CIRC ACCESSION NO--AP0120261

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD WAS BASED ON THE OXIDN.
OR THE PYROLYSIS OF THE ORG. COMPDS. TO FORM THE SIMPLE COMPDS., CO
SUB2, CO, H SUB2 O, AND SO SUB2, WHICH WERE DETD. BY IR SPECTROSCOPY (J.
A. KUCK, ET AL., 1962). TO DET. C, H, OR S THE COMPDS. WERE BURNED IN
AN O BOMB, A FLASK, OR DIRECTLY IN THE SPECTROPHOTOMETRIC GAS CELL
PROVIDED WITH A PT COIL. THE PRODUCTS OF THE PYROLYSIS OF THE COMPDS.
IN AN INERT GAS ATM. (AR) WERE: CO, CO SUB2, H SUB2 O, AND CH SUB4.
THE CONTENT OF O WAS DETD. FROM THE ABSORPTION BANDS OF THE CO SUB2
(2349 CM PRIME NEGATIVE1), CO (2145 CM PRIME NEGATIVE1), AND H SUB2 O
(3650-3755 CM PRIME NEGATIVE1). THE METHOD WAS USED FOR 9 COMPDS. THE
ERROR OF THE DETN. WAS: C, PLUS OR MINUS 0.49PERCENT; H, PLUS OR MINUS
0.2PERCENT, S, PLUS OR MINUS 0.35PERCENT; AND O, PLUS OR MINUS
0.8PERCENT.

UNCLASSIFIED

Devices

Abstract: A study was made of the amplifying and range characteristics of a
large class of microwave devices and the optical range of wave devices with an
isotropic active material within the framework of the linear approximation.
The peculiarity of the basic characteristics of these devices is connected
primarily with the fact that amplification of electromagnetic waves propagated
along the axis of the device in both directions is possible in them. Some
relations describing the characteristics of such wave devices are derived, and
the results of calculating the mentioned properties are presented and analyzed:
the transfer coefficient as a function of the line length and activity of the
working medium, the frequency-amplitude characteristics, the load characteris-
tics and the self-excitation conditions. The results can be useful in improv-
ing the parameters of a number of devices in the microwave and optical range.
The investigated instruments include the electromagnetic amplifying lens and

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USSR

MULLER, YA. N., Izvestiya vysshikh uchebnykh zavedeniy—Radiotekhnika, Vol XIV,
No 9, 1971, pp 1032-1041

related M-type devices, devices with an undelayed wave with small transmission
line lengths, microwave quantum traveling wave amplifiers and lasers with non-
resonant feedback.

2/2

USSR

UDC 621.385.6

MULLER, YA. N.

"Measurement of the Coupling Impedance of a Retarding System"

Moscow, Dokl. Nauchno-tekhn. konferentsii po itogam nauchno-issled. rabot za 1968-1969 gg. 1970. Mosk. Energ. in-t. Sekts. elektron. tekhn. Podsekts. elektron. priborov. (Reports of the Scientific-Technical Conference on the Results of Scientific-Research Work for 1968-1969. 1970. Moscow Power Engineering Institute, Electronic Technology Section, Electronic Devices Subsection), 1969, pp 13-20 (from RZh -- Elektronika i yeye primeneniye, No 2, Feb 70, Abstract No 2A114)

Abstract: A method is described for measuring the coupling impedance (CI) of a retarding system (RS) based on the method of the disturbing body, in conjunction with a test of a shifting short circuit in a transmission line (TL) connected with the RS. In accordance with the method proposed a short-circuit piston (P) is connected into the transmission line, the position of which is selected so as to assure resonance in the section being measured of the operational frequency band of the RS. Then P

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USSR

MULLER, YA. N., Dokl. Nauchno-tekhn. konferentsii po itogam
nauchno-issled. rabot za 1968-1969 gg. 1970. Mosk. Energ. in-t.
Sekts. elektron. tekhn. Podsekts. elektron. priborov., 1969,
pp 13-20 (from RZh -- Elektronika i yeye primeneniye, No 2,
Feb 70, Abstract No 2A114)

Abstract: is shifted to a whole number of half-waves and both
of its positions are fixed. After introduction of a dielectric
into the RS, the resonance frequency is measured at various
values $\Delta \nu$, corresponding to each position of P. The frequency
shift and the distance between the positions of P enter into the
expression for CI produced through the electromagnetic energy
which is stored in the RS short circuit of the transmission line.
The basic merit of the method is that it makes possible a measure-
ment of the frequency characteristics of the CI. The method
described was tested on a RS consisting of T-shaped lamella with
straps (svyazka) and on a system of the "meander" type with a
screen. Both RS are cylindrical. As a test dielectric a thin
ring of polyfluoroethylene resin was used. Satisfactory quanti-
tative and good qualitative correspondence of the calculated and
experimental relation of the coupling impedence to the frequency
1/2   was obtained. 5 ref. E.G.

7

USSR   UDC 632.95

PARSHUTIN, S. N., STONOV, L. D., ZABALUYEV, I. T., BATYROVA, M. SH., GALIFANOV,
G. G., MILLIMEV, K. M., PAVLOVA, G. N., SHOGAN, S. N., KHIRIPKO, T. V.,
KUR'YANOV, V. A., and KHIRIPKO, V. G.

"Control of Overgrowth of Sewers and Drains in Turkmeniya"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection
of works), vyp 1, Moscow, 1970, pp 225-241 (from RZh-Khimiya, No 13, 10 Jul
72, Abstract No 13N533 by T. A. Belyayeva)

Translation: The article compares the effectiveness and profitability of
mechanical, manual, thermal biological and chemical methods of removing
vegetation from drains. Data are given on results of herbicide tests and
applications. To kill reeds, cattails and other weeds in sewers during the
second and subsequent years of service, dalapon shows the greatest promise
in doses of 24-30 kg/ha with the addition of wetting agent OP-7 or OP-10.

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USSR   UDC 539.171.017

ABDULLAYEV, A. M., AZIMOV, S. A., BEYSEMBAYEV, R. U., BELITSKIY, M. T.,
MILLIZHANOV, E. ZH., MYALKOVSKIY, V. M., TALIPOV, T. A., TILLAYEV, T.,
UMEROV, R., KHEN, E., and YULDASHBAYEV, T. S.

"Study of Characteristics of Inelastic Interactions of Cosmic-Ray Particles in the 10^{11} to 10^{12}-ev Energy Range"

Abstract: Experiments that were performed at the high-altitude test station (3,200 m.) at Kum-Bel' in Uzbekistan are described. The purpose of the experiments was to investigate the angle of arrival and the energy characteristics of interactions of pions and nucleons with light and heavy nuclei at 2×10^{11} to 2×10^{12} ev and the mechanism of generating muons at energies above 2×10^{12} ev. Equipment consisted of spark chambers, located above and below the target (paraffin wax, carbon, and iron), a Cerenkov spectrometer of full absorption, and an ionization calorimeter. This complex method of measurements was found convenient for use in various modes of operation. A detailed description of various parts of the installation and their disposition is given in the paper.
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SSR

ABULLAYEV, A. M., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,
Vol 35, No 10, Oct 71, pp 2065-2068

Joint operation of ionizing calorimeters and spark chambers is normally
difficult because of the need for high voltage on the calorimeter electrodes,
combined with the time lag of the input pulse from the spark chambers, amount-
ing to over 20 microseconds. This difficulty was avoided in the present
experiments by storing pulses in memory cells, with the subsequent input of
a high-voltage pulse of about 120 kv. Operation was controlled by a master-
pulse, prior to which all parts of the equipment were kept inoperative.

Results of 200 hours of the joint operation of a Čerenkov spectrometer
and ionizing calorimeter, with graphite used as the target, have been pro-
cessed so far. For analysis, showers with energy above 1.5×10^{11} ev were
selected, 130 of them having been observed. The ratio of charged to neutral
nucleons were determined and, from it, the fraction of charged pions of the
total nucleus-active stream of particles. The inelastic coefficient for the
formation of π^0-mesons was computed from the experiments related to the
interaction of neutral particles with nuclei of graphite.

It is concluded that the combination of ionizing calorimeter with
Čerenkov spectrometer of full absorption for the simultaneous determination
of energy of primary particles made it possible to determine the fraction of

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USSR

ABULLAYEV, A. M., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,
Vol. 35, No 10, Oct 71, pp 2065-2068

energy supplied by the ionizing particles $\tilde{\eta}$, since a Čerenkov spectrometer
measures only the energy emitted by relativistic particles. It was found that
for the mean energy of primary particles of 350 Gev the energy part lost on
nuclear fissions in the spectrometer, with CCl_4 as the light emitter, is $\tilde{\eta}$ =
0.25,

CSO: 1862-W   - END -

3/3

USSR

UDC: 621.375.826+621.039.64

SIGEL, R., WITKOWSKI, S., BAUMHACKER, H., BÜCHL, K., ELDMANN, K.,
HORA, H., MENNICKE, H., MULSER, P., PFIRSCH, D., SALZMANN, H.

"Survey of Studies of Laser-Produced Plasmas at the Max Planck
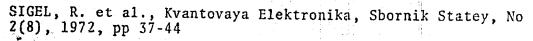Institute of Plasma Physics in Garching, West Germany"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972,
pp 37-44

Abstract: The paper is a survey of experimental and theoretical
research on laser-produced plasmas done at the Max Planck Insti-
tute of Plasma Physics in Garching. Experiments are described
on heating of a plasma by emission from a neodymium laser with
energy of 30 J and pulse duration of approximately 30 ns. The
plasma temperature was measured by a filter method; the time of
flight and average kinetic energy of the ions were measured by
probes. A laser with a single pulse lasting a few picoseconds
is described. The results of theoretical studies done on com-
puters are presented. [The article is a brief version of a paper
presented to the editors by the organizational committee of the

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USSR

SIGEL, R. et al., Kvantovaya Elektronika, Sbornik Statey, No
2(8), 1972, pp 37-44

International Conference on Laser-Produced Plasmas, Moscow, 1970.
Translation by A. S. Shikanov.] Nine illustrations, bibliography
of seven titles.

2/2

USSR

UDC 620.193.4

MULYAKAYEV, L. M., DUBININ, G. N., DALISOV, V. B., POLUBOYARTSEVA, L. A., MANTOROVA, T. M., and REYFER, A. A., Moscow Aviation Institute imeni Sergo Ordzhonikidze

"Corrosion Resistance of Diffusion Chrome Plated Steel in Certain Mediums"

Abstract: A study was made of the corrosion behavior of chrome plated steels in a series of industrial aggressive media. Specimens of carbon steels (brands 35 and 45) and of OKh21N5T austenitic-ferritic class steel were chromated according to a technology developed by the Chair of Aviation Science of Metals of Moscow Aviation Institute; their diffusion layer was x-ray-analyzed and its thickness and microhardness measured. Corrosion resistance curves of brand 45 steel before and after diffusion chrome plating at 1100° for 10 hrs show that diffusion chromating protects brand 45 steel against corrosion in a 15% solution of tartaric acid and in a 3% solution of table salt, but does not reliably protect it in a concentrated freon solution widely used in refrigerating plants at operating conditions of 300° and 60 at. Results of corrosion tests under industrial conditions of up to two years duration of brand 35 steel and OKh21N5T steel, chromated and not chromated, are shown. The corrosion rate of brand 35 steel subjected to the action of an aggressive
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USSR

MULYAKAYEV, L. M., et al., Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 66-70

medium for up to 672 hrs with a diffusion coating is ten times lower than without a coating and approximately equal to the corrosion rate of OKh21N5T stainless steel in this medium. The use of a chromated diffusion coating to increase the corrosion resistance of OKh21N5T proved to be of little effect. Two figures, two tables, five bibliographic references.

