

USSR

STULOV, V. P., SHAPIRO, Ye. G., Izvestiya Akademii Nauk SSSR, Mekhanika
Zhidkosti i Gaza, No 1, Jan-Feb 1970, pp 154-160

Therefore the region of the surface of the body in which radiative heating exceeds convective heating is concentrated in the leading part of the body around which the stream flows.

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Aeronautical and Space

USSR

UDC 533.6.011.5

STULOV, V. P., Moscow

"Strong Injection on the Surface of a Blunt Body in a Supersonic Flow"

Moscow, Mekhanika zhidkosti i gaza, No. 2, Mar/Apr 72, pp 89-97

Abstract: Supersonic flow over a blunt body is investigated theoretically for the case when a different gas is injected according to a given law through the surface of the body. Molecular transfer processes are neglected and flow between the shock wave and surface of the body is considered as a two-layer flow: flow in the shock wave between the shock wave and the contact surface and flow in the layer of injected gas. A numerical solution for the problem is obtained at the nose portion of the body and its accuracy is evaluated. Approximate analytical solutions are obtained for the layer of injected gas: a solution with constant density and a solution of the boundary layer type using the approximation of local automodeling of the flow. The numerical and analytical solutions approximate one another close to the axis of the flow, but the accuracy of the approximate solutions breaks down as distance from the axis increases due to the assumptions made in the solutions. It is noted that

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STULOV, V. P., Mekhanika zhidkosti i gaza, No. 2, Mar/Apr 72, pp 89-97

this flow can serve as a gasdynamic model for many problems describing radiant heating of blunt bodies in a hypersonic flow; under intensive radiant heat exchange evaporation of the body is so considerable that the thickness of the vapor layer is comparable to the thickness of the shock layer. It is suggested that thermal protection can be achieved by forced injection of a highly absorbing substance in the channel over which the radiating plasma moves.

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USSR

UDC 612.2+612.76

POPKOV, V. L., MAILYAN, E. S., GALUSHKO, Yu. S., KOVALENKO, Ye. A., ZAYTSEVA, Ye. I., NITOKHINA, I. A., STULOVA, L. V., and RYAZHSKIY, A. V., Institute for Biomedical Problems

"Shifts in Gas Exchange, Gas Homeostasis, and Tissue Respiration In Rats During Prolonged Hypokinesia"

Leningrad, Fiziologicheskii Zhurnal USSR imeni I. M. Sechenov, Vol 41, No 12, 1970, pp 1,808-1,812

Abstract: General gas exchange, pO_2 , and pCO_2 did not change significantly in the tissues of rats kept immobilized in special cages for 60 days. However, during the second month of the experiment, there were periods when the intensity of respiration increased in the liver and decreased in the myocardium. After two months of hypokinesia, the weight of experimental rats was substantially less than that of the control (273 ± 10 g and 392 ± 18 g, respectively). Also the physical fitness of the experimental animals declined sharply with respect to both dynamic and static work. The duration of maximum dynamic work decreased more than 2.5-fold while the capacity for static work decreased 9-fold.

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USSR

UDC 539.193:547.242

KOPAYEVICH, YU. L., STUMBREVICHUTE, Z. A., FEDOROV, L. A., and GERMAN, L. S.

"NMR Spectra and Structure of Polyfluoroalkylarsines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 1140-1147

Abstract: Derivatives of bis(pentafluoroethyl)arsinous acid, of mixed tertiary arsines, derivatives of bis(α -chlorotetrafluoroethyl)arsinous acid, and tertiary arsines were studied by NMR ^{19}F spectroscopy. Spectral characteristics originating from the presence of chiral and prochiral centers in the compounds studied have been observed and discussed. The As-Hlg bonds were shown to be very labile. Inversion of the arsenic atom was shown to be slow (in the NMR time scale).

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USSR

UDC 616-036.882-08:615.471:616.127:616-089.583.29

MESHALKIN, Ye. N., RED'KO, Ye. S., STUNZHA, Ye. A., SADCHIKOV, I. V.,
FILLIMONOV, Ye. S., and SERGEYEV, Ye. N., New Siberian Scientific Research
Institute of the Pathology of Circulation, Ministry of Health RSFSR

"Resuscitation of the Organism After Prolonged Clinical Death by Means of an
Artificial Circulation Apparatus in Association With Hemodilution and Hypo-
thermia"

Kiev, Vrachebnoye Delo, No 4, 1973, pp 73-77

Abstract: To refine the method, experiments were conducted on 72 anesthetized
dogs in which uni- or bilateral thoracotomy was performed and clinical death
(disappearance of EEG waves) caused by discontinuation of artificial respira-
tion and induction of cardiac arrest. Eight to 18 min after clinical death,
resuscitation was begun with blood flow maintained by a pump either through
the coronary and carotid arteries or through the whole body at rates of 60-120
ml/kg/min, under normothermia or hypothermia, with utilization of heparinized
donor blood or a plasma expander to achieve hemodilution. The total perfusion
time was 40-60 min. Resuscitation was considered successful if normal EEG,
effective heart activity, spontaneous respiration, renal function, motor
activity, and unconditioned and some conditioned reflexes were restored. The

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MESHALKIN, Ye. N., et al., Vrachebnoye Delo, No 4, 1973, pp 73-77

optimal conditions -- whole-body perfusion at a rate of 80-100 ml/kg/min, with blood diluted to about 6-8 g% Hb, and a hypothermia of 28-30°C achieved in 5-8 min -- yielded a recovery rate of 80%. This method was subsequently applied on 19 patients during cardiac surgery complicated by cardiac arrest and failure of all other therapeutic measures. Five patients were successfully resuscitated; they recovered and were eventually discharged from the hospital in satisfactory condition. The case history of a 12-year old cardiac surgery patient is given.

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1/2 040

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--ELECTRON ELECTRON DOUBLE RESONANCE OF TRIPLET EXCITONS. II. SPIN EXCHANGE OF TRIPLET EXCITONS WITH PARAMAGNETIC IMPURITY CENTERS -U-
AUTHOR--(03)-STUNZHAS, P.A., BENDERSKIY, V.A., SOKOLOV, YE.A.

COUNTRY OF INFO--USSR

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SOURCE--OPT. SPEKTROSK. 1970, 28(3), 487-91

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EXCITON, ELECTRON RESONANCE, ORGANIC CRYSTAL, CRYSTAL IMPURITY, ELECTRON SPIN, IMPURITY CENTER, EPR SPECTRUM, PHYSICAL DIFFUSION, ACTIVATION ENERGY, TEMPERATURE DEPENDENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1996/1432

STEP NO--UR/0051/70/028/003/0487/0491

CIRC ACCESSION NO--AP0118421

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--A0118421

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRON DOUBLE RESONANCE SPECTRA OF TRIPLET EXCITONS (PRIME3 T) AND PARAMAGNETIC IMPURITY CENTERS (PRIME2 II) WERE STUDIED IN THE CRYSTALS OF COMPLEX SALT OF TETRACYANOQUINODIMETHAN WITH METHYLTRIPHENYLPHOSPHONIUM. CONCN. OF PARAMAGNETIC IMPURITIES WAS 0.1-0.2PERCENT. ELECTRON DOUBLE RESONANCE WAS CAUSED BY SPIN EXCHANGE PROCESSES: PRIME3 TO SUB0 PLUS PRIME3 T SUBPOSITIVEL PLUS PRIME3 T SUBNEGATIVEL (1) AND PRIME3 T SUBJ PLUS PRIME2 II SUBNEGATIVEONEHALF EQUALS PRIME3 T SUBJMINUS1 PLUS PRIME2 II SUBONEHALF; J EQUALS 0, 1 (2). THE RATE CONST. OF PROCESS (2) DOES NOT DEPEND ON THE TEMP. IN THE RANGE 115-80DEGREESK AND CORRESPONDS TO THE PROCESS LIMITED BY DIFFUSION (GAMMA T II EQUALS 8 TIMES 10 PRIME NEGATIVE13 CM PRIME3-SEC). THE TEMP. DEPENDENT RATE CONST. FOR PROCESS (1), WITH ACTIVATION ENERGY 0.06 EV, COINCIDES WITH THAT FOUND FROM THE BROADENING OF EPR LINES. AT 155DEGREESK GAMMA TT EQUALS 2 TIMES 10 PRIME NEGATIVE12 CM PRIME3-SEC. FROM THE DIFFERENCE IN THE TEMP. DEPENDENCE OF GAMMA T II AND GAMMA TT THE CONCLUSION WAS DRAWN THAT EXCITON MOTIONS ARE ACTIVATIONLESS BUT THEIR SPIN EXCHANGE REQUIRES ACTIVATION ENERGY.

