). Plasmas were produced by 40 MHz discharges in a quartz tube containing helium at pressures (reduced to room temperature) ranging from 0.1 to 1.0 mm Hg and their decay was followed for up to 1.5 millisec by recording the absorption of the 3889 Å $2^3S - 3^3P$ helium line. The diffusion constants, calculated from the exponential decay curves on the assumption that the plasmas decayed entirely by diffusion to the wall of the vessel, were inversely proportional to the pressure within the 15% experimental error. The measured diffusion cross sections

UDC: 533.9.07

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L 40373-66

ACC NR: AP6025263

were in good agreement with the theory of R.A.Buckingham and A.Dalgarno (Proc.Roy. Soc.,A213, 506, 1952). The diffusion cross section at 77° K (approximately 4.5 x 10^{-15} cm^2) was 50% lower than that found by A.V.Phelps and J.P.Molnar (Phys.Rev.,89, 1204, 1953). At 20° K the diffusion cross section was 5 x 10^{-15} cm^2. Orig. art. has: 5 formulas and 3 figures. [15]

SUB CODE: 20 SUBM DATE: 02Aug65 ORIG.REF: 001 OTH REF: 005

ATD PRESS: 5053

Card 2/2 MLP

L 08358-67 EWT(1)/EWT(m)/EWP(t)/ETI IJP(c) JD/AT

ACC NR: AR6028133 SOURCE CODE: UR/0058/66/000/005/D056/D056

AUTHOR: Pakhomov, P. L.; Fugol', I. Ya. 63

TITLE: Spectroscopic investigation of a decaying helium plasma at 77 and 20K

SOURCE: Ref. zh. Fizika, Abs. 5D431

REF. SOURCE: Fiz.-tekhn. in-t nizk. temperatur AN UkrSSR. Khar'kov, 1965, 53 str.

TOPIC TAGS: helium plasma, plasma decay, metastable state, discharge plasma, atomic spectrum, spectral line

ABSTRACT: The processes of destruction of metastable He atoms in a decaying plasma of a pulsed high-frequency discharge at 77 and 20K and the kinetics of the de-excitation of the He lines are investigated. An intense afterglow of a number of lines of atomic helium was observed at pressures 8 -- 40 mm Hg. The theory of the afterglow is based on taking simultaneous account of two processes: formation of molecular helium ions and electrons as a result of the destruction of the metastable atoms, and subsequent recombination of the molecular ions and electrons. The rates of the main processes of destruction of metastable atoms and the coefficients of recombination at low temperatures are determined. [Translation of abstract]

SUB CODE: 20

Card 1/1 nst

L 16391-65 EWA(k)/EWT(l)/EWG(k)/EWT(m)/EPA(sp)-2/EPF(c)/EEC(k)-2/EPA(w)-2/EEC(t)/T/EWP(t)/EEC(b)-2/EWP(k)/EWP(b)/EWA(m)-2 Po-4/Pz-6/Pab-10/Pf-4/Pr-4/P1-4/P1-4
ACCESSION NR: AP4049129 IJP(c)/SSD(b) WG/S/0020/64/159/001/0057/0059
JHB/JD/AT

AUTHORS: Pakhomov, P. L.; Fugol', I. Ya.

TITLE: Pair collisions of metastable helium atoms in a plasma

SOURCE: AN SSSR. Doklady*, v. 159, no. 1, 1964, 57-59

TOPIC TAGS: helium atom, metastable state, pair collision, plasma afterglow quenching

ABSTRACT: Pair collision of metastable 2^3S helium atoms is one of three factors governing the afterglow of a helium plasma following termination of the discharge, but has been least investigated, in spite of its being the dominant factor in the 5--15 mm Hg pressure range. The authors investigated the time dependence of the metastable atom concentration after termination of a high-frequency discharge pulse at 77K, at pressures from 6 to 74 mm. The metastable atom concentration was measured by means of the absorption of the

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ACCESSION NR: AP4049129 2

3889 Å line in a discharge tune 20 mm in diameter and 150 mm long. The details of the experiments are described elsewhere (the authors with G. P. Reznikov, Opt. i spektr. v. 16, no. 6, 25, 1964). The reciprocal of the concentration plotted against the time is a straight line, with a slope that increases with the pressure. Comparison with experiments made by A. V. Phelps and S. C. Browne (Phys. Rev. v. 86, 102, 1952) at 300K shows that the rate of the process decreases to one-half on going from 300 to 77K, probably because of the decrease in the average particle velocity. This report was presented by I. V. Obreimov. Orig. art. has: 2 figures and 7 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut nizkikh temperatur Akademii nauk SSSR (Physicotechnical Institute of Low Temperatures, Academy of Sciences SSSR)

SUBMITTED: 06May64 ENCL: 00

SUB CODE: ME, NP NR REF SOV: 002 OTHER: 005

Card 2/2

ACCESSION NR: AP4039701 S/0051/64/016/006/0941/0948

AUTHORS: Fugol', I. Ya.; Pakhomov, P. L.; Reznikov, G. P.