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Water Treatment

UDC 543.123.11+532.74

USSR

SPITSYN, V. I., GLAZUNOV, M. P., MULYAR, V. M., DERYAGIN, B. V., CHURAYEV, N. V., and ZORIN, Z. M., Institute of Physical Chemistry Academy of Sciences USSR, Moscow

"Study of the Anomalous Water by the Method of Neutron Activation Analysis"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 1, Jan-Feb 72, pp 132-135

Abstract: Samples of anomalous water were studied for their content of admixtures which could possibly be leached out of the glass; particularly Si and Na, after irradiation with thermal neutrons. As a preliminary experiment quartz glass itself was examined. The Na impurities were found to be low, and irregularly distributed throughout the capillary. The anomalous water samples were compared to double distilled water. It was established that the admixture concentration was much higher in the anomalous samples than in the double distilled material. The content of Si and Na was inversely proportional to the volume of the sample studied. This could be due to the evaporative procedures used, the impurities being introduced from the surface layer of the capillaires, from the evaporation equipment, etc. Temperature doesn't seem to have any particular effect on the content of imputities. The quantity of the anomalous components in the samples of anomalous water varied in the range of $5 \cdot 10^{-3}$ to $5 \cdot 10^{-8}$ g.

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M

Measurement of Low-Energy Ions

(Abstract: "Measurement of Low-Energy Ions," by Yu. I. Gal'perin, V. A. Gladyshev, I. D. Ivanov, I. N. Karpinskiy, T. M. Mulyarchik, B. V. Polenov, V. V. Temnyy, B. I. Khazanov, A. V. Shifrin and F. K. Shuyskaya; Moscow, Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 120-126)
[Note: This is part of a sectionalized article "Study of Geoactive Corpuscles and Photoelectrons on the Satellite 'Kosmos-261'," Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 104-136]
        The KIP-801 low-energy ion spectrometer is described; it was used on the "Kosmos-261" satellite for measuring ions in the range 0.04-8 kaV. It is a modulation trap with magnetic protection of the ring collector; this suppresses the currents of secondary electrons and photoelectrons from the collector. The ion flux is modulated by a voltage in the form of a rectangular wave with a frequency of 300 cps and voltage amplitudes of 0.5 and 2 kV over threshold voltages from 0.04 to 6 kV. The electric current of the central collector and the positive current of the ring collector are measured. This paper gives the first results of measurements on the "Kosmos-261" satellite. In regions close to the auroral zone it is common to register fluxes of ions with energies of several keV, at-

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AP0042569

taining 10^7 ions$\cdot$cm$^{-2}\cdot$sec^{-1}keV^{-1}. After midnight these particles are situated in the northern hemisphere near the southern boundary of the region of injection of electrons in the form of a "hydrogen arc." In addition, in the southern and northern polar caps in the region of invariant latitudes 70-80° ions were registered simultaneously with soft electrons in the so-called "second" or "soft" auroral zone. The ion energy spectra in the northern hemisphere (nighttime, altitude about 220 km) and in the southern hemisphere (daytime, altitude about 600 km) are different. In the northern auroral zone the spectrum has a pronounced maximum in the region 1.5-2 keV, whereas in the southern auroral zone and in the south pole cap the spectrum in the region 0.04-8 keV is rather flat (without taking into account the charge exchange of protons during passage through the atmosphere). The pitch-angle distribution usually has a maximum near 70°. The authors given an example of an ion intensity burst in the low latitudes over the USSR at L $\approx$ 2.

19760550

MULYARCHIK, T. M.

9

Ref. Code: _LR 0293_

JP RS 50/62

Acc. Nr.: __AP0042568__

Measurement of Low-Energy Electrons

(Abstract: "Measurement of Low-Energy Electrons," by Yu. I. Gal'perin,
N. V. Dzhordzhio, I. D. Ivanov, L. P. Karpinskiy, E. L. Lein, T. M.
Mulyarchik, B. V. Polenov, V. V. Temnyy, N. I. Fedorova, B. I. Khazanov,
A. V. Shifrin and F. K. Shuyskaya; Moscow, Kosmicheskiye Issledovaniya,
Vol VIII, No 1, 1970, pp 108-119)
[Note: This is part of a sectionalized article "Study of Geoactive Cor-
puscles and Photoelectrons on the Satellite 'Kosmos-261'," Kosmicheskiye
Issledovaniya, Vol VIII, No 1, 1970, pp 104-136]
A spectrometer for low-energy electrons, operating in the energy
range 30 eV-15 keV, is described. Electrons undergo energy selection in
a cylindrical capacitor and then are accelerated to 17 keV and are regis-
tered by a scintillation counter with two photomultipliers operating in
a coincidence circuit. The instrument field of view is circular, the
aperture angle is +3.5°, the geometry factor is $2 \cdot 10^{-3}$ cm^2. stored and the
energy resolution is $\Delta E/E = 0.19$. In the first range (30-150 eV) energy
scanning is done smoothly by applying a sawtooth voltage; in the second
analysis it is done smoothly at three fixed energies -- 1, 4.5 and 15 keV.
The instrument can be switched from one regime to another by command from

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AP0042568

the earth. The paper gives the first results of measurements on the "Kos-
mos-261" satellite. The instruments measured the equilibrium energy spec-
trum of fresh photoelectrons at different latitudes for different pitch
angles. Soft auroral electrons with energies from 30 eV to approximately
1 keV were registered both in the "second" zone of auroras and in the main
zone of auroras in which electrons with energies 4,5 and 15 keV were also
very intensive even during magnetically quiet times. On many revolutions
of the satellite about the earth, passing approximately along the auroral
oval, with transition from the midnight to the morning sectors there is a
structureless "background" of electrons with an almost constant intensity
and slowly changing angular distribution. The energy flux of these elec-
trons is approximately 1 erg/cm^2·sec. Near the midnight sector and with
transition from the midnight to evening sector the fluxes of auroral elec-
trons are far more irregular, with strong peaks, particularly at about 4.5
keV. No measureable electron intensities were discovered in the middle
and low latitudes in the keV range. The upper limit of the energy flux
in the quiet atmosphere is approximately $<1.5·10^{-2}$ erg/cm^2·sec. An ex-
ception is the equatorial region of the ionospheric anomaly, where as
earlier (on the "Kosmos-5" satellite) there was sporadic registry of soft
electrons.

19760548

T.M.   MULYARCHIK

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Acc. Nr.: AP0042570

Ref. Code: UR0293

JPRS 50162

Study of Geoactive Corpuscles and Photoelectrons

(Abstract: "Study of Geoactive Corpuscles and Photoelectrons on the
'Kosmos-261' Satellite," by A. D. Bolyunova, M. L. Bragin, Yu. I. Gal'-
perin, V. A. Gladyshev, N. V. Dzhordzhio, G. N. Zlotin, I. N. Kiknadze,
R. A. Kovrazhkin, T. M. Mulyarchik, Yu. N. Ponomarev, V. V. Temnyy, N. I.
Fedorova, Yu. P. Shilyayev, F. K. Shuyskaya and R. V. Shulenina; Moscow,
Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 104-136)
        The artificial earth satellite "Kosmos-261" was used in a study of
low-energy geoactive corpuscles and fresh photoelectrons and their inter-
action with the earth's upper atmosphere. The satellite was launched on
20 December 1968. Orbital inclination to the equator was 71°, so that for
a relatively long time it moved almost along a tangent along the auroral
zone over the Soviet Far North, making it possible to increase the volume
of simultaneous measurements from the satellite and from ground observa-
tories. The storage regime made it possible to extend continuous measure-
ments for periods of several revolutions, including passes over the auroral
zones in the Arctic and Antarctic and over the polar caps as far as in-
variant geomagnetic latitudes 82-85°. During the initial period the
satellite apogee was at 670 km and perigee was at 217 km, but it finally

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burnt up upon entering into the dense layers of the atmosphere on 12 February 1969 after making 857 revolutions of the earth. The experiment lasted 53 days. The orbit was such that in the northern hemisphere middle and high latitudes the satellite moved below or close to the maximum of the F region so that ionospheric electron density along its trajectory and its variations could be determined in a number of regions on the basis of measurements by ground ionospheric stations. The period of the experiment included both quiet periods and those with strong disturbances. The experiment was conducted under the "Program of Cooperation Among Socialist Countries in the Field of Space Research and Peaceful Use of Space." Ground measurements were made in Bulgaria, Hungary, East Germany, Poland, Rumania, USSR and Czechoslovakia. Observatories and special expeditionary stations in the USSR participated: in Yakutia, the Far North, Siberia and middle latitudes. The article cited below is divided into four parts: 1) Description of Experiment; 2) Measurement of Low-Energy Electrons; 3) Measurement of Low-Energy Ions; 4) Measurements of Charged Particles with Intermediate and High Energies. Parts 2)-4) are essentially independent articles and are abstracted separately.

19760552

MULYAROVA, L. L.

INVESTIGATION OF POSTMORTEM CELL DIVISION IN THE RAT'S HEPATIC PARENCHYMA

Investigation of mitotic activity in surviving organs and tissues resulted in postulation of the position (Bullough) that the nature of extinction of cell division following somatic death depends on the type of tissue. The theoretical as well as practical interest of this position is obvious. Thus, the degree of completion of cell division related to the time of cell survival could serve as a cytological indicator of viability of cadaver tissue, which is important to consider in organ transplantation, as well as in pathoanatomical and forensic medical examinations.

The purpose of the present work was to study postmortem mitotic activity in the hepatic parenchyma of partially hepatectomized rats.

In the experiments we used 52 male rats weighing 200-250 and 120-130 grams. Under nembutal anesthesia two-thirds of the liver was removed by the method of Higgins-Anderson, and the animals were decapitated 26-30 hours after surgery, during the period of intensive mitotic division of hepatocytes. The bodies of the animals were kept at room temperature. Analysis of the morphology of mitotic figures and a count of mitoses were performed on acetocarmine squash preparations. The mean mitotic index per case was derived from 10 values, each of which was determined by counting 1,000 hepatocyte nuclei (so that in all 10,000 nuclei were counted). For determination of the mitotic phase index, 400-600 mitotic figures were counted. We administered H³-thymidine (0.5 microcuries/gram in 0.1 ml saline) to some of the animals (IV). Determination was made of the percentage of labelled dividing hepatocytes (mean of 4-6 readings each of which was derived from counting 100 mitotic figures) on autoradiograms of liver sections.

The material was analyzed with a microscope magnification of 7x90. The statistical reliability of the results was checked using the t - test by the method of Fisher and Student. Three series of experiments were performed. In

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USSR

UDC 591.69-94-542.5(479.24)

MULYARSKAYA, L. V., Institute of Zoology, Azerbaydzhan SSR, Baku

"Two New Species of Trombiculid Mites (Acariformes Trombiculidae) From Azerbaydzhan Bats"

Moscow, Zoologicheskiy Zhurnal, No 12, 1971, pp 1877-1880

Abstract: A description is given of Myotrombicula rhinolophi Muljarskaja sp. n., and Neotrombicula microchiropteri Muljarskaja sp. p. M. rhinolophi resembles M. hexasternalis Schluger et Kudrjaschowa, 1969, from which it differs in having a more convex posterior margin of the scutellum, lower placement of cirri on the palpi, 4 sternal cirri between the III coxae, and more powerful legs. N. microchiropteri resembles Trombicula radfordi Schluger, 1948, from which it differs in having a small lateral cirrus on the palpus, one hollow cirrus on the III tarsus, and longer legs.