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UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--ELECTRON ELECTRON DOUBLE RESONANCE OF TRIPLET EXCITONS. I. SPIN EXCHANGE OF TRIPLET EXCITONS IN ION RADICAL SALTS -U-
AUTHOR--(04)--STUNZHAS, P.A., BENDERSKIY, V.A., BLYUMENFELD, L.A., SOKOLOV, YE.A.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(2), 278-83

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON RESONANCE, EXCITON, ION RADICAL, ORGANIC CRYSTAL, ORGANIC SACT, ELECTRON SPIN, TEMPERATURE DEPENDENCE, SPECTRAL LINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1984/0371

STEP NO--UR/0051/70/028/002/0278/0283

CIRC ACCESSION NO--AP0055156

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0055156
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. CHANGES IN THE INTENSITY OF THE ZEEMAN 0 YIELDS 1 TRANSITION OF TRIPLET EXCITONS DURING SATN. OF MINUS 1 YIELDS 0 TRANSITION IN CRYST. ION RADICAL SALTS OF TETRACYANOQUINOMETHANE WERE STUDIED. AT LOW TEMPS., AN INCREASE OF INTENSITY OF 0 YIELDS 1 TRANSITION CAUSED BY AN INCREASE OF POPULATION OF S SUBZ EQUALS 0 LEVEL WAS OBSD. IF THE MINUS 1 YIELDS 0 TRANSITION WAS SATD. AS THE TEMP. WAS INCREASED, THE EXCITON CONC. INCREASED AND THE PROCESS OF SPIN EXCHANGE PRIME3 T SUBO PLUS PRIME3 T SUBO EQUALS PRIME3 T SUB NEGATIVE1 PLUS PRIME3 T SUB POSITIVE1 CAUSED A DECREASE OF INTENSITY OF THE 0 YIELDS 1 TRANSITION. EQUATIONS WERE DERIVED FOR THE ESTN. OF FREQUENCES OF SPIN EXCHANGE FROM THE ELECTRON ELECTRON RESONANCE DATA. THEIR TEMP. DEPENDENCE AGREED WELL WITH THAT DETD. FROM EXCHANGE BROADENING. THE EFFECT OF ELECTRON ELECTRON DOUBLE RESONANCE IN THE REGION OF WEAK, BETWEEN LINE ABSORPTION WAS DISCOVERED.

UNCLASSIFIED

USSR

Coatings

UDC 621.744.079

STUPACHENKO, Yu. T.,
and DEITRIYEV, B. P.

SHTEYNBERG, L. A., GENDLER, A. Kh.,

"Separating Protective Coating for Model Equipment"
Moscow, Mashinostroitel', No 11, Nov 73, p 23

Abstract: The PELT-1 composition (Author's Certificate No 257702) has been developed in the capacity of a separating protective coating for the foundry equipment at Zaporozh'ye Technological Design and Planning Institute. The composition consists of polyvinyl chloride chlorinated resin PSKh-N, epoxy resin ED-6, polyethylene-polyamine, R-4 solvent, and titanium dioxide. The preparation of the composition, its principal component - the fillers, the introduction of the hardening agent (10 weight parts polyethylene-polyamine) and of the filler (100 weight parts titanium dioxide), and the application method of the coating are described. The PELT-1 composition is recommended as protective coating of the wooden model equipment, of parts of agricultural machines for preparing and distribution of fertilizer, and of the metallurgical equipment for preparing exothermal mixtures.

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USSR

UDC 577.472(26):576.851

KRISS, A. Ye., STUPAKOVA, T. P., and TSYBAN', A. V., Institute of Microbiology,
Academy of Sciences USSR

"Ecological and Geographic Patterns of Distribution of Heterotrophic Bacteria
in the Central Pacific"

Moscow, Mikrobiologiya, No 3, 1972, pp 542-549

Abstract: The quantitative distribution of heterotrophic bacteria was studied (by growing them on membrane ultrafilters) at different depths of the Pacific from the surface to the bottom. Samples were obtained at stations in all the geographic zones from the subarctic to the subantarctic. The density of the microbial population was found to decrease toward the Central Pacific, although remaining greater than in the corresponding regions of the Atlantic. This phenomenon is attributed to the many islands in the tropical Pacific lying near Asia and Australia which discharge large quantities of organic matter into the surrounding waters. The general pattern is for water layers of equatorial-tropical origin with a high content of heterotrophic bacteria to alternate with layers of arctic or antarctic origin possessing a low bacterial abundance.

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USSR

UDC 621.317.78

STUPAR', V. I.

"Device for Measuring UHF Signal Power"

USSR Author's Certificate No 363041, Cl. G 01r 21/12, filed 27 Jul 70, published 20 Dec 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 3, 1973, p 89)

Abstract: The device contains a rectangular waveguide section with a string positioned in it and a reading device. The unique feature is that, to increase the sensitivity of the device, the string is fixed in the waveguide cavity asymmetric about its wide walls, while the reading device is mounted on two opposite sides of the string along the narrow walls of the waveguide. An illustration is given.

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USSR

~~STUPAR, V. I.~~ YAKUSHEV, Zh. F.

UDC: 621.317.78

"A. Pondermotor SHF Wattmeter of Torsional Type"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy,
Tovarnyye Znaki, No 32, Nov 71, Author's Certificate No
318876, Division G, filed 10 Mar 70, published 28 Oct 71

Translation: This Author's Certificate introduces a ponder-
motor SHF wattmeter of torsional type containing a rectangular
waveguide housing in which a moving element is mounted by
means of a suspension device. As a distinguishing feature
of the patent, the sensitivity of the instrument is increased
and matching of the moving element in the waveguide is im-
proved by making this moving element in the form of a half
wave plate, while the waveguide section at the point where
the plate is located is made in the form of a twist around the
longitudinal axis, the angle of twist being in the direction
of rotation of the plate.

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USSR

UDC: 621.317.784.023(088.8)

STUPAR', V. I.

"A Ponderomotive Microwave Watt Meter"

USSR Author's Certificate No 282457, filed 1 Nov 68, published 11 Dec 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A273 P)

Translation: This Author's Certificate introduces a ponderomotive microwave watt meter of the torsional type. As a distinguishing feature of the patent, the sensitivity of the instrument is improved by making the actuating plate from a polarizable material; this plate is prepolarized and set in the waveguide in such a way that the axis of polarization of the material is parallel to the electric field strength vector of the wave propagated in the waveguide.

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USSR

UDC 621.382.2

STOPEL'MAN, V. Sh.

"Punch-Trough Breakdown of P-N Junctions in Silicon P-N-P and N-P-N Structures"

Elektron. tekhnika. Nauchno-tekhn. sb. Materialy (Electronic Technology. Scientific-Technical Collection. Materials), 1970, Issue 5, p 141 (from *EZh--Elektronika i yeye primeneniye*, No 5, May 1971, Abstract No 5B94)

Translation: Punch-through breakdown of abrupt p-n junctions in p-n-p and n-p-n silicon structures was studied. The magnitude of the punch-through voltage was determined by several methods which gave corresponding results. The voltampere characteristics make it possible to use the punch-through phenomenon for stabilization and limitation of the voltage. The temperature coefficient of the stabilization voltage is negative and amounts to from $3 \cdot 10^{-5}$ to $1.6 \cdot 10^{-3}$ degree⁻¹, and as is known, with an increase of the current it is decreased. The magnitude of the dynamic resistance R_d is abruptly decreased with an increase of the current and increases with a rise in temperature, which explains the decrease of the drift velocity of current carriers. It is determined that, other conditions being equal, the magnitude R_d in a n-p-n structure is smaller than in a p-n-p. The reasons for this phenomenon are considered. Author's Abstract.