TITLE: Spectroscopic investigation of a pulsed high-frequency discharge in helium

SOURCE: Optika i spektroskopiya, v. 16, no. 6, 1964, 941-948

TOPIC TAGS: discharge plasma, plasma decay, spectral line intensity, atomic spectroscopy, recombination, metastable state

ABSTRACT: The kinetics of the excitation and breakdown of a helium plasma was investigated under conditions of a pulsed electrodeless high-frequency discharge in the pressure interval 0.1--40 mm Hg, at room temperature (290K) and at the temperature of liquid nitrogen (77K), and at different values of the power. The experimental setup and technique are described. The decrease in line intensity during the time of the high-frequency pulse at 290K is attributed to atomic

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L 15556-66 EWT(l)/EWT(m)/ETC(F)/EPF(n)-2/EWG(m)/EWP(t)/EWP(b) LJP(c) JD/AT

ACC NR: AP6004401 SOURCE CODE: UR/0051/66/020/001/0010/0020

AUTHOR: Pakhomov, P. L.; Reznikov, G. P.; Fugol', I. Ya.

ORG: none

TITLE: Helium afterglow in a pulsed hf discharge plasma at 77°K

SOURCE: Optika i spektroskopiya, v. 20, no. 1, 1966, 10-20

TOPIC TAGS: discharge plasma, helium plasma, luminescence

ABSTRACT: The authors determine the rates of fundamental afterglow processes under high frequency pulsed discharge conditions at a temperature of 77°K and explain the mechanism responsible for the intense afterglow in a helium hf discharge plasma at a low temperature. The experimental equipment is described. The plasma radiation and concentration of metastable $He(2^3S)$ atoms in the afterglow were measured. It is shown that the curve for concentration of metastable atoms as a function of time at pressures of 8-60 mm Hg is a close approximation of a hyperbola. The recombination coefficient is a linear function of pressure, which indicates that collisions between metastable atoms take place with the participation of helium atoms in the normal state. Experimental measurements show that the triple-collision process

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UDC: 533.9

L 15556-66

ACC NR: AP6004401

$$He^*(2^3S) + He^*(2^3S) + He(1^1S) \rightarrow \ldots$$

is most probable at pressures above 5 mm Hg. It is shown that dissociative recombination is the fundamental process for deionization of charged particles in a high frequency pulsed discharge plasma. Theoretical considerations indicate that the basic reactions responsible for intense atomic afterglow are:

$$He^*(2^3S) + He^*(2^3S) + He(1^1S) \rightarrow He_2^+ + He(1^1S) + e. \quad (I)$$

$$He_2^+ + e \rightarrow He' + He \rightarrow 2He + h\nu. \quad (II)$$

A differential equation is given for the variation in ion (or electron) concentration n in the afterglow of a helium plasma in conformity with these two processes. The two proposed mechanisms are used as the basis for a theory explaining the fundamental kinetics of line luminescence and afterglow. The recombination reaction is confirmed by the experimentally observed distribution of excited atoms with respect to levels in the afterglow. In conclusion we are sincerely grateful to I. V. Obreimov for valuable consultation and interest in the work and also to A. M. Ratner for useful discussions. Orig. art. has: 5 figures, 35 formulas.

SUB CODE: 20/ SUBM DATE: 13Nov64/ ORIG REF: 003/ OTH REF: 007

Card 2/2

L 26127-66 EWT(l)/EWT(m)/ETC(f)/EPF(n)-2/EWG(m)/EWP(j)/T IJP(c) JD/WW/JW/AT/RM

ACC NR: AP6015800 SOURCE CODE: UR/0386/66/003/010/0389/0394

87

AUTHOR: Gugol', I. Ya.; Pakhomov, P. L.