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USSR

UDC 576.895.4

MULYARSKAYA, L. V., KOROBEYNIKOV, A. S., DZHEBRAILOV, D. D., BABAYEV, A. G.,
SHASHNIKOVA, N. V., and MOVSUMOV, M. A.

"Trombiculid Mites (Acariformes, Trombiculidae) of Western Azerbaydzhan"

Abstract: The Institute of Zoology, Academy of Sciences Azerbaydzhan SSR,
conducted a study of the distribution of trombiculid mites in Western
Azerbaydzhan in 1967-68 jointly with the Azerbaydzhan Antiplague Station.
The principal host of these blood-sucking parasites in Western Azerbaydzhan
was found to be the red-tailed gerbil (Meriones erythrourus) because of the
large number of animals of this species. Some significance as hosts of
trombiculid mites can also be ascribed to the Asia Minor gerbil (Meriones
tristrami), house mouse, common and social voles, and the weasel. The
number of mites varied with the season and with climatic conditions at
various elevations of this mountainous area. The largest number of
Trombiculidae species (nine species) infested Meriones erythrourus.
Weasels were infested exclusively with Miyatrombitula caucasica. The
bird mite Neoschoengastia thomasi was found on forest dormice and the
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USSR

MULYARSKAYA, L. V., et al., Izvestiya Akademii Nauk Azerbaydzhanskoy SSR,
Seriya Biologicheskikh Nauk, No 3, 1971, pp 77-82

mite Trombicula callosa, which usually infests lizards, was found to occur
on hedgehogs. The most numerous species of trombiculid mites was Micro-
trombicula azerbaidjanica, which was followed by Leewenhoekia major.

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USSR

UDC 576-895.4

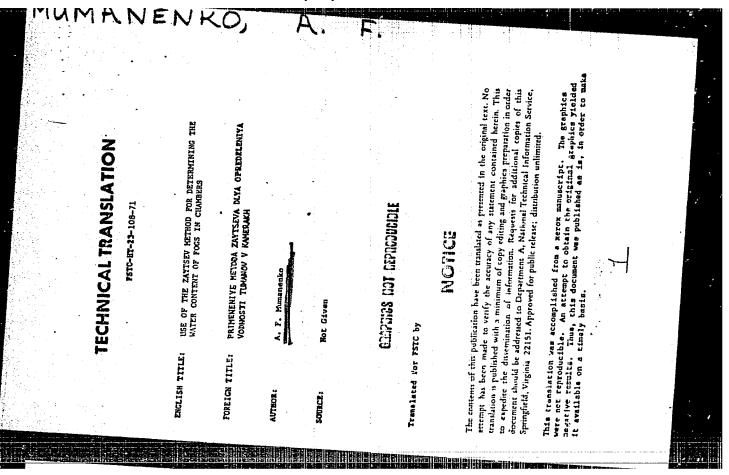MULYARSKAYA, L. V., KOROBEYNIKOVA, A. S., and BARAGAMOVA, E. S.,

"Small Mammals as Hosts of Trombiculid (Acariformes, Trombiculidae) in the Lesser Caucasus"

Baku, Izvestiya Akademii Nauk Azerbaydzhanskoy SSR, Seriya Biologicheskikh Nauk, No 1, 1971, pp 95-101

Abstract: During 1963-66 the Institute of Zoology, Academy of Sciences Azerbaydzhan SSR, and the Azerbaydzhan Antiplague Station carried out a study of the species composition of small mammals harboring Trombiculid mites in the Lesser Caucases, the species composition of the mites infesting small mammals there, the degree of infestation of the mammals of different species with the mites, and seasonal variations in the degree of infestation. The results are summarized in the form of tables. Trombiculid mites are of importance as vectors of rickettsioses. The principal hosts of the mites were rodents of several species (gerbils, voles, and the house mouse). The considerable degree of infestation of the house mouse with Trombiculid mites is of interest, because house mice were found to be infested to only a slight degree or not at all in other regions of the Caucases.

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MUMANENKO, A. F.

TECHNICAL TRANSLATION

FSTC-HT-23-108-71

ENGLISH TITLE: USE OF THE ZAYTSEV METHOD FOR DETERMINING THE WATER CONTENT OF FOGS IN CHAMBERS

FOREIGN TITLE: PRIMENENIYE METODA ZAYTSEVA DLYA OPREDELENIYA VODNOSTI TUMANOV V KAMERAKH

AUTHOR: A. F. Mumanenko

SOURCE: Not Given

GRAPHICS NOT REPRODUCIBLE

Translated for FSTC by

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

USSR

MUMINOV, A. I., ESHKABYLOV, T. D., and MUKHITDINOV, A, G., Chair of Patho-
logical Anatomy and Otorhinolaryngological Diseases, Samarkand Medical In-
stitute

"Toxicological Characteristics of Sevin"

Abstract: All but 1 out of 18 rabbits chronically poisoned with sevin (5 mg/
kg) for 6 months survived. During this time their general condition remained
good and the hematological indexes were within normal limits. Alanine-
transaminase and aldolase activities following an initial increase dropped to
near-normal levels by the end of the experiment. In another series of experi-
ments, 11 out of 18 rabbits given much larger doses of sevin (50 mg/kg) died
within 94 to 179 days. These animals ate poorly, lost weight, and showed
various symptoms of poisoning. The hematological indexes were abnormal and
aldolase-transaminase and aldolase activities increased considerably, peaking
at day 80 and decreasing slowly thereafter. Pathological examination of the
animals of both groups revealed vague degenerative changes in the liver, myo-
cardium, kidneys, lungs, and ears of those that received 5 mg/kg of sevin and
much more pronounced changes in the parenchymatous organs of animals poisoned
with the larger dose.
1/1

1/2   017   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--PROPERTIES OF EXCITED STATES OF SAMARIUM 147 AND PROMETHIUM 149 -U-

AUTHOR-(04)-BEGZHANOV, R.B., GAFFAROV, D.G., ILKHAMDZHANOV, N., MUMINOV,
A.I.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK UZB. SSR. SER. FIZ.-MAT. NAUK 1970, 14(2), 65-8

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--EXCITED STATE, SAMARIUM ISOTOPE, PROMETHIUM ISOTOPE, CASCADE,
MAGNETIC MOMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0570   STEP NO--UR/0166/70/014/002/0065/0068

CIRC ACCESSION NO--AP0137655
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0137655   UNCLASSIFIED   PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANGULAR CORRELATIONS OF THE CASCADE GAMMA TRANSITIONS AND THE MAGNETIC MOMENTS OF PRIME147 SM AND PRIME149 PM EXCITED STATES WERE MEASURED WITH THE FAST SLOW COINCIDENCE CIRCUIT, THE TIME RESOLN. OF WHICH HAS SIMILAR TO 5 NSEC. THE MEASUREMENTS OF PRIME147 SM EXCITED STATES WERE PERFORMED WITH A PRIME147 EU SOURCE, PREPD. BY 18-MEV P IRRADN. OF NATURAL SM; THE MEASUREMENTS OF PRIME149 PM WERE MADE WITH A PRIME149 ND SOURCE, PREPD. BY THERMAL N IRRADN. OF PRIME148 ND (ENRICHED UP TO 98PERCENT). THE THEORETICAL AND EXPTL. VALUES OF MAGNETIC MOMENTS OF THESE EXCITED STATES ARE COMPARED. THE VALUES OF THE QUADRUPOLE MAGNETIC MOMENTS ENABLE CONCLUDING THE FORM OF PRIME147 SM AND PRIME149 PM NUCLEI. THE NATURE OF THE EXCITED STATES OF TRANSIENT REGION NUCLEI (PRIME147 SM AND PRIME149 PM) CAN BE EXPLAINED BY THE KISLINGER SORENSEN PHONON MODEL, BY TAKING INTO CONSIDERATION THE EFFECTS OF THE SUPERFLUIDITY IN SPHERICAL NUCLEI, OF THE POLARIZATION OF THE CORE OF THE NUCLEI, AND THE QUASI PARTICLE PHONON COUPLING.   FACILITY: INST. YAD. FIZ., TASHKENT, USSR.

UNCLASSIFIED

USSR   UDC 517.922

ABDULLAYEV, the late N. A., and MUMINOV, N. S., Samarkand Cooperative Institute imeni V. V. Kuybyshev

"On the Structure of the Neighborhood of a Singular Point of a First-Order, Second-Degree Differential Equation Unsolved With Respect to a Derivative"

Abstract: The article studies the character of a singular point of higher order of the second-degree differential equation

$$A_1(x, y)\,dx^2 + 2A_2(x, y)\,dxdy + A_3(x, y)\,dy^2 = 0$$

in the case where the functions $A_i\,(x,y)$ $(i = 1, 2, 3)$ are representable in the

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USSR

ABDULLAYEV, the late N. A., and MUMINOV, N. S., Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-Katematicheskikh Nauk, No 1, 1972, pp 3-7

form $A_1(x, y) = \sum\limits_{k=n}^{\infty} A_1^{(k)}(x, y)$, where $A_1^{(k)}(x, y)$ are forms of degree $k \geqslant 2$ and $A_1^{(n)}(x, y) \not\equiv 0$, with no linear terms in expansions (the case of a singular point of higher order). Singular points of the differential equation

$$r^2 \tilde{A}_1(r, \varphi) dr^2 + 2\tilde{A}_2(r, \varphi) dr d\varphi + \tilde{A}_3(r, \varphi) d\varphi^2 = 0$$

situated on the φ-axis are found, and a differential equation is given for finding the direction of tangents to the curve $D(x, y) = 0$.

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USSR

UDC: 539.107.45

AZIMOV, S. A., AYDINOVA, D. M., MUMINOV, R. A., YAFASOV, A. Ya., Physico-
technical Institute imeni S. V. Starodubtsev, Academy of Sciences of the
UzbekSSR

"Concerning Certain Characteristics of Si(Li) Nuclear Emission Detectors"

Abstract: Research is done on diffusion-drift, spectrometric detectors
based on a p-i-n structure made from p-type single-crystal silicon with
and without dislocations and with various conductivities. The parameters
of the detectors are compared, and optimum conditions are determined for
using such detectors and realizing their advantages. The thickness of the
working section was 2-6 mm, area 1.25-2.5 cm^2, and minimum dead layer ap-
proximately 12 nm. It is shown how dislocations affect the nuclear physics
characteristics of the detectors. Optimum operating conditions are deter-
mined for similar detectors used as spectrometers for beta-rays, soft gamma-
rays, and x-rays.