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1/2 034

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--ON THE DEFORMATION PROPERTIES OF A QUASIDILATANT DISPERSE SYSTEM AT
LOW SHEAR STRESSES -U-
AUTHOR--(05)-STALNIV, A.K., KRASHENINNIKOV, A.I., DEMISHEV, V.V., PETROV,
E.A., STUPEN, L.V.
COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 308-309

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CHEMICAL SUSPENSION, COPOLYMER, ACRYLONITRILE, ACRYLATE, SHEAR
STRESS, MATERIAL DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1548

STEP NO--UR/0069/70/032/002/0308/0309

CIRC ACCESSION NO--AP0112542

UNCLASSIFIED

278 034

CINC ACCESSION NO--AP0112542

UNCLASSIFIED

PROCESSING DATE--02DCT70

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

ABSTRACT. DEFORMATION OF SUSPENSIONS OF A COPOLYMER OF ACRYLONITRILE WITH METHYLACRYLATE IN 2-NITROPROPANOL, 1 AT LOW SHEAR STRESSES INVOLVES THE FORMATION IN THE SYSTEM OF A STRUCTURE THE STRENGTH OF WHICH IS GREATER THAN THE SHEAR STRESS APPLIED. UNDER ISOTHERMAL CONDITIONS THE STRENGTH OF THE STRUCTURE FORMED DIMINISHES WITH TIME AFTER THE LOAD IS REMOVED.

UNCLASSIFIED

USSR

UDC 582.263:581.1:08

PALAMAR-MORDVINSEVA, G. M. and STUPINA, V. V., Institute of Botany, Academy of Sciences, Ukrainian SSR

"Effect of the Supernatant Fluid of an *Ankistrodesmus braunii* Brunth Culture on the Development of Some Wild Species of Algae in Effluent from the Chernigov Chemical Fiber Plant"

Kiev, Ukrains'kiy Botanichnyi Zhurnal, No 3, 1972, pp 294-299

Abstract: Laboratory experiments with *Ankistrodesmus braunii* Brunth showed that in the course of its vital processes the alga releases physiologically active substances that can stimulate or inhibit the growth of other algae, e.g., some wild species of *Chlorella*, *Scenedesmus*, *Pinnularia*, and *Chlamydomonas*. Whether the supernatant fluid of an *A. braunii* culture stimulated or inhibited wild algae depended on the size of the dose used and on the conditions under which it was grown (age of the culture and nutrients used).

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AP0007544

INTERNAT. AEROSPACE ABST. 1/70 U R 0 2 0 7

A70-10994 #
EXPANSION OF PARTIALLY IONIZED ARGON IN A HYPER-
SONIC NOZZLE (RASSHIRENIE CHASTICHNO IONIZOVAN-
NOGO ARGONA V GIPERZVUKOVOM SOPLE).
G. I. Kozlov, D. I. Roitenburg, and E. L. ~~Stupitskii~~

PMTF—Zhurnal Prikladnoi Mekhaniki i Tekhnicheskoi Fiziki, July-
Aug. 1969, p. 22-31. 8 refs. In Russian.
Theoretical and experimental study of the parameters of
partially ionized frozen or relaxing equilibrium flows of argon in a
hypersonic nozzle. Equations are derived for determining the Mach
numbers, the electron density, and the temperature in such flows.
Good agreement is obtained between the theoretical and experi-
mental results for the recombination rates during triple particle
collisions. Gasdynamic and probe techniques are applied in the shock
tube experiments. It is found that at high ionization levels a partially
ionized argon flow has electron-ion recombination rates sufficiently
high to maintain a near-equilibrium state during expansion in a
supersonic nozzle. It is also shown that deactivation of the excited
atoms during collisions has a substantial effect on the behavior of the
electron temperature in such flows.

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USSR

UDC: 548.0:539.4.015

STUPKINA, L. M.

"Investigating the Stability of Diamonds Under Shock Loads"

Moscow, Kristallografiya, Vol. 15, No. 4, 1970, pp 841-844

Abstract: Since diamonds are widely used in industry, this inquiry into the dynamic durability of diamonds compared with their durability under static loading is of practical value. In the experiments described in this brief communication, Yakut diamond octohedral crystals with flat facets and sharp costals as well as other types were subjected to dynamic destruction. The 237 diamonds tested were placed in a vertical impact tester especially designed for this purpose, where weights of 50 and 100 grams dropped from heights of 40 and 30 cm. In all the experiments, the direction of the shock coincided with the crystallographic third-order axis. The test showed that the resistance of diamonds to shock is not a constant quantity but depends on the morphological type of the crystal, the defects in it, and the specimen dimensions. The data obtained are given in the form of two tables and a curve showing the change in crusher deformation as a function of the work done.

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USSR

STUPNIKOV, A. A. and KLEVTSOV, Ye. D.

"A Conference on Respiratory Diseases of Poultry"

Moscow, Veterinariya, No 1, 1972, pp 124-125

Abstract: The above conference was held in June 1971 in the city of Pyatigorsk. Papers were read on "industrialization diseases" of birds (A. A. Pak), organization of measures to prevent and eradicate Newcastle disease (M. I. Chagayev), status of research on the etiology, diagnosis, prevention, and eradication of respiratory diseases of poultry (V. N. Syurin), specific prevention of Newcastle disease in infected regions (B. M. Savich), evaluation of postvaccinal immunity to Newcastle disease (R. N. Korovin), infectious laryngotracheitis (V. V. Malushko), infectious bronchitis (A. B. Teryukhanov), respiratory mycoplasmosis (O. V. Vinokhodov), disinfection of poultry houses (A. A. Zakomyrdin), cultural virus vaccine against Newcastle disease and infectious laryngotracheitis (A. V. Khachatryan), rapid methods for diagnosing Newcastle disease and classical fowl plague in poultry (G. A. Safonova), methods of mass immunization of poultry against Newcastle disease (I. M. Bondarenko), simultaneous vaccination of poultry against Newcastle disease and smallpox (A. B. Kachakhidze), simultaneous

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USSR

STUPNIKOV, A. A. and KLEVTSOV, Ye. D., Veterinariya, No 1, 1972, pp 124-125

vaccination of hens against smallpox and infectious laryngotracheitis (A. B. Kachakhidze), improved inactivated vaccine against Newcastle disease (I. G. Skutarya), standardized preparation of specific fluorescent antibodies to classical fowl plague and Newcastle disease (A. F. Shurchilova), use of aerosols of antimicrobial preparations in poultry raising (V. D. Sokolova), and genetic basis for increasing the resistance of poultry to mycoplasmosis (A. S. Serebryakov).

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USSR

UDC 636.22/28:576.8.097.29

BOLTUSHKIN, A. N., KOVAL'SKAYA, M. G., LUPANDINA, K. N., and STUPNIKOV, V. D.,
Leningrad Veterinary Institute; Leningrad Oblast' Veterinary Laboratory

"Fusariotoxicoses of Cattle"

Leningrad, Mikologiya i Fitopatologiya, Vol 5, No 1, 1971, pp 75-76

Abstract: For a number of years, fusariotoxicoses of cattle that developed as a result of consumption of straw, grain, and stubble infected with Fusarium fungi have been observed in the USSR. In 1967-69, fusariotoxicosis of cattle occurred at the Experimental Model Farm Kolozhitsy in Volosovsk Rayon, Leningrad Oblast', after the cattle had been driven to pasture on a harvested rye field. The symptoms and pathological-anatomical changes in the diseased cattle were identical with those observed in cattle upon experimental feeding of grain infected with Fusarium sporotrichiella. Symptomatic treatment was applied. F. graminearum and F. oxysporum were isolated from samples of straw stalks, ears, and rye grains collected from the field and used as feed by the cattle. The degree of infection of the feed with these fungi was 40-100%. The cultures of fungi that were isolated were considered toxic on the basis of lethality for Paramecia caudata and the effect on the

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USSR

BOLYUSHKIN, A. N., et al., Mikologiya i Fitopatologiya, Vol 5, No 1, 1971,
pp 75-76

skin of rabbits of ether extracts of the fungi. Similar symptoms were
shown in 1962 by cattle on the farm in question, but the disease was not
identified then.

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USSR

UDC: 533.6.011.72

DORONIN, G. S., STUPNIKOV, V. P., ROMAN'KOV, V. V., BELENEKIY, V. Ya., ZASLAVSKIY, B. I., and BATSANOV, S. S.