ORG: Physicotechnical Institute of Low Temperatures, Academy of Sciences Ukrainian SSR (Fiziko-tekhnicheskiy institut nizkikh temperatur Akademii nauk Ukrainskoy SSR)

TITLE: Diffusion of metastable helium atoms in a cryogenic plasma

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 10, 1966, 389-394

TOPIC TAGS: helium plasma, cryogenic effect, metastable state, electron scattering, physical diffusion, pressure effect, scattering cross section

ABSTRACT: The authors have investigated the rate of diffusion disintegration of metastable helium atoms in a decaying helium plasma at a temperature lower than 6K (called a cryogenic plasma). The helium plasma was excited in a quartz cuvette immersed in liquid helium at 4.2 and 1.8K. The excitation was by an electrodeless method with pulses from a high-frequency discharge of 0.08 msec duration, repeated every 40 msec. The concentration of the metastable helium atoms in the state 2^3S_1 was determined from the resonance absorption of the 3889 Å line from an external source. The details of a similar experiment at 77 and 20K can be found in the authors' earlier papers (Optika i spektroskopiya v. 20, 10, 1966, and others). Measurements of the kinetics of the variation of the density of the metastable helium atoms have shown that, in accordance with the previously obtained results at 300, 77, and 20K, the disintegration of the metastable states at low gas densities (n ≈ 1--6

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L 26127-66

ACC NR: AP6015800

$\times 10^{10}$ cm^{-3}) is exponential with an exponent inversely proportional to the pressure p. If the results obtained for a cryogenic plasma, like those for a plasma at higher temperatures, are interpreted with the aid of the diffusion mechanism of disintegration of metastable atoms, then the diffusion leads to the exponential time variation of the concentration and the exponent has then the meaning of the diffusion collision frequency. Analysis of the temperature dependence of the diffusion coefficient of metastable helium atoms shows that it increases sharply in a cryogenic plasma. This may be connected with the change in the diffusion scattering cross section for slow collisions. Although the usual scheme of solving the scattering problem does not explain the observed decrease of the diffusion cross section at low energies, it is proposed that an analogy exists between the authors' data on the value of the cross section for the diffusion of metastable atoms in a cryogenic helium plasma and recent theoretical and experimental results by others on the scattering of slow electrons by helium atoms. Orig. art. has: 3 figures and 2 formulas.

SUB CODE: 20/ SUBM DATE: 07Mar66/ ORIG REF: 003/ OTH REF: 006

Card 2/2

ACC NR: AP7002420 SOURCE CODE: UR/0051/66/021/006/0741/0748

AUTHOR: Fugol', I. Ya.; Pakhomov, P. L.; Shevchenko, Yu. F.

ORG: none

TITLE: Spectroscopic investigation of decaying helium plasma at 20K

SOURCE: Optika i spektroskopiya, v. 21, no. 6, 1966, 741-748

TOPIC TAGS: helium plasma, plasma decay, plasma diffusion, metastable state

ABSTRACT:

The helium plasma was excited in a quartz tube submerged in liquid hydrogen (20.4K). The luminescence was recorded through the liquid hydrogen. The helium pressure was varied from 0.1 to 80 mm Hg. The concentration of metastable atoms in the afterglow was determined by the absorption of the 3889 Å line from an external source. The rate of pair collision, on which depends the decay of metastable atoms and the diffusion coefficent D at different pressure p of metastable atoms, was determined. The average value for Dp at 20K is $(Dp)_{aver} = 95\ cm^2 \cdot sec^{-1} \cdot mm\ Hg$. A comparison of results shows that below 77K the variation of the diffusion coefficient does not follow the classical dependence $Dp \sim \sqrt{T}$, a fact which is possibly linked with the effect of the quantum features of the diffusion process in helium at low

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temperatures. The character of the afterglow of helium plasma at 20K is similar to the afterglow at 77K. The only intensive afterglow was that of the atomic lines He I. The duration of afterglow was 150—200 μsec. Orig. art. has: 26 formulas, 5 figures, and 3 tables.

SUB CODE: 20/ SUBM DATE: 10May65/ ORIG REF: 003/ OTH REF: 002/ ATD PRESS: 5112

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Pond fish [illegible]

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1. Severo-Kavkazskoye otdeleniye Proizvodstvennogo i nauchno-issledovatel'skogo instituta po inzhenernym izyskaniyam v stroitel'stve. Submitted February 10, 1965.

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