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USSR   UDC: 539.294

AZIMOV, S. A., MUMINOV, R. A., NURKUZIYEV, G., KHAKNAZAROVA, Sh., Physico-
technical Institute imeni S. V. Starodubtsev, Academy of Sciences of the
UzbekSSR

"Reactance Properties of Germanium Diodes With Double Injection"

Abstract: The paper presents the results of research on the reactance
properties of diodes with double injection (P^+-N-N^+ structures) made on
the basis of relatively pure germanium single crystals of N-type with
initial impurity concentration of $5 \cdot 10^{12}$/cc. The injection contacts on
these specimens were made by alloying; the area of the PN junction was
determined by the cross section of the crystal — 0.4×0.4 mm^2; the dis-
tance between opposite contacts was 0.4 mm. The reactance properties of
the diodes were measured on a bridge circuit at a temperature of 77°K. The
frequency of the small alternating signal varied from 1 to 45 MHz. The
current-voltage characteristic as well as curves showing capacitance as
a function of forward biasing current at various frequencies and curves for
conductance as a function of current at various frequencies are given.
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USSR

AZIMOV, S. A., et al., IAN UzSSR, Ser. Fiz.-Mat. Nauk, No 3, 1971, pp 40-42

The results show that inductive reactance in germanium diodes with recti-
fying contacts under the given conditions is due to change in the life-
time of the charge carriers. An increase in carrier lifetine causes in-
jection over a considerable length of crystal and formation of an electron-
-hole plasma throughout the base region. The resultant plasma has con-
stant inductance in the 10-30 ma-current region at frequencies from 1C to
30 MHz. Three figures, bibliography of seven titles.

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TITLE--MECHANISM OF THE IGNITION AND EXTINCTION OF X RAY LUMINESCENCE OF
ALKALI HALIDE CRYSTAL PHOSPHORS -U-

AUTHOR-(02)-LUKANTSEVERE, YU.L., MUMINOV, R.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(3), 455-9

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CRYSTAL PHOSPHOR, LUMINESCENCE SPECTRUM, X RAY IRRADIATION,
ALKALI METAL HALIDE, RADIATION INTENSITY, LUMINESCENCE QUENCHING, FREE
ELECTRON, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1489   STEP NO--UR/0368/70/012/003/0455/0459

CIRC ACCESSION NO--AP0118476
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0118476
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF KINETICS OF THE IGNITION
AND EXTINCTION OF TRANSITORY AND PROTRACTED COMPONENTS OF X RAY
LUMINESCENCE IN A SERIES OF ALKALI HALIDE CRYSTAL PHOSPHATES AND STUDY
PF SPECTRA OF THESE COMPONENTS WERE PRESENTED. THE METHOD WAS DEVELOPED
OF SIMULATNEOUS REGISTRATION OF INTENSITY OF BOTH LONG (I SUBD) AND
SHORT TERM (I SUBK) PARTS OF X RAY LUMINESCENCE.   SEPN. AND
REGISTRATION OF BOTH I SUBK AND I SUBD PARTS OF X RAY LUMINESCENCE OF
THE IGNITION WAS ACCOMPLISHED BY USING FREQUENCY MODULATED 50,HZ X RAY
EXCITATION IN COMBINATION WITH ELECTRONIC OSCILLOGRAPH 1,5M WITH D.C.
AMPLIFIER. THE FOLLOWING INORG. SYSTEMS WERE USED FOR THIS STUDY:
KCL,IN, NACL,AG, KCL,TL, KBR,TL, AND KBR,IN. RELAXATION PROCESSES WERE
INVESTIGATED AT 300-500DEGREESK. DEPENDENCE ON TEMP. OF I SUBK AND I
SUBD OF STATIONARY X RAY LUMINSCENCE IN NACL,AG SYSTEM WAS ALSO STUDIED
AND ACTIVATION ENERGIES OF TEMP. IGNITION OF I SUBK AND EXTINCTION OF I
SUBK AND I SUBD WERE DETD. INFLUENCE OF FREE ELECTRONS IN ALKALI HALIDE
CRYSTAL PHOSPHATES LATTICE ON IGNITION OF I SUBK AND I SUBD COMPONENTS
WAS STUDIED BY USING KCL,AG SYSTEM. THE LUMINESCENCE APPEARS WHEN
RECOMBINATION OF FREE ELECTRONS WITH AN IMPERFECTIONS AT AG PRIME
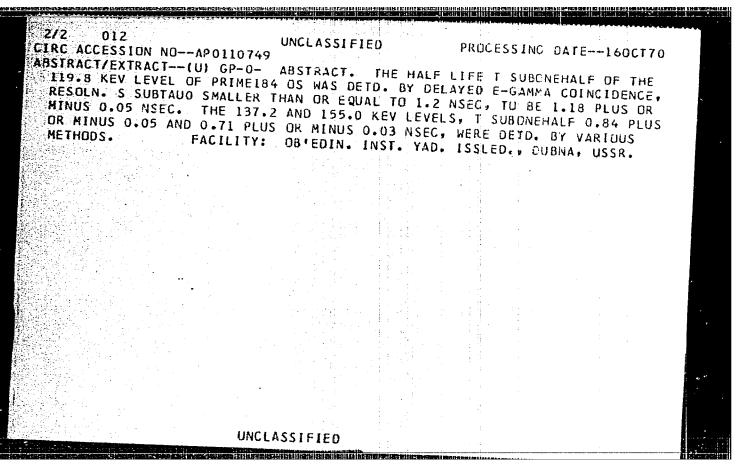POSITIVE OCCURRED.

UNCLASSIFIED

1/2   012   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--MEASUREMENT OF HALF LIVES OF THE FIRST EXCITED 2 PLUS STATES OF
   OSMIUM-184, OSMIUM-186, AND OSMIUM-188 -U-
AUTHOR-(05)-BEDICA, T., ZAYTSEVA, N.G., MOROZOV, V.A., MUMINOV, T.M.,
   SELEGEANU, S.
COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(3), 481-2

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--RADIOACTIVE DECAY SCHEME, OSMIUM ISOTOPE, EXCITED NUCLEUS,
   COINCIDENCE COUNTING, NUCLEAR ENERGY LEVEL, HALF LIFE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1059   STEP NO--UR/0367/70/011/003/0481/0482
CIRC ACCESSION NO--AP0110749
                        UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0110749   PROCESSING DATE--16OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HALF LIFE T SUBONEHALF OF THE
119.8 KEV LEVEL OF PRIME184 OS WAS DETD. BY DELAYED E-GAMMA COINCIDENCE,
RESOLN. S SUBTAUO SMALLER THAN OR EQUAL TO 1.2 NSEC, TO BE 1.18 PLUS OR
MINUS 0.05 NSEC. THE 137.2 AND 155.0 KEV LEVELS, T SUBONEHALF 0.84 PLUS
OR MINUS 0.05 AND 0.71 PLUS OR MINUS 0.03 NSEC, WERE DETD. BY VARIOUS
METHODS.   FACILITY: OB'EDIN. INST. YAD. ISSLED., DUBNA, USSR.

UNCLASSIFIED

1/2   010   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--MEASUREMENT OF THE LIFETIMES OF GADOLINIUM 151 EXCITED STATES -U-

AUTHOR-(03)-MOROZOV, V.A., MUMINOV, T.M., RAZOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(5), 921-4

DATE PUBLISHED-------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--GADOLINIUM ISOTOPE, HALF LIFE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0583   STEP NO--UR/0367/70/011/005/0921/0924

CIRC ACCESSION NO--AP0137668
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0137668
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STATES 108.1, 395.2, 575.3 AND
839.3 KEV HAVE HALF LIVES OF 2.60 PLUS OR MINUS 0.13, 0.24 PLUS OR MINUS
0.04, 0.23 PLUS OR MINUS 0.04, AND 0.32 PLUS OR MINUS 0.05 NSEC.
FACILITY: OB'EDIN, INST. YAD. ISSLED., DUBNA, USSR.

UNCLASSIFIED

USSR   UDC: [537.226+537.311.33] : [539.3+536.21+536.631+536.651]

NASYROV, A., AKHMEDZHANOV, F. R., and MUKHINOVA, M. F.

"Investigating the Attenuation of Longitudinal Ultrasonic Waves in Gallium Arsenide and Indium Arsenide"

Tr. Samarkand. un-ta (Transactions of the Samarkand University) No. 201, 1971, pp 76-80 (from RZh-Fizika, No. 11, 1971, Abstract No. 11E790)

Translation: The velocity of propagation v_e and the frequency dependence of the attenuation factor $\alpha(f)$ of longitudinal ultrasonic waves in n-type GaAs and InAs are measured by the pulse method in the "pass" mode, in the frequency range of 30-220 MHz at room temperature. The mechanism of the $\alpha(f)$ is discussed, and v_e is determined, in the GaAs and InAs, to be $5.1 \cdot 10^5$ and $4.2 \cdot 10^5$ cm/s respectively.

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USSR   UDC 621.375.82

GAPRINDASHVILI, KH. I., GVATUA, SH. SH., MUMLADZE, V. V., KHANEVICHEV, V. A.,
and CHAVCHANIDZE, V. V.

"Threshold, Time,and Spectral Characteristics of a Fiber Laser"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No
2(14), Moscow, "Sov. Radio," 1973, pp 25-30 (English summary) (from RZh-
Fizika, No 10, Oct 73, Abstract No 10D833 from authors' abstract)

Translation: The article studies the time character and spectral composi-
tion of radiation in the prethreshold, threshold,and superthreshold states
of a fiber laser with the core doped with 6 wt.% Nd_2O_3. In the subthreshold
stage, simultaneously with a decrease in the pulse length,there is a narrow-
ing of the radiation spectrum of the active glass fiber to a quantity less
than 100 $\overset{o}{A}$. At the threshold pumping energy the stimulated radiation is of a
quasicontinuous character and has a pulse length $\Delta\mathcal{T} = 75 \div 200$ microseconds and
a half-width $\Delta\lambda < 0.017$ $\overset{o}{A}$. It is shown experimentally that all the time and
spectral stimulated-radiation characteristics known for solid-state lasers are
realized relatively simply in a fiber laser. Bibliography with 18 titles.

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USSR

CHAVCHANIDZE, Corresponding Member of the Georgian Academy of Sciences V. V.;
MIMLADZE, V. V.; RAMISHVILI, N. M. (Institute of Cybernetics, Georgian Academy
of Sciences)

"The Nature of the Formation of Interference Patterns in the Process of Self-
Reproduction"

ABSTRACT: The results of a further experimental study of two-dimensional
objects in coherent fields of emission are presented. The nature and con-
ditions of the formation of interference patterns in the process of self-
reproduction -- in particular, the formation of reversed, multiple, and negative
images of the initial objects -- were studied.

    In the space beyond an object the structure of interference patterns was
found to be determined by the phase difference $\Delta\phi$ of the interfering beams on

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CHAVCHANDIZE, et al., Bulletin of the Academy of Sciences of the Georgian SSR; December, 1972; pp 565-8

the given plane of observation. An exact reproduction of the initial object was observed only under the condition $\Delta\phi = 2\pi n$, where $n = 1, 2, 3, \ldots$ Under other conditions various stages in the formation of pattern self-reproduction were observed.

The article includes two figures and a table. Figure 1 depicts schematically the formation of an image in the process of self-reproduction; Figure 2a shows the image of an initial object with the number of elements quadrupled; Figure 2b shows the image of an initial object with a 16-fold increase in the number of elements; the table shows the structures that result from various differences in the phase of the observed interference patterns.

There are three bibliographic references.

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USSR   UDC 678.746

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

"Several Spectral Characteristics of Polystyrene Activated with Europium Chelate"

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

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USSR   UDC 621.375.9:535

DZHIBLADZE, R.N., KUKHARSKIY, R.N., MUMLADZE, V.V.