"Compression of Plexiglass Cylinders by Glancing Detonation Waves"
Leningrad, Zhurnal tekhnicheskoy fiziki, No 5, 1973, pp 1059-1064

Abstract: This article pertains to the physical-chemical investigation of materials, subject to dynamic compression, which are kept in cylindrical containers under glancing detonation waves. Research of this type is now being intensively pursued. The purpose of this paper is to investigate the irregular reflection of shock waves in plexiglass cylinders under compression by glancing detonations, by a method suggested in an earlier article (G. A. Adadurov, et al, Fiz. gor. vzryva, vol 3, No 2, p 281, 1967). This method proposed using, as a model of the cylinder, plexiglass cylinders observed by high-speed photography to investigate the picture of the air flow through the fine, scintillating gaps between the plates composing the cylinders. A description is given of the explosive material used in the experiments and, briefly, of the experimental equipment. Results of the experiments are given in the form of curves of the change in velocity of the shock waves and

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USSR

UDC: 533.6.011.72

DORONIN, G. S., et al, Zhurnal tekhnicheskoy fiziki, No 5, 1973,
pp 1059-1064

the relative dimensions of the main shock wave as functions of the cylinder length. A description of the picture of the phenomenon is given together with an explanation of the results as shown by the curves.

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172 009

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--CALCULATION OF SHOCK ADIABATS OF MIXTURES AND POROUS MATERIALS -U-

AUTHOR--(02)-DORONIN, G.S., STUPNIKOV, V.P.

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COUNTRY OF INFO--USSR

SOURCE--IZV. SIB. OTD. AKAD. NAUK SSSR. SER. TEKH. NAUK 1970, (1), 102-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POROUS METAL, LITHIUM FLUORIDE, SODIUM CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1336

STEP NO--UR/0258/70/000/001/0102/0105

CIRC ACCESSION NO--AP0121829

UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AP0121829

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN INVESTIGATION OF THE SHOCK ADIABATS OF MIXTS. OF NA₂CO₃ AND LiF POWERS REVEALS THAT THE ENERGY OF A POROUS BODY DURING SHOCK COMPRESSION IS COMPOSED OF THE COMPRESSION ENERGY AND THAT OF CLOSING THE PORES, AND THAT THE FORMATION OF A FRONT WITH A THICKNESS AT LEAST SEVERAL TIMES THAT OF THE SEP. PARTICLES IS DETD. BY THE AV. D., AND NOT BY THAT OF THE SEP. PARTICLES.
FACILITY: INST. TEPLIFIZ., NOVOSIBIRSK, USSR.

UNCLASSIFIED

Acc. Nr

AP0036351

Abstracting Service:

CHEMICAL ABST. 4-70

Ref. Code

UR 0007

S

69131x Use of lead isotopes for metallogenic analysis of the sources of ore-forming substances. Volobuev, M. I.; Zykov, S. I.; Stupnikova, N. I. (Moscow State Univ., Moscow, USSR). *Geokhimiya* 1970, (1), 22-34 (Russ). By taking into account the geol. situation and data on a comparative characteristics of the isotopic compn. of S of ore occurrences and of Pb dispersed in country rocks, it proved possible to single out sources of ore-forming matters of polymetallic deposits. With the 1st source of ore-forming matters (granitic rocks) the formation of deposits and ore shows of the Enisei Mountain Ridge of the eastern Sayany and the Kuznetsk Alatau is connected. At the expense of the 2nd source (i.e. mobilization of dispersed Pb from country rocks) polymetallic deposits and ore shows of Tuva were formed. Ore shows connected with the migration of Pb from radioactive minerals (3rd group of sources) are rarely met. BLJR

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1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SYNTHETIC STUDIES ON GLYCOPHOSPHOLIPIDS. I. SYNTHESIS OF
1,2:3,4,DI,
AUTHOR--(04)-LUCHINSKAYA, M.G., VOLKOVA, L.V., STUPNIKOVA, V.A.,
PREOBRAZHENSKIY, N.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 915-918
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--LIPID, GALACTOSE, HETEROCYCLIC OXYGEN COMPOUND, ORGANIC
SYNTHESIS, STEARIC ACID, PYRIDINE, SULFONE, ORGANIC PHOSPHATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/0986 STEP NO--UR/0079/70/040/004/0915/0918
CIRC ACCESSION NO--AP0134702
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134702

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

ABSTRACT. BATYL ALC. AND TOSYL CHLORIDE IN

PYRIDINE SHOWN ON MICROFICHE.

FACILITY: MOSK. INST. TONKOI

KHIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 018

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--THE BOUNDARY PROBLEM FOR A MIXED TYPE EQUATION IN THE CASE, WHEN
LAMBDA EQUALS 0 IS THE SPECTRUM POINT FOR AN ELLIPTIC EQUATION -U-

AUTHOR--STUPYALIS, L.

COUNTRY OF INFO--LSSR

SOURCE--VESTNIK LENINGRADSKOGO UNIVERSITETA, NO 7, MATEMATIKA, MEKhanIKA,
ASTRONOMIYA, 1970, NR 2, PP 46-73

DATE PUBLISHED-----70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--BOUNDARY LAYER EQUATION, BOUNDARY VALUE PROBLEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAme--3005/1403

STEP NO--UR/0043/70/000/002/0046/0073

CIRC ACCESSION NO--AP0133355

UNCLASSIFIED

2/2 018

CIRC ACCESSION NO--AP0133355
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--20NOV70

INITIAL BOUNDARY VALUE PROBLEM FOR THE EQUATIONS AS WELL AS IT WAS DONE
IN THE ARTICLES (1) AND (2). THESE EQUATIONS IN ONE PART OF THE REGION
OF Ω OF VARIABILITY OF X ARE ELLIPTIC AND IN ANOTHER ARE EITHER OF
PARABOLIC OR HYPERBOLIC TYPE, ON THE BORDER OF SEPARATION OF TWO PARTS
OF Ω THE CONJUGATE CONDITIONS OF A DIFFRACTING TYPE BEING
CONSIDERED.

UNCLASSIFIED

72 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--TREATMENT OF NONDEOXIDIZED STEELS WITH GASES IN LADLES -U-

THOR--(05)--KABLUKOVSKIY, A.F., KLIMOV, S.V., SALAUTIN, V.A., YEFIMOV,
I.A., STURMAN, V.K.

COUNTRY OF INFO--USSR

S

SOURCE--METALLURG (MOSCOW) 1970, 15(3), 18-21

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GAS CONTAINING METAL, METAL CONTAINING GAS, ARGON, METAL
REFINING, CARBON MONOXIDE, METAL MELTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

COPIES REEL/FRAME--3005/0941

STEP NO--UR/0130/70/015/003/0018/0021

ARC ACCESSION NO--AP0133027

UNCLASSIFIED

72 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

RC ACCESSION NO--AP0133027
 TRACT/TRACT--(U) GP-0-
 BLOWING OF AR, AR-O MIXTS., AND CO GAS INTO THE LADLE TO DET. WHETHER IT
 IS POSSIBLE TO DECARBURIZE AND REFINE THE MELT. REJECTED ELEC. FURNACE
 STEEL WAS MELTED IN A 5-TON LADLE. GRAPHS SHOW THE DEPENDENCE OF GAS
 CONSUMPTION ON PRESSURE FOR VARIOUS POROUS REFRACTORIES; DEPENDENCE OF
 SP. SURFACE OF GAS AND METAL ON THE BUBBLE DIAM.; IN ADDN., SOME
 PROPERTIES OF THE REFRACTORY PLUGS ARE TABULATED. SID SUB2 AND AL SUB2
 SUB3 CONTENTS IN THE SLAG ARE INCREASED AND CAO FALLS. THE EFFECT OF
 THE METAL BLOW CYCLE WITH GASES ON THE LIFE OF THE REFRACTORY LINING IN
 THE LADLE NEEDS TO BE DETD. THE C CONTENT OF THE METAL FALLS UNDER
 THESE CONDITIONS. THE RESULTS SUGGEST WIDE POSSIBILITIES FOR VARIOUS
 GASES FOR EXTRA FURNACE REFINING OF METAL. FACILITY: ISENT.
 HAUCH.-ISSLED. INST. CHERN. MET., MOSCOW, USSR.

UNCLASSIFIED

USSR

STUROVA, I. V.