"Regular Variations Of The Intensity Of Generation Of A Glass Fiber Laser Activated By Neodymium"

Kvantovaya elektronika, Moscow, No 5, May 71, pp 120-122

Abstract: The regular pulsations of generation intensity resulting from the appearance of absorptive centers in the glass fiber are investigated. The experiments were conducted on fibers activated by Nd^{3+} 120 cm long and 27-33 micrometer in diameter (diameter of core 20-25 micrometer) mixed in a reflector with flowing distilled water. Pumping was produced by two IFP-5000 gas-discharge pulse lamps. The time characteristics of the emission were studied with the aid of a FEU-22 photomultiplier on a S1-29 oscillograph. The concentration of absorptive centers was varied with the aid of an aqueous solution of $K_2Cr_2O_7$, cutting off the ultraviolet part of the spectrum. The dependences of the period of the pulsations and the generation delay time on the pump power were investigated. An anomalous growth of the pulsations period with an increase of the pump power was displayed, caused by the absorptive layers in the glass. The

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dependences of the threshold population inversion of the operating levels on the pump power and on the degree of formation of absorptive centers are obtained from kinetic equations based on the experimental results. The ratio of the threshold difference of the populations of the levels to the overall number of atoms of neodymium for a fiber laser attains a magnitude of 0.7--0.9. Establishment of a stationary value of the absorption coefficient occurs with small concentrations of the absorptive centers. Received by editors,28 Apr 71.4 fig.6 ref.

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USSR

UDC 621.373.029.67.001.5

GAPRINDASHVILI, KH. I., KUKHARSKIY, R. N., LEBEDEVA, YE. A.,
LEZHAVA, B. S., MUMLADZE, V. V., CHAVCHANIDZE, V. V.

"Coupled Filament Lasers"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 7, 1970,
pp 1457-1460

Abstract: Experimental results are presented for the conversion
of energy from one passive light conductor to another at a small
distance from the first. The minimum length of contact required
for maximum transfer of the radiation is determined. The effect
of the transfer is used for mutual decrease in the radiation
of two-filament lasers (quenching). The case in which a one-
filament laser quenches two adjacent ones is investigated.

The possibility of an effect of a one-filament laser on several
is also investigated. Experiments performed with three-fila-
ment lasers demonstrated that the radiation jumps from one fila-
ment to the other two and decreases their radiation intensity.

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The experimental results are presented in a table including a
case in which laser I extinguished lasers II and III. The
maximum extinguishing coefficients obtained for two- and three-
filament lasers turn out to be identical and equal to 0.50-0.65.
The extinguishing coefficient depends on the radiation energy
of the extinguishing laser and increases with an increase in
it, for the cases of both two and three filaments.

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USSR

BUDAGOV, YU. A., VINOGRADOV, V. B., VOLOD'KO, A. G., DZHELEPOV, V. P., KIRILLOV-UGRYUMOV, V. G., KLADNITSKIY, V. S., KUZNETSOV, A. A., LOMAKIN, YU. F., MEL'NIKOVA, N. N., PONOSOV, A. K., FLYAGIN, V. B., SHLYAPNIKOV, P. V., MARTINSKA, G. (1), BOLDEA, V. (2), MIKHUL, A. (2), MUMUYANU, D. (2), PONTA, T. (2), FELEA, S. (2), and CHADRAA, B. (3), Joint Institute of Nuclear Research; (1) University imeni P. I. Shafarik, Koshitse, Czechoslovak SSR; (2) Institute of Atomic Physics, Bucharest, Romania; (3) Physics Institute of the Academy of Sciences Mongolian People's Republic, Ulan-Bator

"Study of the Mass Spectrum of a ΛK-System in π^-p-Interactions at 4 and 5.1 Gev/c"

Abstract: The results of a study of the spectrum of the effective masses of a ΛK-system are reported. The spectrum was obtained in investigating π^-p-interactions in a 24-liter and a 1-meter propane bubble chamber irradiated in π-meson beams of the proton synchrotron of the Joint Institute of Nuclear Research with pulses of 4 and 5.1 Gev/c, respectively. An investigation of the structure of the effective mass spectrum of a ΛK-system was of interest from the viewpoint of observing new

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resonances with zero strangeness and the decays of different isobars via the channel $N^* \to \Lambda + K$, to determine the relative probabilities of these decays. Approximately 230,000 photographs were analyzed for each bubble chamber. The effective mass spectra of ΛK^0 combinations for events in which the decays of a Λ-hyperon and a K^0-meson were simultaneously recorded in the chamber are graphed. The graphs show a considerable excess in the number of events above the background in the mass region 1.61-1.96 Gev/c^2. It is shown that this anomaly is not associated with the reflection of known resonances Y^* (1385) and K^* (890) in the ΛK^0-spectrum. The total excess in the number of events over the background in the mass interval 1.61--1.96 Gev/c^2 was 114 $\pm$ 13. The experimental data verify the existence of two resonances with masses about 1685 and 1935 Mev/c^2 and widths of the order of 150 Mev/c^2. It is concluded that the anomaly observed in the effective mass spectrum of ΛK can be explained only by the decay of the isobar S_{11} (1710), P_{11} (1750) via the channel $N^* \to \Lambda + K$ or by the existence of a new resonance with mass about 1685 Mev/c^2, as the data of R. Erbe et al indicate.

ZHAYMINA, R. Ye., FILIPPOVA, Z. O., MUN, A. I.

"Absorption of Boron by AV-17 and EDE-10 Anionites from Aqueous Salt Solutions"

Translation: The influence of various salts on the adsorption of borate ions by the anionites AV-17 and EDE-10 is studied. The increase in the competing influence of ions in the sequence $K^+ < Na^+ < Li^+$. $Ba^{2+} < Ca^{2+} < Mg^{2+}$ and $F^- < CH_3COO^- < Cl- < NO_3^- < Br- < J^-$, is probably related to the varying facility for hydration. When F^-, PO_4^{3-}, or particularly $H_2PO_4^-$, HPO_4^{2-} and $C_2O_4^{2-}$ are added to the solution, the nature of absorption of B changes, resulting from the chemical interaction between the boric acid and these anions. An increase in the concentration of the chlorides of Na, K and Li has practically no influence on the absorption of B from boric acid solutions. An increase in the concentration of $CaCl_2$ and $MgCl_2$, however, facilitates transition of B to

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Zhaymina, R. Ye., Filippova, Z. O., Mun, A. I., Tr. In-ta Khim. Nauk. An KazSSR, 1972, No 36, pp 76-81.

the solid phase, which is explained by the influence of the Ca^{2+} and Mg^{2+} ions on the state of the boric acid in the solution. 7 figures, 2 tables, 13 biblio. refs.

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USSR   UDC: 669.884/.885.053.4.068

DARER, R. S., MUN, A. I., ZHELYDKOVA, G. V.

"Study of Sorption of Lithium and Rubidium by the Hydroxides of Various Metals"

Translation: The absorption of Li and Rb by the hydroxides of Fe^3, Al, Sn^{4+}, Ti^{4+} and MnO_2 is studied. The influence of the pH of the solution, various electrolytes, the nature of the sorbent and conditions of its production on the process is determined. The absorption of Li^+ and Rb^+ is strongly influenced by the acid-base properties of the hydroxides. The mechanism of capture of Li^+ and Rb^+ by various hydroxides is studied. The influence of the salt background on the sorption of Li and Rb, MnO_2, $Al(OH)_3$ is studied, and it is shown that the effects of secondary cations are determined by the nature of the electrolytes and the nature of absorption of the microcomponents. 3 figures, 14 biblio. refs.

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USSR

MUNAYEV, Yu. A., IKSANOV, B. A., MARMYNOV, S. E., FAMKULLIN, O. Kh.

"Wetting of Zirconium Nitride with Nickel-Cobalt Alloys"

Abstract: Results are presented from an experimental study of the equili-
brium contact wetting angles as a function of composition, dynamics of
change of contact angles during wetting and spreading rate of liquid alloys
over a solid coating. The specimens of zirconium nitride used in the study
were produced by precipitation from the gas phase onto a substrate of
MPG-6 graphite. The thickness of the coatings was 0.7-1.0 mm. The total
content of impurities in the nitride coating was not over 0.01%. The test
data showed that the wetting of zirconium nitride by a nickel-cobalt alloy
occurs by the mechanism of formation of adsorption layers by surface diffu-
sion. Enrichment of the alloys with nickel apparently causes formation of
thick, thermodynamically stable adsorption layers, while enrichment with
cobalt causes formation of unstable adsorption layers, so that the liquid
metal collects into drops.

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MUNIN, A. G., SHCHEPOCHKIN, M. A., Moscow

"Spectrum of Acoustic Power of a Subsonic Jet"

Abstract: The problem of spectral distribution of the power of acoustic
radiation of an axisymmetric submerged jet is considered. Expressions are
derived for determining the noise spectrum from the initial and main sec-
tions of the jet. The solution is extended to the case of an arbitrary
segment of a jet from the nozzle section to some fixed cross section. The
results can be used for calculating the emission spectrum of noise from
any section of a jet between two fixed cross sections.

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ADKHAMOV, A. A., Academician of the Academy of Sciences of the Tadzhik SSR,
MUNIOV, T. M., KABILOV, Z. A.

"Variation of the Polymer Durability in an Ultrasonic Field"

Abstract: A study was made of the effect of ultrasonic fields on the deterior-
ation kinetics of solids in the loaded state: in particular, polymers.
The deterioration of polymers is considered as a kinetic process the basis for
which is the thermofluctuation rupture of chemical bonds [V. R. Regel', et al.,
Uspekhi fizicheskikh nauk, Vol 106, No 2, 193, 1972]. The basic variable
characterizing the deterioration process is the durability (τ) of the sample
from the loading time to the rupture time. The results from an experimental
determination of the effect of an ultrasonic field on this characteristic are
depicted graphically as the logarithm of the durability as a function of the
applied load with and without the ultrasonic field. Curves are included for
the durability of the copolymer SAM in distilled water. All of the experimen-
tal points obtained in the presence of the sonic field are below the ones
obtained without it. No explanation for this complex phenomenon is offered.

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USSR   UDC 669.712.1.05

AGRANOVSKIY, A. A., BERKH, V. I., KAVINA, V. A., LEVIN, M. V., LYAPUNOV, A. N.,
MONTVID, A. E., MUNITS, I. N., and CHERNIN, V. N.

"Spravochnik metallurga po tsvetnym metallam" (Metallurgist's Handbook of
Non-Ferrous Metals); Moscow, Izd-vo "Metallurgiya," 1970, 320 pp

Translation of Annotation: Data on the physico-chemical properties of the
most important aluminum compounds and aluminum solutions are presented,
phase diagrams of chemical systems determining the processes of alumina
production by alkali methods are given, and standards and technical con-
ditions are reviewed.

Various alumina production methods and reference data on the technology and
equipment of alumina production are described.

The handbook is intended for engineers and technicians engaged in the alum-
inum industry. Ninety-one figures, 116 tables, 176 references.

TABLE OF CONTENTS (Abridged)

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AGRANOVSKIY, A. A., et al., "Spravochnik metallurga po tsvetnym metallam"
(Metallurgist's Handbook of Non-Ferrous Metals), Moscow, Izd-vo "Metallur-
giya," 1970, 320 pp

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USSR

AGRANOVSKIY, A. A., et al., "Spravochnik metallurga po tsvetnym metallam" (Metallurgist's Handbook of Non-Ferrous Metals), Moscow, Izd-vo "Metallur-giya," 1970, 320 pp

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AA0043493ˉ . $\mathcal{M}$ UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

241561 ELECTRICAL SIMULATION OF MOVING HEAT SOURCES,
where it is proposed to use R.C. networks to
represent space which is heated by constant power
moving heat sources which generate leading and
trailing heat fronts. The simulation network has
a switching system which connects each of the current
generators from one junction to another after time
interval which is calculated from the speed of the
corresponding heating source and time constant of
the model circuit.
7.6.67 as 1162952/25-27. I.N.MUNITS (21.8.69) Bul 14/
18.4.69. Class 21h. Int.Cl.B 23k.

manipov v.

JPRS # 58571
15 Mar 73

SOVIET PSYCHOLOGISTS TAKE USE OF ERGONOMICS

[Article by V. Zinchenko, doctor of psychological sciences, chief of the
ergonomics division of the All-Union Scientific Research Institute of
Technical Esthetics; B. Lomov, corresponding member of the Academy of
Pedagogical Sciences USSR; and V. Munipov, candidate in psychological
sciences, deputy director (for scientific work) of the All-Union Scientific
Research Institute of Technical Esthetics: "People and the System of
Machines"; Moscow, Pravda, Russian, 15 February 1973, p 2]

The entire country knows about the "Shchekino experiment"
-- a complex of organizational, economic, and technical
measures for increasing production efficiency. But few
people know that specialists from a young, scientific
discipline -- ergonomics -- took an active part in it.

Even this term itself is not known to everybody, although as early
as the 1920's, Soviet scientists proposed the idea of creating a special
scientific discipline -- ergonology. Its subject was to be an overall
study of the labor activities of man in the conditions under which they
occur.

Ergonomics, the achievements of psychology, physiology, labor
hygiene, and anthropometry, ergonomics is developing in close contact with
the scientific organization of labor, system techniques, and technical
esthetics. It studies the functional capabilities and characteristics of
man in labor processes, promoting the creation of such conditions, methods,
and organization for labor as make it highly productive; and, at the same
time, contribute to the all-round spiritual and physical development of
man and create conveniences and safety in his work. The accomplishment of
of these tasks presupposes the adaptation of technology to man and of man
to his working conditions. Both directions are interconnected and, as a
rule, optimal solutions have to be sought where they intersect one another.

Ergonomists and designers took an active part in improving the
management of one of the most important sectors of the Shchekino Chemical

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Combine -- the Ammonia production. They began with a psycho-physiological analysis of the work of the operators, making clear its occupational characteristics. This concerns, in other words, those demands which this occupation makes upon equipment and upon the psychological and psycho-physiological characteristics of man. An analysis was also made of the organization of operations control, the automation system, the efficiency of the use of production capacities, the methods of supplying information to the operators, and of the causes for violations of the work regimen and for unplanned stoppages and breakdowns. Critical evaluations were made of the interior and equipment layout of the ammonia production's central control point (CCP).

The analysis revealed quite a few shortcomings. The operator's work which is connected with great nervous and intellectual strain was becoming even more difficult due to the fact that many of the electrical and pneumatic drive mechanisms did not have remote control. Therefore, some of the technological magnitudes had to be regulated directly at the object, and then the operator had to return to the central control point and observe the change in the production process on the instruments. If the measures which he took did not succeed in normalizing the process, the operator had to go to the production area again. And when the work regimen was disturbed in several places the threat of an equipment stoppage was created. An improvement of the methods of controlling the basic units directly from the CCP was found to be the first reserve for increasing the efficiency of the ammonia production.

The success of the work depends to a large extent upon the speed and precision with which the operators take in all of the information. Most of it was received from instruments which were located on a panel. Without regard to the requirements of ergonomics and which were diverse in size, form, the structure of their dials, and coloring. On the dials of a number of the instruments the intervals were too small and difficult to read, while others, even those of the same type, were calibrated according to different reading systems. On many of the instruments it was altogether difficult to distinguish the readings due to the high-lights created by the convex form of their faces. The bodies of the instruments were painted principles of a rational layout for the instruments were not always observed. Due to this, when, for example, the steam pressure fell the operator had to check the readings of instruments which were located on eight panels. Thus, a second reserve for improving operations control was determined -- a more careful choice of instruments and their layout.

Important shortcomings were discovered in the location of the controls at the CCP. The principles of locating the controls relative to the control instruments connected with them had been violated. Thus, while the instruments for the first four units were located on a board from left to right, their controls were located on a panel from right to left, which resulted in erroneous actions by the operators and made it difficult to

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USSR

UDC   621.316.351(088.8)

MINITS, N. T., KOLOTAYEV, A. V.

"Three-Phase Conductor"

USSR Author's Certificate No 269232, filed 3 Feb 67, published 3 Aug 70
(from RZh-Elektrotekhnika i Energetika,No 2, Feb 71, Abstract No 2 Ye104 P)

Translation: An invention pertaining to three-phase conductors with symmet-
rical arrangement of the buses is described. Its purpose is to decrease the
overall dimensions of the device as a result of which the inductive reactance
and losses are reduced. The patented design is distinguished from the known
ones by the fact that the phase buses are attached to one insulator executed
in the form of a three-point star. The two lower buses are also attached to
base insulators installed on a dolly. There is 1 illustration.

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USSR   UDC   621. 373.826:621.317.38

LEYKIN, A. YA, MUNTYAN, K. I., RUBINSHTEYN, B. I., and SOLOV'YEV, V. S.

"Using Resonance Luminescence and the Method for its Registration With the Aim of Measuring the Energy of Pulsed Lasers"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekhn. sb. (Radiotekhnika. Republic Interagency Thematic Scientific-Technical Collection of Articles), 1972, vyp.21, pp 181-185 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A223)

Translation: The authors describe the principles for measuring the energy of lasers with a modulated energy factor by transforming the radiation energy into luminescence energy. Three methods for luminescence resistration are considered. The use of resonance luminescence and the methods described for its registration make it possible to simplify the process for measuring the energy of high power, nanosecond, optical pulses within a broad dynamic range. Original article: one illustration and five bibliographic entries. Resume.

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USSR

GRIBOV, V. N., KOBZAREV, I. YU., MUR, V. D., OKUN', L. B., POPOV, V. S.

"On the Properties of Amplitudes Not Satisfying Conditions of the Pomeranchuk Theorem"

Abstract: The properties of amplitudes violating the Pomeranchuk equality $\sigma = \bar{\sigma}$, where σ and $\bar{\sigma}$ are the total cross sections for particles and antiparticles respectively, are investigated. It is shown that in the case of constant asymptotic ($\mathcal{S} \rightarrow \infty$) cross sections both the crossing-antisymmetric and the crossing-symmetric parts of the amplitude must have a radius that increases logarithmically with energy. Then $a^-_\rho(\xi)$, the imaginary parts of partial waves of the $\mathcal{S}$-channel with negative sign, must be an alternating function of its arguments $\xi = \ln \mathcal{S}$ and the impact parameter ρ. Therefore $a^+_\rho(\xi)$, the imaginary parts of the crossing-symmetric partial amplitudes cannot be proortional to $a^-_\rho(\xi)$ and must be selected in such a way as to ensure $\mathcal{S}$-channel unitarity. The properties
1/2'

USSR

of amplitudes violating the equality $\sigma =$ $\bar\sigma$ are analyzed using the example
of the so-called automodeling partial amplitudes, which are a function of
one variable $x = p/\xi$. The general form of these amplitudes, their
crossing properties, and the question of s -channel unitarity and their
dependence on the angular momentum j in the t-channel are discussed. Certain
examples of automodeling functions are given.

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USSR

GRIBOV, V. N., Physicotechnical Institute imeni A. F. Ioffe,
Academy of Sciences USSR, and Institute of Theoretical and Exper-
imental Physics, State Committee for the Use of Atomic Energy;
MUR, V. D., Moscow Engineering-Physics Institute, and Institute
of Theoretical and Experimental Physics, State Committee for the
Use of Atomic Energy; KOBZAREV, I. YU., OKUN', L. B., and POPOV,
V. S., Institute of Theoretical and Experimental Physics, State
Committee for the Use of Atomic Energy

"Properties of Amplitudes With Logarithmically Increasing Inter-
action Radius"

Abstract: A previous article by the authors considered the elas-
tic scattering amplitudes of the particle $F(s,t)$ and antiparticle
$\overline{F}(s,t)$ for the case in which the Pomeranchuk equality is violated:

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USSR

GRIBOV, V. N., et al., Yadernaya Fizika, Vol 13, No 3, Mar 71,
pp 670-680

viz., given $s \to \infty$ the total cross-sections of the interaction
with a given target for the particle and antiparticle are con-
stant and do not equal each other

$$\sigma, \bar{\sigma} = \text{const}, \quad \sigma \neq \bar{\sigma}.$$

An analysis was given of so-called self-similar modes in which
the behavior of the amplitudes, in essence, is determined by a sin-
gle variable $\tau = \rho_o \xi_q$; where $\xi = \ln s$, q is the momentum
transfer $(t = -q^2)$, and ρ_o is the length dimensionality param-

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USSR

eter; and it was shown that the imaginary part of the crossing-antisymmetric amplitude is an alternating function of its arguments ξ and q. The present article considers limitations which are imposed on the amplitude by analyticity and unitarity in the case of constant total cross-sections, as well as those that vary with energy, without any assumption of self-similarity. It is shown that a number of amplitude properties established in the earlier article, particularly the sign alternation of the imaginary part of the crossing-antisymmetric amplitude, obtain even without the assumption of self-similarity. Modes are considered in which the characteristic impact parameters ρ increase with increase in energy (the Pomeranchuk equality is violated, given $\rho \sim \rho_c \xi$), with a discussion only of those ρ and q for which $\rho/\rho_0 \gg 1$ and $q\rho_0 \ll 1$.

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USSR

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USSR

UDC 616.981.25-06:616.988.75-092.9

MURAD, A. S., and STAKHANOVA, V. M., Institute of Virology imeni D. I.
Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Experimental Study of Combined Staphylococcus-Influenza Infection"

Moscow, Voprosy Virusologii, No 5, Sep/Oct 72, pp 616-621

Abstract: Mice were inoculated with Staphylococcus aureus strain No 209 and
influenza virus strain WS, given in nonlethal doses either simultaneously or
successively at intervals up to 96 hrs. The synergistic effect of this com-
bined infection was manifested in increased mortality (15-50%), as compared
with control animals receiving bacteria only, virus only, or physiological
saline (0-15%). Proliferation of both agents was a prerequisite for the
synergistic effect. The period of elimination of bacteria from the lungs was
protracted, so that the microbes were found for up to 15 days in the respira-
tory pathways of mice with compound infection but only for 4 days in control
animals. No significant differences were observed in lung titers of influenza
virus between experimental and control animals. It is suggested that the
synergistic effect may be due to reduced phagocytosis in the lungs, as a result
of virus-induced destruction of ciliary epithelium and ensuing pulmonary edema.