UDC: 536.24:532.526

"Laminar Temperature Boundary Layer in an Oscillating Flow"

Laminarnyy temperaturnyy pogranichnyy sloy v ostsilliruyushchem potoke.
In-t gidrodinam. Sib. otd. AN SSSR (cf. English above. Institute of Hydro-
dynamics, Siberian Department of the Academy of Sciences of the USSR),
Novosibirsk, 1971, 88 pp, No 4148-72 Dep. (from RZh-Mekhanika, No 9,
Sep 72, Abstract No 9B937 DEP)

Translation: The author considers nonstationary flow of an incompressible fluid in a laminar boundary layer in the case of flow around a heated wedge (plane problem) or cone (axisymmetric problem) with weak periodic pulsations of the external flow, as well as flow around a heated flat plate when the external flow is disturbed by a traveling wave. The assumption of a relatively low pulsation amplitude means that the solution can be given in the form of power series, the coefficients being sought for the first three terms of such series. By special selection of dimensionless variables, the problem is reduced to determination of universal functions whose equations contain two parameters (the vertex angle of the wedge or cone, and

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STUROVA, I. V., Laminarnyy temperaturnyy pogranchnyy sloy v ostsilliruyushchem potoke, Novosibirsk, 1971

the Prandtl number). Numerical calculations are done for Prandtl numbers of 0.72, 7.02 and 10.6 at vertex angles of 0, 36 and 180 degrees for the wedge, and 36 and 180 degrees for the cone. The velocity and temperature distribution in the boundary layer is found, and as a consequence -- the tangential stress on the wall and the localized and average Nusselt numbers. Bibliography of 14 titles. Author's abstract.

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USSR

Mechanical and Optical

UDC 535.8

~~STIVT V. A.~~, TIMOFEYEV, A. V., Leningrad State University
imeni A. A. Zhdanov

"Recognition of Photo Images by Means of Optical Filters"
Leningrad, IVUZ, Priborostroyeniye, No 11, 1970, pp 102-105

Abstract: A method for the recognition of arbitrary images is presented, based upon mapping of the images into a space of characteristics by means of filters of a special type. In a case where the images to be recognized are invariant with respect to some group of transformations (transfer, rotation, transformation of similarities), a procedure for synthesis of the invariant characteristics is proposed. Experimental results are presented. 3 figures, 7 bibliographic entries.

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USSR

UDC: 621.372.852.1(088.8)

MODEL', A. M., STUZHIN, V. A.

"A Harmonic Filter"

USSR Author's Certificate No 253254, filed 24 Jun 68, published 26 Feb 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B175 P)

Translation: The proposed harmonic filter consists of a section of rectangular waveguide divided in half by a longitudinal plate parallel to the wide walls, and two rows of waveguide absorbing elements coupled to the waveguide section through apertures in the wide walls. To increase attenuation of harmonics introduced by each absorbing element, the absorbing element is made in the form of a resonator which is a short-circuited section of rectangular waveguide partially filled with an absorbing material in such a way that its Q is of the order of 8-15. The length of the waveguide is equal to half the wavelength of the harmonic in free space and its width exceeds half the wavelength of the harmonic in the waveguide, by no more than 15 percent. In order to expand the frequency band of the absorbed harmonics, the absorbing waveguide resonators are broken up into groups which differ from one another in the dimensions of the wide walls, e. g. by 5 percent.

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ANO 013071

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UR 9059

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8

AUTHOR--

STVOLINSKIY, YU.

TITLE--

THE FUTURE OF SUPER TANKERS

NEWSPAPER--

VYSHKA, JANUARY 14, 1970, P 4, COLS 5-6

ABSTRACT--

THE FIRST SOVIET SUPER TANKER, THE "MIR", IS SCHEDULED TO SAIL HIGH SEAS IN 1973. THE 120,000-TON SHIP IS BEING DEVELOPED BY LENINGRAD DESIGNERS WHO DEVELOPED SUCH SOVIET TANKERS AS THE "KAZBEK" /10,000-TON LOAD CAPACITY/, THE "PRAGA" /30,000-TON LOAD CAPACITY/, AND THE "SOFIYA" /50,000-TON LOAD CAPACITY.

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Public Health, Hygiene and Sanitation

USSR

UDC: 614.1:313.13(47-21)

STYAGOV, G. I., Division of Social Hygiene and Organization of Health Protection,
Moscow Scientific Research Institute of Epidemiology and Microbiology, Moscow

"Occurrence of Diseases in a City Population in Relation to Occupation in Work
That is Predominantly Mental or Physical"

Moscow, Zdravookhraneniye Rossiyskoy Federatsii, Vol 14, No 1, Jan 71, pp 7-11

Abstract: The occurrence of diseases of various types among 14,070 city residents in the Naro-Pominskiy Rayon, Moscow Oblast, was studied. There was a definite relationship between the incidence of various diseases and the occupation of the residents in either mental or physical work. Persons doing physical work either in factory shops or in the open air were affected to a greater extent by diseases of the peripheral nervous system such as lumbago and radiculites; the reasons for this were exposure to colds and excessive physical strain. This group of persons also showed a higher frequency of diseases of the veins including varicose veins, thrombophlebitis, and hemorrhoids. This also was due to physical strain. Furthermore, persons occupied in physical work showed a higher frequency of tumors of the stomach and the duodenum because of disturbances in nutrition. On the other hand,

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USSR

STYAGOV, G. I., Zdravookhraneniye Rossiyskoy Federatsii, Vol 14, No 1, Jan 71,
pp 7-11

persons doing mental work that involves nervous strain, were subject to neuroses and diseases of the cardiovascular system (stenocardia, myocardial infarct, hypertension) to a greater extent than people doing physical work. It had been established in earlier investigations that coronary atherosclerosis, stenocardia, and myocardial infarct are associated with mental work and affect people doing this type of work more frequently than persons occupied in physical work.

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UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--SOME METHODOLOGICAL PROBLEMS IN REFERISTICS -U-

AUTHOR--(02)--STYAZHKIN, N.I., STYAZHKINA, G.P.

5

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, VOPROSY FILOSOFII, NO 2, 1970, PP 78-86

DATE PUBLISHED-----70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--DATA PROCESSING SYSTEM, MATHEMATIC MODELING, DATA PROCESSING RESEARCH FACILITY, SCIENTIFIC INFORMATION, S AND T PUBLICATION PROBLEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0556

STEP NO--UR/0522/70/000/002/0078/0086

CIRC ACCESSION NO--AP0116171

UNCLASSIFIED

ARC ACCESSION NO--AP0116171
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT. THE ARTICLE CONSIDERS THE EXPLOSIVE GROWTH IN THE NUMBER OF SCIENTIFIC PUBLICATIONS IN MODERN SCIENTIFIC RESEARCH IS CLEAR. HOWEVER, THE TRADITIONAL METHODS OF ABSTRACTING HAVE LONG BEEN SUBJECT TO VALID CRITICISM. THE UNSATISFACTORY STATE OF ABSTRACTING PRACTICE IS EXPLAINED IN PART BY THE LACK OF AN INTEGRAL THEORY OF THE PROCESS ITSELF. THE SCIENCE OF ABSTRACTING (REFERISTICS) DID NOT APPEAR UNTIL THE MID 1950'S. THE ARTICLE PRESENTS A BRIEF SURVEY OF THE RESULTS OBTAINED BY THIS SCIENCE FROM THE STANDPOINT OF THEIR METHODOLOGICAL SIGNIFICANCE. THE BASIC IDEA OF REFERISTICS WHEN IT CAME INTO BEING WAS THE NEED TO DEVELOP MACHINE STATISTICAL ABSTRACTING METHODS. THE PIONEER OF THESE METHODS WAS H. P. LUHN, WHOSE BASIC CONCEPT WAS THAT OF THE "FREQUENCY OF A WORD IN CONTEXT". AN ABSTRACT OBTAINED BY THE LUHN METHOD IS DISTINGUISHED BY A CERTAIN DOGMATICALNESS, BUT THIS SHORTCOMING IS COMPENSATED FOR BY AN ACCEPTABLE TEXT COMPRESSION COEFFICIENT AND THE GUARANTEE AGAINST SERIOUS OMISSIONS OF MEANING. LUHN'S CRITERION, FROM THE METHODOLOGICAL STANDPOINT, REDUCES TO THE MODELING OF ONE OF THE POSSIBLE ASPECTS OF AN ABTRACTOR'S ACTIVITY, THE ADMISSIBILITY OF THIS MODELING BEING PARTIALLY JUSTIFIED BY REFERENCE TO AN EMPIRICAL REGULARITY OF A LINGUISTIC CHARACTER. HOWEVER, SINCE THE MODELING OF NOT JUST ONE, BUT AT LEAST SEVERAL ASPECTS OF THE ABTRACTOR'S ACTIVITY SHOULD BE REQUIRED OF REFERISTICS, THE NEED ARISES TO MAKE THE ORIGINAL LUHN CRITERION MORE COMPLEX.