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USSR

UDC 617-001.34-07:[616.839+616.45]-07

VEYN, A. M., MATLINA, E. Sh., and MURADKHANOV, M. A., Laboratory of Functional Control in Man and Animals imeni N. I. Grashchenkov, Academy of Sciences USSR

"Sympathoadrenal System in Patients With Vibration Sickness"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 10, 1971, pp 12-16

Abstract: Analysis of the excretion with urine of epinephrine, norepine-phrine, dopa, and dopamine in 50 patients with vibration sickness at rest and after functional tests (immersion of hands in cold water and subcutaneous injection of insulin) was performed. The excretion of norepinephrine was lower in the patients than in healthy controls, and the daily rhythm of catecholamine excretion was impaired, as shown by a marked decrease at night. In response to cold, only the excretion of norepinephrine increased in the patients, whereas both norepinephrine and epinephrine increased in the control. The injection of insulin decreased the excretion of epine-phrine, norepinephrine, dopamine, and dopa in the patients (i.e., it de-pressed the sympathoadrenal system) but increased that of epinephrine without affecting the other mediators.

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USSR

UDC 616-061.34-008

MURADKHANOV, M. A., Laboratory for Problems of the Control of Functions in the Organism of Man and Animals imeni N. I. Grashchenkov, Academy of Sciences USSR (director -- Academician V. V. Parin; directors of the work -- Prof A. M. Veyn and Doctor of Biological Sciences E. Sh. Matlina)

"Acetylcholine Content and Acetylcholinesterase Activity in Patients with Vibration Sickness"

Baku, Azerbaydzhanskiy Meditsinskiy Zhurnal, No 10, 1971, pp 36-41

Abstract: In an experiment involving 50 patients with vibration sickness and 10 healthy persons, it was found that the cholinergic activity of the blood of the former increased in response to stress.

When the were in a state of relative quiet, the subjects with vibration sickness were found to have a normal amount of acetycholine in the blood, but a lower than normal degree of acetylcholinesterase activity. Consequently, their cholinergic index, which is the ratio of acetycholinesterase activity to acetylcholine content, was also lower than normal.

Both groups of subjects were exposed to two forms of stress: a) their hands were immersed in cold water for 3 minutes, and b) 0.1-0.15 unit of insulin per kilogram of body weight was injected subcutaneously. No significant changes were observed in the healthy subjects. In the patients with

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MURADKHANOV, M. A., Azerbaydzhanskiy Meditsinskiy Zhurnal, No 10, 1971, pp 36-41

vibration sickness, there were no significant changes in acetycholinesterase activity, but there was an increase in the acetycholine content of the blood and a consequent lowering of the cholinergic index. Hence, due to the higher acetylcholine content, the cholinergic activity of the patients' blood increased.

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Acc. Nr: ·

AP0102964

A70-25931 #   Approximate picture of the distribution of plasma drift in the F2 region (Priblizhennaia kartina raspredeleniia dreifa plazmy v oblasti F2) A. Muradov (Akademiia Nauk SSSR, Institut Zemnogo Magnetizma, Ionosfery i Rasprostraneniia Radiovoln, Krasnaya Pakhra, USSR; Akademiia Nauk Turkmenskoi SSR, Institut Fiziki Zemli i Atmosfery, Ashkhabad, Turkmen SSR). Akademiia Nauk Turkmenskoi SSR, Izvestiia, Seriia Fiziko-Tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk; no. 1, 1970, p. 113-115. 8 refs. In Russian.

Calculation of the planetary distribution of drifts in the F2 region taking into consideration the effects of winds in the upper atmosphere. The latitudinal distributions of the vertical and the meridional velocity components of the drift are presented in graphs. The complex interaction effects of the motions of the neutral atmosphere and the ionospheric plasma are considered.   G.R.

REEL/FRAME
19861030

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USSR

KAGAN, Yu. M., MILENIN, V. M., and MURADOV, A. K.

"Investigating the Parameters of the Plasma of a Modulated Discharge in Helium"

Abstract: This brief communication describes experiments performed to investigate phenomena occurring when the current in a discharge in helium is modulated by frequencies in the range between a lower limit, at which frequency the electrons pass to the walls as a result of ambipolar diffusion, and an upper limit which is the frequency of formation of the electron distribution function according to energy. The apparatus for the experiments consisted of a cylindrical discharge tube with a heated cathode, the tube being 700 mm long with an inner diameter of 28 mm. On the tube axis at distances of 60 and 135 mm from the anode are two probes set at right angles to the axis. A block diagram of the tube and the rest of the equipment is given. Curves are plotted for the longitudinal electric field intensity as a function of the frequency, the electron distribution function according to energy, and the computed and experimentally measured electron distribution functions plotted
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on the same graph for the sake of comparison. Good agreement between the two is evident. The authors thank N. B. Kolokolcv and A. Blagoyev for their advice, and V. Fulit for his assistance in processing the results.

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1/2   022
UNCLASSIFIED
PROCESSING DATE--27NOV70

TITLE--ANALYSIS OF THE CORRELATIONS BETWEEN GEOLOGICAL AND GEOPHYSICAL
PARAMETERS OF THE EARTH'S CRUST IN SOUTHERN TURKMENISTAN -U-

AUTHOR-(05)-ODEKOV, O.A., ZAKHAROVA, L.T., KESELMAN, S.I., MURADOV, CH.,
YUVSHANOV, A.

COUNTRY OF INFO--USSR

SOURCE--ASHKHABAD, IZVESTIYA AKADEMII NAUK TURKMENSKOY SSR, SERIYA
FIZIKO-TEKHNICHESKIKH, KHIMICHESKIKH I GEOLOGICHESKIKH NAUK, NO 3, 1970,

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--EARTH CRUST, MOHOROVICIC DISCONTINUITY, GRAVITATION FIELD,
MAGNETIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0396

STEP NO--UR/0202/70/000/003/0083/0090

CIRC ACCESSION NO--AP0137488

UNCLASSIFIED

CIRC ACCESSION NO--AP0137488

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN SOUTHERN TURKMENISTAN THE DEPTH TO THE MOHOROVICIC DISCONTINUITY CORRELATES WELL WITH THE GRAVITY FIELD AND AGREES POORLY WITH THE MAGNETIC FIELD; IT AGREES SATISFACTORILY WITH RELIEF OF THE EARTH'S SURFACE. THE BEST CORRELATION WITH DEPTH TO THE MOHO IS WITH THE GRAVITY AND MAGNETIC FIELDS TOGETHER; RELIEF OF THE EARTH'S SURFACE IN COMBINATION WITH THE GRAVITY FIELD ALSO IMPROVES THE CORRELATION, BUT TO A LESSER DEGREE THAN IN THE PRECEDING CASE, BUT IN COMBINATION WITH THE MAGNETIC FIELD THE STANDARD DEVIATION IS BETTER THAN WHEN ONLY THE MAGNETIC FIELD IS TAKEN INTO ACCOUNT. IN A GEOSYNCLINAL REGION THE CLOSEST CORRELATION BETWEEN DEPTH TO THE MOHO IS OBSERVED WITH THE RELIEF OF THE EARTH'S SURFACE. AFTER COMPARING THE MEAN SQUARE ERRORS AND VARIATIONS OF DEPTH TO THE MOHOROVICIC DISCONTINUITY ONE CAN NOTE THAT IN THE GEOSYNCLINAL REGION THE DEPTH TO THE MOHO CAN BE PREDICTED FROM RELIEF OF THE EARTH'S SURFACE; IN PLATFORM REGIONS AND IN A ZONE OF DOWNWARPING IT CAN BE PREDICTED FROM THE GRAVITY FIELD. WITH RESPECT TO OPERATORS OBTAINED BY COMBINING GEOPHYSICAL PARAMETERS, IN ALL GEOTECTONIC REGIONS A SATISFACTORY PREDICTION CAN BE MADE WHEN THE GRAVITY AND MAGNETIC FIELDS ARE TAKEN TOGETHER.   FACILITY: INSTITUTE OF PHYSICS OF THE EARTH AND ATMOSPHERE.

USSR

UDC: 519.211:681.3

MURADOV, K. N., NEVZOROV, V. V., Institute of Cultivation, Ministry of
Agriculture of the Turkmen SSR

"Concerning a Procedure for Computing the Statistical Charac-
teristics of Random Processes on a Digital Computer"

Abstract: A computational algorithm is developed for evaluating statistical
characteristics as a basis for digital computer processing of certain ran-
dom processes which may be categorized as adaptive, having the property of
ergodicity. The algorithm is comprised of the following sequence of oper-
ations: 1. calculating the mean value of the process; 2. filtering the
process by centering relative to the instantaneous average; 3. calculating
the variance of the process; 4. calculating the mean square deviation;
5. calculating the coefficient of variation; 6. calculating the normed
autocorrelation function; 7. calculating the spectral density; 8. calcu-
lating the mutual correlation function; 9. calculating the mutual spectral
density. Analysis of oscillograms shows that the method is applicable to
the study of various mobile and stationary machines.
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USSR

UDC: $[537.226+537.311.33] : [537+535]$

AGASIYEV, A. A. and MURADOV, R. B.

"Some Peculiarities of Volt-Ampere Characteristics for Amorphous Films of AsSI and AsSeI"

Translation: The volt-ampere characteristics for switching and memory in amorphous sputtered films of AsSI and AsSeI, 1-5 μ thick, were observed. The threshold voltage was 4-20 volts, high resistance was 10^6–10^7 ohms, and the low resistance ≈ 10–10^2 ohms.

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USSR

UDC 612.821:612.819:612.825+612.822.3

IGNAT'YEV, D. A., KARNUP, S. B., MURADOVA, I. O. and ZHADIN, M. N.,
Institute of Biological Physics, USSR Academy of Sciences, Pushchino-na-Oke

"On the Interaction of Cortical Induced Potentials on the Elaboration of a
Conditioned Reflex"

Abstract: An attempt was made to develop concrete characteristics stipulating
similarity between induced potentials in the cerebral visual and motor cores
of rabbits registered during the early stages of defensive conditioned reflex
elaboration. The coefficient of cross-correlation, presentation of poten-
tials as a superposition of transient oscillations and factor analysis were
used. It was found that the coefficient of cross-correlation increased,
reached a maximum and then fell with a concomitant decrease in motor reac-
tions. This is shown to be due to the convergence of frequency and phase of
responses in the theta region. These results are said to show that Livanov's
concepts on the special role of theta-rhythm synchronization in stimulation
transmission may be extended to cortical induced potentials.

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MURADYAN,

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TECHNICAL TRANSLATION

FSTC-HT-23-2015-72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,
SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: I. A. DERYUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
IMENI T.G. SHEVCHENKO

Translated for FSTC by ACSI

NOTICE

The contents of this publication have been translated as presented in the original text. No
attempt has been made to verify the accuracy of any statement contained herein. This
translation is published with a minimum of copy editing and graphics preparation in order
to expedite the dissemination of information.

Approved for public release. Distribution unlimited.

USSR   UDC 691.31:539.376

ZADOYAN, M. A., MURADYAN, L. M., Yerevan Polytechnical Institute imeni K. Marks

"On the Nonlinear Creep of Concrete at High Temperatures"

Abstract: Extension of the theory of an elastic-creep body of Maslov-Arutyunyan
for high temperatures when the measure of the creep and the elasticity modulus
are highly dependent on temperature is discussed. The experimental results of
V. A. Kharlamov concerning the creep of concrete at high temperatures are
described and the creep kernel is constructed. Relationships between stress
and deformation are constructed considering high temperatures in the instan-
taneous deformation modulus and the creep deformation are derived by assuming
the creep is known as a function of age, temperature, and stress. Also derived
are relationships between lengthening and forces and curvatures and moments.
The problem of the stress state of a rod with fastened ends that is under the
effect of time-variable temperature is discussed in detail. The "Razdan-3"
computer was used in the calculations.

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USSR   UDC 577.1:615.7/9

GRIGORYAN, M. S. and MURADYAN, O. M.

"Effect of Molybdenum on Some Protective-Adaptive Reactions"

V sb. Materialy III Zakavkaz. nauch. konf. patofiziologiv, 1972 (Proceedings
of the 3rd Transcaucasian Scientific Conference of Pathophysiologists, 1972),
Tbilisi, 1972, pp 62-63 (from RZh-Biologicheskaya Khimiya, No 4, Feb 73,
Abstract No 4 F1899)

Abstract: Injection of rats with molybdenum (I) (0.025 to 600 mg/kg) increased
serum glycoproteins at doses of 0.025 to 20 mg/kg, less so at 50 to 200 mg/kg;
further increases in the dose of I and duration of its administration lowered
the glycoprotein level. The results were similar with respect to the effect
of I on sialic and neuraminic acids and on ceruloplasmin and lysozyme activi-
ties. It was concluded that I causes a state of dystonia in individual
elements of the autonomic system, as was previously shown in the case of the
acetylcholine-cholinesterase system and pyrocatechins.

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USSR   UDC 621.384.6+539.12

BLOKHINTSEV, D. I., YEFREMOV, A. V., and MURADYAN, R. M., Joint Nuclear Research Institute, Dubna

"The Planning of New Accelerators and Problems in Modern Elementary Particle Physics"

Moscow, Uspekhi Fizicheskikh Nauk, Vol 109, vyp 2, Feb 73, pp 259-268

Abstract: The article is based on a note commissioned by the Nuclear Physics Department of the Academy of Sciences USSR and compiled by a group of theoretical physicists consisting of D. I. BLOKHINTSEV, S. S. GERSHTEYN, G. V. YEFIMOV, A. V. YEFREMOV, V. G. KADYSHEVSKIY, A. A. KOMAR, V. A. MATVEYEV, V. A. MESHCHERYAKOV, R. M. MURADYAN, V. I. OGIYEVETSKIY, and A. T. FILIPPOV and delivered at an expanded session of the department.

The article begins with a brief survey of the characteristics of accelerators now in operation or in the planning stage and their updating. The 76-Gev proton accelerator in Serpukhov is to be updated by changing to superconducting magnets, which will permit an energy of the order of 1000 Gev.

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BLOKHINTSEV, D. I., et al., Uspekhi Fizicheskikh Nauk, Vol 109, vyp 2, Feb
73, pp 259-268

There are plans for the creation of 2X23-Gev proton-antiproton counterbeams
in Novosibirsk. As for electron acceleration, a 2X700-Mev beam is in opera-
tion in Novosibirsk.

    The main part of the article deals with "the most general and, at the
same time, fundamental problems in elementary particle physics." These in-
clude: a) the search for an "elementary length"; b) the search for quarks,
Schwinger's dions, intermediate bosons, Dirac's monopole, and heavy leptons;
c) strong interactions (throwing light on the mechanism for the interaction
of hadrons and their mass spectrum); d) electromagnetic interactions (the
search for deviation from quantum electrodynamics and the problem of the
difference between a mu-meson and electron, as well as the question of how
universal self-similarity or scale invariance is); e) weak interactions
(the problem of their dynamic nature).

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USSR

The article concludes by discussing promising directions for accelerator development: a) the updating of existing machines with a sharp increase in the intensity of the primary beam and, hence, secondary beams or with polarized particle acceleration; b) the creation of proton accelerators (based on superconducting magnets) with a proton energy of $E > 1000$ Gev ($W > 40$ Gev), with subsequent organization of counterbeams with a center-of-mass energy $W \gg 300$ Gev; c) research on collective methods of acceleration to superhigh energies of many thousands of gigaelectronvolts, especially the Veksler-Sarantsev method, for the creation of extremely high-energy hadron and lepton beams; d) the creation of $e\bar{e}$, $\mu\bar{\mu}$, and $p\bar{p}$ counterbeams with energy W as close to 300 Gev as possible.

The authors hope that they fully reflected the work of the entire group and thank the participants for their comments.

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MURADYAN, - R. M.

AEC/BNL

BNL-TR-542

(H)

(3)

MODERN ELEMENTARY PARTICLE PHYSICS
AND DEVELOPMENT OF NEW ACCELERATORS*

D. I. Blokhintsev, A. V. Efremov, and R. M. Muradyan

*This article, which is based on a report to the Department of Nuclear Physics of the Academy of Sciences of the USSR, was drafted by a group of theoretical physicists, D.I. Blokhintsev, S.S. Gershtein, G.V. Efimov, A.V. Efremov, V.G. Kaydalovskii, A.A. Komar, V.A. Matveev, V.A. Meshcheryakov, R.M. Muradyan, V.I. Ogievetskii, and A.I. Filippov, and was presented at the general session of the department.

UNCLASSIFIED

TITLE--SOLUTION OF THE "RANDOM WALK" PROBLEM IN THE SPACE OF CONSTANT CURVATURE -U-

AUTHOR--MURADYAN, R.M.

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 2, NR 3, PP 328-332

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CIRC ACCESSION NO--AP0102067   UNCLASSIFIED   PROCESSING DATE--16OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXACT SOLUTION IS GIVEN OF THE
  "RANDOM WALK" PROBLEM ON THE SPHERE AND IN THE LOBACHEVSKY SPASE.

UNCLASSIFIED

USSR

KRINITSKIY, R. L., MURAKHIN, A. A.

"Comparative Analysis of Some Pulse Systems With Phase AFC by the Method of z-Transformations"

Abstract: The authors define the stability conditions, effective band and the optimum relations for the parameters of smoothing circuits which minimize the band in systems with first and second order astaticism and with a proportionally integrating filter. Formulas are given which define the effective band at the minimum. The limits at which discrete proper- ties appear are defined more precisely. Formulas are derived for deter- mining the dynamic errors. The basic properties of these pulse-type phase AFC systems are analyzed on the assumption that the phase detector has a triangular response, and that the smoothing circuits satisfy the condi- tions of an infinite degree of stability. The analytical investigation is supplemented by experimental data. Seven figures, bibliography of five titles.

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USSR

UDC   621.37.434(088.8)

MALYUTIN, N. I., KRINITSKIY, R. L., MURAKHIN, A. A.

"A Balancing Clamper"

USSR Author's Certificate No 253127, Filed 30 Jan 67, Published 23 Jan 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D68 P)

Translation: This Author's Certificate introduces a clamper with an integrating capacitor which stores the peak voltages of brief bipolar pulses. To reduce the time constant of the charge and attenuate shunting of the pulse channel, the integrating capacitor is connected to the centertap of the secondary winding of the transformer (the primary winding is connected to the synchronization input). N. S.

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- 80 -

medicine

MURAKHOVSKIY, D.I.

When treating a large heart in cardiosurgery by means of carotid-coronary perfusion, there is temporary arrest of blood supply to the organs below the diaphragm. The permissible duration of lack of blood supply to the organs depends on the nature or development of hypoxic changes and, in the opinion of a number of authors (A.A. Vishnevskiy et al.) it constitutes 10 minutes. Our previous investigations (G.A. Avetisilov et al., 1969) revealed that histochemical changes arise sooner in ischemic organs. Subsequent progress and successful use of the method of carotid-coronary perfusion in clinical practice confronts investigators with the problem of finding means to increase the tolerance of organs when they are excluded from the circulation.

In the present work we investigated the consequences of 20- and 60-minute ischemia with reference to the oxidizing enzymes of the dog's kidney and the protective influence of some metabolic activators on this organ. To test the tolerance of the kidney we studied the activity of oxidizing enzymes related to metabolism of amino acids -- and proteins: glutamate dehydrogenase, carbohydrates, and lipids -- α-glycerophosphate dehydrogenase of plasma and mitochondria, and succinate dehydrogenase which serves as an indicator of intensity of oxidizing processes in ... cycle, ... used cytochrome "c", ATP, lactoacine triphosphate, and carboxylase as metabolic activators used to protect the kidney when it was excluded from the circulation.

Experiments were conducted on 12 dogs of both sexes, weighing 3-5 kg. The animals received morphine premedication, hexenal induction and ether-oxygen with anesthesis; the depth of which at III₁-III₂ was regulated by means of continuous electroencephalography. When a specific depth of anesthesia was reached the animals were cooled by the immersion method to a temperature of 30° (in the esophagus and portum). After insertion ... the left kidney was cut off of the circulation by apply laparotomy. ... of the rationed preparations ...

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1/2   019

TITLE--X RAY EMISSION K SUBBETA SPECTRA OF SULFUR IN SOME SULFUR
CONTAINING COMPOUNDS AND THEIR RELATION TO THE STRUCTURE OF THESE
AUTHOR-(05)-NIKOLAYEV, A.V., MAZALOV, L.N., SADOVSKIY, A.P., GALTSOVA,
E.A., MURAKHTANOV, V.V.

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SUBJECT AREAS--CHEMISTRY

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ORBITAL, MOLECULAR STRUCTURE, PALLADIUM COMPOUND, COORDINATION
CHEMISTRY, CHEMICAL BONDING, SULFIDE

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CIRC ACCESSION NO--AT0116996

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE X RAY EMISSION SPECTRA WERE
REPORTED FOR CS SUB2 AND R SUB2 S WHERE R WAS SELECTED FROM ME, ET, BU,
C SUB6 H SUB13, AND C SUB8 H SUB17.   THE ELECTRON DS. WERE CALCD. AT
THE S ATOMS IN THESE SUBSTANCES BY USING THE HUECKEL APPROXN. OF THE
LCAOMO METHOD.   FROM THE TABULATED DATA THE CHARGE ON THE S ATOM
DECREASES IN COMPDS. IN WHICH IT IS POSSIBLE TO HAVE A PI BOND BETWEEN S
AND THE ATTENDANT RADICAL. THE S CHARGE VALUES WERE AS FOLLOWS FOR R
SUB2 S MOLS.: BU 1.975, ET 1.974, ME 1.974, PH 1.913; THE INDICES OF
FREE VALENCE OF THE S ATOM WERE, RESP., 1.045, 1.045, 1.043, AND 0.344.
SPECTRA WERE ALSO REPORTED FOR THE PRODUCTS OF EXTN. OF PDCL SUB2 BY R
SUB2 S WHERE R EQUALS PH OR C SUB6 H SUB13. IN THESE CASES THE PD-S
BOND FORMATION CHANGES THE NATURE OF THE EMISSION SPECTRUM DRASTICALLY
RELATIVE TO R SUB2 S OWING TO ELECTRON REDISTRIBUTION AND THEIR
COORDINATION WITH PD.   FACILITY: INST. NEORG. KHIM.,
NOVOSIBIRSK, USSR.

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TITLE--CALCULATION OF THE ABSOLUTE ENERGY OF X RAY EMISSION TRANSITIONS OF
A HYDROGEN CHLORIDE MOLECULE IN AN APPROXIMATION OF THE UNIFIED ATOM

AUTHOR-(05)-NIKOLAYEV, A.V., MAZALOV, L.N., MURAKHTANOM, V.V., SADOVSKIY,
A.P., GUZHAVINA, T.I.

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