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SESSION NO--AP0116171

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--AT THE BEGINNING OF THE 1960'S IN THE SOVIET UNION SOME MODIFICATIONS WERE SUGGESTED OF THE STATISTICAL METHODS FOR THE SAMPLING OF SO CALLED WEIGHTING SENTENCES FROM THE TEXT TO BE ABSTRACTED (V. A. PURTO IN 1961; V. A. AGRAYEV, V. V. BORODIN; YU. V. GLEBSKIY IN 1963). EXPERIMENTAL TESTING OF AUTOMATIC ABSTRACTING METHODS ON THE BASIS OF PURELY STATISTICAL CRITERIA HAS GRADUALLY REVEALED THE "DARK SIDES" OF SUCH METHODS, FOR EXAMPLE THE FAILURE TO MINIMIZE THE PROBABILITY OF OMISSION OF SOME INTUITIVELY WEIGHTY PHRASES OF A TEXT, AS WELL AS THE LACK OF LOGICAL REORGANIZATION OF THE INFORMATION AVAILABLE IN THE ARTICLE TO BE ABSTRACTED. PARTLY AS A RESULT OF THIS, THERE IS GRADUALLY TAKING SHAPE IN REFERISTICS ANOTHER DIRECTION, WHICH CONSIDERS THE PROBLEM OF CONTEXT REORGANIZATION AND ADVANCES OTHER THAN STATISTICAL WEIGHTINESS CRITERIA FOR TERMS AND SENTENCES. THUS, THERE IS THE SO CALLED SKELETON ABSTRACTING SUGGESTED BY J. PERRY, M. BERRY AND A. KENT. THE QUALITY OF THE ABSTRACTS OBTAINED BY THIS METHOD CANNOT BE CONSIDERED COMPLETELY SATISFACTORY, MAINLY BECAUSE OF THE AMBIGUITY OF THE "ROLE INDICATOR" ARRANGEMENT PROCEDURE. WORK WAS DONE IN 1961 BY THE ELECTROMODELLING LABORATORY OF VINITI (ALL UNION INSTITUTE OF SCIENTIFIC AND TECHNICAL INFORMATION), ACADEMY OF SCIENCES USSR, TO GENERALIZE THE METHODS OF AUTOMATIC ABSTRACTING (B. R. PEVZNER, N. I. STYAZHKIN), USING A CRITERION WHICH CAN BE REGARDED AS SEMANTIC SYNTACTIC, AS DISTINGUISHED FROM THE PURELY SYNTACTIC CRITERION OF LUHN.

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CIRC ACCESSION NO--AP0116171
ABSTRACT/EXTRACT--THE METHODS

UNCLASSIFIED

PROCESSING DATE--27NOV70

WAYS OF PREVENTING AN EXCESSIVE INCREASE IN THE STORAGE SPACE OF INFORMATION LOGICAL MACHINES WHERE THERE IS A NEED TO ACCUMULATE A SIGNIFICANT RANGE OF IDEAS AND FACTS. EXPERIMENTS WITH DESCRIPTOR ABSTRACTING SHOULD HELP IN THE GRADUAL ELABORATION OF COMPLETELY OBJECTIVE METHODS FOR DETERMINING THE VALUE OF INFORMATION FROM THE STANDPOINT OF ITS THEORETICAL CONTENT. THE NEWEST TREND IN THE DEVELOPMENT OF REFERISTICS IS THE DEVELOPMENT OF METHODS WHICH "COMBINE STATISTICAL METHODS WITH OTHER MEANS," WITH THE INVESTIGATIONS OF V. M. GOROBTSOV BEING PARTICULARLY NOTEWORTHY. REFERISTICS IN ITS PRESENT FORM CAN BE REGARDED AS A FRAGMENT OF THE THEORY OF THE SIMPLIFICATION OF STRUCTURES OF SCIENTIFIC KNOWLEDGE. THE DEVELOPMENT OF METHODS OF TEXTUAL CONDENSATION DEPENDS ON THE DETERMINATION OF THE STRUCTURE OF THE TEXT AND CRITERIA FOR ESTIMATING THE COMPLEXITY OF SUCH A STRUCTURE. THE AMERICAN LOGICIAN N. GOODMAN HAS CONSTRUCTED A SPECIAL APPARATUS FOR ESTIMATING THE COMPLEXITY OF TEXT STRUCTURES, THE FORMAL DESCRIPTION OF WHICH HE MAKES ON THE BASIS OF THE LANGUAGE OF FIRST ORDER PREDICATE CALCULUS. OTHER CRITERIA WHOSE BASIC CONCEPTS ARE THE TERMS "THING," "PROPERTY" AND "RELATION" ARE PROPOSED BY A. I. UYEMOV, L. N. SUMAROKOVA AND P. V. DMITREVSKEYA. THE METHODOLOGICAL PROBLEMS OF REFERISTICS ARE CLOSELY RELATED TO PHILOSOPHICAL QUESTIONS OF THE LOGIC OF SCIENTIFIC COGNITION, PARTICULARLY PROBLEMS IN THE ANALYSIS AND SYNTHESIS OF THE STRUCTURES OF SCIENTIFIC RESEARCH METHODS.

UNCLASSIFIED

ABSTRACT/EXTRACT--A SPECIAL PROBLEM ARISES IN CONNECTION WITH THE
 CONSIDERATION OF THE POSSIBILITY OF APPLYING THE IDEAS OF REFERISTICS TO
 PHILOSOPHY TEXTS. AN EXHAUSTIVE DISCUSSION OF THIS PROBLEM IS DIFFICULT
 BECAUSE OF A SINGLE TRIVIAL REASON, VIZ. THE LACK OF AN ABSTRACT JOURNAL
 ON THE LITERATURE OF PHILOSOPHY IN THE SOVIET UNION.
 MOSCOW STATE ARCHIVES INSTITUTE. FACILITY:
 ELECTRONIC ENGINEERING. MOSCOW INSTITUTE OF

SESSION NO--AP0116171 UNCLASSIFIED

PROCESSING DATE--27NOV70

UNCLASSIFIED

USSR

STYAZHKINA, A. G.

UDC: 512.7

"Constructing Metacyclical Fields of Prime Degree"

Uch. zap. Sverdl. gos. ped. in-t (Science Notes of the Sverdlovsk Pedagogical Institute--collection of works) 1971, coll. 125, pp 75-80 (from RZh--Matematika, No 4, 1972, Abstract No 4A403)

Translation: It is proved that the broadening of the cyclical field of degree f by roots in the p -th degree of f conjugate elements ($p = fe + 1$, p is prime) contains a normal field with a metacyclical group of order pf . A primitive element of this field is constructed. As in the work of B. N. Delone and D. K. Fadeyev (Mat. sb., 1944, 15 (57), 243-284), the author introduces an additional factor into the critical case but in very simple form, as opposed to that of the work mentioned. V. Kurbatov

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UNCLASSIFIED
SOURCE METHODOLOGICAL PROBLEMS IN REFERISTICS -U-

PROCESSING DATE--27NOV70

AUTHOR--(02)--STYAZHKIN, N.I., STYAZHKINA, G.P.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, VOPROSY FILOSOFII, NO 2, 1970, PP 78-86

DATE PUBLISHED-----70

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SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--DATA PROCESSING SYSTEM, MATHEMATIC MODELING, DATA PROCESSING RESEARCH FACILITY, SCIENTIFIC INFORMATION, S AND T PUBLICATION PROBLEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0556

STEP NO--UR/0522/70/000/002/0078/0086

CIRC ACCESSION NO--AP0116171

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ACCESSION NO--AP0116171

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE CONSIDERS
 METHODOLOGICAL QUESTIONS CONNECTED WITH THE REORGANIZATION OF SCIENTIFIC
 TEXTS. THE EXPLOSIVE GROWTH IN THE NUMBER OF SCIENTIFIC PUBLICATIONS
 HAS MADE THIS AN URGENT PROBLEM. THE SIGNIFICANCE OF ABSTRACT JOURNALS
 IN MODERN SCIENTIFIC RESEARCH IS CLEAR. HOWEVER, THE TRADITIONAL
 METHODS OF ABSTRACTING HAVE LONG BEEN SUBJECT TO VALID CRITICISM. THE
 LACK OF AN INTEGRAL THEORY OF THE PROCESS ITSELF. THE SCIENCE OF
 ABSTRACTING (REFERISTICS) DID NOT APPEAR UNTIL THE MID 1950'S. THE
 ARTICLE PRESENTS A BRIEF SURVEY OF THE RESULTS OBTAINED BY THIS SCIENCE
 FROM THE STANDPOINT OF THEIR METHODOLOGICAL SIGNIFICANCE. THE BASIC
 IDEA OF REFERISTICS WHEN IT CAME INTO BEING WAS THE NEED TO DEVELOP
 MACHINE STATISTICAL ABSTRACTING METHODS. THE PIONEER OF THESE METHODS
 WAS H. P. LUHN, WHOSE BASIC CONCEPT WAS THAT OF THE "FREQUENCY OF A WORD
 IN CONTEXT". AN ABSTRACT OBTAINED BY THE LUHN METHOD IS DISTINGUISHED
 BY A CERTAIN DOGMATICALNESS, BUT THIS SHORTCOMING IS COMPENSATED FOR BY
 AN ACCEPTABLE TEXT COMPRESSION COEFFICIENT AND THE GUARANTEE AGAINST
 SERIOUS OMISSIONS OF MEANING. LUHN'S CRITERION, FROM THE METHODOLOGICAL
 STANDPOINT, REDUCES TO THE MODELING OF ONE OF THE POSSIBLE ASPECTS OF AN
 ABTRACTOR'S ACTIVITY, THE ADMISSIBILITY OF THIS MODELING BEING
 PARTIALLY JUSTIFIED BY REFERENCE TO AN EMPIRICAL REGULARITY OF A
 LINGUISTIC CHARACTER. HOWEVER, SINCE THE MODELING OF NOT JUST ONE, BUT
 AT LEAST SEVERAL ASPECTS OF THE ABTRACTOR'S ACTIVITY SHOULD BE REQUIRED
 OF REFERISTICS, THE NEED ARISES TO MAKE THE ORIGINAL LUHN CRITERION MORE
 COMPLEX.

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CIRC ACCESSION NO--AP0116171 UNCLASSIFIED PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--THE METHODS OF DESCRIPTOR ABSTRACTING MAY BE ONE OF THE WAYS OF PREVENTING AN EXCESSIVE INCREASE IN THE STORAGE SPACE OF INFORMATION LOGICAL MACHINES WHERE THERE IS A NEED TO ACCUMULATE A SIGNIFICANT RANGE OF IDEAS AND FACTS. EXPERIMENTS WITH DESCRIPTOR ABSTRACTING SHOULD HELP IN THE GRADUAL ELABORATION OF COMPLETELY OBJECTIVE METHODS FOR DETERMINING THE VALUE OF INFORMATION FROM THE STANDPOINT OF ITS THEORETICAL CONTENT. THE NEWEST TREND IN THE DEVELOPMENT OF REFERISTICS IS THE DEVELOPMENT OF METHODS WHICH "COMBINE STATISTICAL METHODS WITH OTHER MEANS," WITH THE INVESTIGATIONS OF V. M. GOROBTSOV BEING PARTICULARLY NOTEWORTHY. REFERISTICS IN ITS PRESENT FORM CAN BE REGARDED AS A FRAGMENT OF THE THEORY OF THE SIMPLIFICATION OF STRUCTURES OF SCIENTIFIC KNOWLEDGE. THE DEVELOPMENT OF METHODS OF TEXTUAL CONDENSATION DEPENDS ON THE DETERMINATION OF THE STRUCTURE OF THE TEXT AND CRITERIA FOR ESTIMATING THE COMPLEXITY OF SUCH A STRUCTURE. THE AMERICAN LOGICIAN N. GOODMAN HAS CONSTRUCTED A SPECIAL APPARATUS FOR ESTIMATING THE COMPLEXITY OF TEXT STRUCTURES, THE FORMAL DESCRIPTION OF WHICH HE MAKES ON THE BASIS OF THE LANGUAGE OF FIRST ORDER PREDICATE CALCULUS. OTHER CRITERIA WHOSE BASIC CONCEPTS ARE THE TERMS "THING," "PROPERTY" AND "RELATION" ARE PROPOSED BY A. I. UYEMOV, L. N. SUMAROKOVA AND P. V. DMITREVSKEYA. THE METHODOLOGICAL PROBLEMS OF REFERISTICS ARE CLOSELY RELATED TO PHILOSOPHICAL QUESTIONS OF THE LOGIC OF SCIENTIFIC COGNITION, PARTICULARLY PROBLEMS IN THE ANALYSIS AND SYNTHESIS OF THE STRUCTURES OF SCIENTIFIC RESEARCH METHODS.

UNCLASSIFIED

3/5 013 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0116171

ABSTRACT/EXTRACT--AT THE BEGINNING OF THE 1960'S IN THE SOVIET UNION SOME MODIFICATIONS WERE SUGGESTED OF THE STATISTICAL METHODS FOR THE SAMPLING OF SO CALLED "THE MOST IMPORTANT SENTENCES" FROM THE TEXT TO BE ABSTRACTED (V. A. PURTO IN 1961; V. A. AGRAYEV, V. V. BORODIN, YU. V. GLEBSKIY IN 1962). EXPERIMENTAL TESTING OF AUTOMATIC ABSTRACTING METHODS ON THE BASIS OF PURELY STATISTICAL CRITERIA HAS GRADUALLY REVEALED THE "DARK SIDES" OF SUCH METHODS, FOR EXAMPLE THE FAILURE TO MINIMIZE THE PROBABILITY OF OMISSION OF SOME INTUITIVELY WEIGHTY PHRASES OF A TEXT, AS WELL AS THE LACK OF LOGICAL REORGANIZATION OF THE INFORMATION AVAILABLE IN THE ARTICLE TO BE ABSTRACTED. PARTLY AS A RESULT OF THIS, THERE IS GRADUALLY TAKING SHAPE IN REFERISTICS ANOTHER DIRECTION, WHICH CONSIDERS THE PROBLEM OF CONTEXT REORGANIZATION AND ADVANCES OTHER THAN STATISTICAL WEIGHTINESS CRITERIA FOR TERMS AND SENTENCES. THUS, THERE IS THE SO CALLED SKELETON ABSTRACTING SUGGESTED BY J. PERRY, M. BERRY AND A. KENT. THE QUALITY OF THE ABSTRACTS OBTAINED BY THIS METHOD CANNOT BE CONSIDERED COMPLETELY SATISFACTORY, MAINLY BECAUSE OF THE AMBIGUITY OF THE "ROLE INDICATOR" ARRANGEMENT PROCEDURE. WORK WAS DONE IN 1961 BY THE ELECTROMODELLING LABORATORY OF VINITI (ALL UNION INSTITUTE OF SCIENTIFIC AND TECHNICAL INFORMATION), ACADEMY OF SCIENCES USSR, TO GENERALIZE THE METHODS OF AUTOMATIC ABSTRACTING (B. R. PEVZNER, N. I. STYAZHKIN), USING A CRITERION WHICH CAN BE REGARDED AS SEMANTIC SYNTACTIC, AS DISTINGUISHED FROM THE PURELY SYNTACTIC CRITERION OF LUHN.

UNCLASSIFIED

SESSION NO--AP0116171 UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--A SPECIAL PROBLEM ARISES IN CONNECTION WITH THE
CONSIDERATION OF THE POSSIBILITY OF APPLYING THE IDEAS OF REFERISTICS TO
PHILOSOPHY TEXTS. AN EXHAUSTIVE DISCUSSION OF THIS PROBLEM IS DIFFICULT
BECAUSE OF A SINGLE TRIVIAL REASON, VIZ. THE LACK OF AN ABSTRACT JOURNAL
ON THE LITERATURE OF PHILOSOPHY IN THE SOVIET UNION.
MOSCOW STATE ARCHIVES INSTITUTE. FACILITY:
ELECTRONIC ENGINEERING. MOSCOW INSTITUTE OF

UNCLASSIFIED

USSR

UDC 546.59:541.135.7

STYRKAS, A. D., Institute of New Chemical Problems, Academy of Sciences USSR
"Electrochemical Solution of Gold"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 46, No 8, Aug 73, pp 1852-1854

Abstract: The possibility of dissolving gold in hydrochloric acid by application of an alternate current was studied. The behavior of gold under such conditions is quite unique. At small amplitude of the current the sample is covered by a positive film, the solution rate of the current being low. With current density of 20 a/cm² a rapid solution begins to take place; this continues even with lower current density, down to 5 a/cm²; below this value again a passive film is formed. This phenomenon is evidently caused by the formation of an oxide film. The rate of solution of gold by this method exceeds its solution rate in aqua regia.

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1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--MEASURING THORON, RADON-220, EXHALATION -U-
AUTHOR--(03)-STYRO, B., NEDVECKAITE, T., SENKO, E.E.
COUNTRY OF INFO--USSR S
SOURCE--J. GEOPHYS. RES. 1970, 75(18), 3635-8
DATE PUBLISHED-----70
SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, ATMOSPHERIC SCIENCES
TOPIC TAGS--RADON ISOTOPE, NUCLEAR EMULSION, RADIOACTIVITY MEASUREMENT,
IONIZATION CHAMBER, NATURAL RADIOACTIVITY, SEASONAL VARIATION, GROUND
SURVEY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1059 STEP NO--US/0000/70/075/018/3635/3638
CIRC ACCESSION NO--AP0136479
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136479

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO METHODS OF MEASURING PRIME220
RN EXHALATION, BY DISINTEGRATION CHAMBER AND BY NUCLEAR EMULSION, ARE
DESCRIBED. THE DATA ON THE PRIME220 RN EXHALATION UNDER VARIOUS WEATHER
CONDITIONS AND STATES OF GROUND SURFACE ARE SUMMARIZED. THE AV. VALUES
RANGE FROM ZERO, WHEN THE SNOW SURFACE IS COVERED BY ICE, TO 33 TIMES
10 PRIME NEGATIVE10 CI-CM PRIME2 SEC FOR DRY GROUND IN SUMMER.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EFFECT OF QUENCHING FROM ROLLING HEAT ON THE MECHANICAL AND
TECHNOLOGICAL PROPERTIES OF STRUCTURAL STEELS -U-
AUTHOR--(05)-PISKUN, V.T., ULEYNIKOV, N.P., KAPLIY, N.I., IVASHCHENKO,
V.M., STYCHINSKIY, L.P.
COUNTRY OF INFO--USSR
SOURCE--STAL' 1970, 30(2), 161-3
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--STRUCTURAL STEEL, STEEL QUENCHING, MECHANICAL PROPERTY,
MANGANESE STEEL, SILICON STEEL, STEEL TEMPERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/1867

STEP NO--UR/0133/70/030/002/0161/0163

CIRC ACCESSION NO--AP0115686

UNCLASSIFIED

2/2 016

CIRC ACCESSION NO--AP0115686

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STEEL BARS (14-22 MM DIAM.) CONTG.
C 0.16-0.35, MN 0.48-1.35, AND SI TRACE-1.05PERCENT WERE QUENCHED IN
WATER FROM THE ROLLING HEAT FOR 10-14 SEC AND TEMPERED BY RESIDUAL HEAT.
THE TREATMENT GENERALLY IMPROVED MECH. PROPERTIES, AS COMPARED WITH
THOSE OF THE HOT ROLLED STOCK. FACILITY: DONETS. POLITEKH.
INST., DONETSK, USSR.

UNCLASSIFIED

USSR

UDC: 541.69 + 542.91 + 547.416

GARIBDZHANYAN, B. T., STYEPANYAN, G. M., IRADYAN, M. A., and AROYAN, A. A.,
Institute of Fine Organic Chemistry, Yerevan, Academy of Sciences Armenian
SSR

"Synthesis and Biological Studies of Some Novel Substituted Benzyl-bis-
(β -chloroethyl)-amines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 2, 1970, pp 166-172

Abstract: The authors synthesized a series of 2-alkoxy-5-chlorobenzyl-
chlorides by chloromethylation of p-alkoxychlorobenzene with paraform-
aldehyde and HCl in presence of anhydrous zinc chloride, and reacted it
with diethanol amine in dioxane to obtain 2-alkoxy-5-chlorobenzyl-bis-
(β -hydroxyethyl)-amines, which were eventually converted to hydrochlo-
rides. Biological properties of these compounds and of β -chloro-4-
alkoxybenzyl-bis-(β -chloroethyl)-amines obtained earlier were studied
on rats and mice, and it was determined that all of them were more toxic
than corresponding bromo- derivatives. Some of them also exhibited some-
what higher antitumor activity.

1/1

USSR

UDC 620.9

KIRILLIN, V. A., STYRIKOVICH, M. A.

"Technical Progress in Power Engineering"

Teplofiz. vysokikh temperatur (High-Temperature Thermal Physics), 1970, 8, No 2, pp 235-245 (from RZh-Teploenergetika, No 9, Sep 70, Abstract No 9G1)

Translation: Assimilation was begun in 1968 on the first 500 MW unit at the Nazarovsk State Regional Electric Power Plant, and the first 800 MW unit with double-shaft turbine at the Slavyansk State Regional Electric Power Plant on supercritical steam parameters. In recent years, the efficiency of steam-turbine electric power plants has increased considerably, and in the best plants now approaches 40%. However, it is difficult to expect a further appreciable increase in efficiency, chiefly because of the lack of inexpensive metals which could operate reliably and for long periods (100,000 hours and longer) at a temperature of more than 600°C. The graphite-water channel reactors and water-water vessel reactors which are extensively used in the Soviet Union can utilize only a relatively small part of the energy of nuclear fuel (in thermal reactors, uranium-235 is nearly completely burned up and only about 1% of the uranium-238 is burned). Nevertheless, such electric power stations

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USSR

KIRILLIN, V. A., STYRIKOVICH, M. A., Teplofiz. vysokikh temperatur (High-Temperature Thermal Physics), 1970, 8, No 2, pp 235-245 (from RZh-Teploenergetika, No 9, Sep 70, Abstract No 9G1)

are economically feasible in regions where chemical fuel is relatively expensive. Thus at the present stage, atomic and conventional power engineering are mutually complementary. Considerable work is being done in the Soviet Union, as well as in the United States and England, in the field of developing fast breeder reactors, which are expected to play a principal part in the future development of atomic power engineering, and which permit approximately twenty times more complete utilization of nuclear reserves than can be achieved with thermal power reactors. The authors point out the possibilities of utilizing solar energy and the heat of the Earth's interior for special and local purposes on a relatively small scale. Two illustrations. Yu. A. Mironova.

1/1

USSR

UDC 535.343.31

STYRIKOVICH, M. A., Academician, YUKHNEVICH, G. V., VETROV, A. A., and VIGASIN, A. A., High-Temperature Institute, Academy of Sciences USSR, Moscow

"Molecular Composition of High-Density Water Vapor and Some of Its Thermodynamic Properties"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 2, 1973, pp 321-323

Abstract: Measurements previously performed by the authors on the fraction of monomeric molecules in superheated vapor showed that the degree of dissociation sharply changes as the vapor density increases and therefore it has to be considered in an analysis of the vapor properties. The present article continues the study of the formation of associates in high-density water vapor and analyzes the effect of such complexing on the enthalpy and entropy of water vapor. For this purpose a series of measurements were taken of the fraction of monomeric molecules in vapor at pressures from 27 to 180 ata and a temperature of 360° C. The size of the associate was found, and a comparison was made of tabular water-vapor enthalpy and entropy data with calculated data for a mixture of ideal monomeric and dimeric gases. The results

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USSR

STYRIKOVICH, M. A., et al., Doklady Akademii Nauk SSSR, Vol 210, No 2, 1973, pp321-323

indicate that the degree of association of water molecules in superheated vapor found by spectral measurements plays a very important role in explaining not only its thermodynamic potentials. but also a whole series of other thermophysical properties.

2/2

- 48 -

1/3 031

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--TECHNICAL PROGRESS IN POWER ENGINEERING --U-

AUTHOR--(02)-KIRILLIN, V.A., STYRIKOVICH, M.A.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK AKADEMII NAUK SSSR, RUSSIAN, VOL 40, NO 4, APRIL 1970, PP 72-75

DATE PUBLISHED----APR70

S

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, ENERGY CONVERSION (NON-PROPULSIVE)

TOPIC TAGS--NUCLEAR REACTOR, GRAPHITE MODERATED REACTOR, WATER COOLED NUCLEAR REACTION, WATER MODERATED REACTOR, ELECTRIC POWER PLANT, FAST NEUTRON, DESALINATION, SEA WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1920

STEP NO--UR/0030/70/040/004/0072/0075

CIRC ACCESSION NO--AP0133733

UNCLASSIFIED

2/3 031

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133733

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

ABSTRACT. IN THE REPORT "TECHNICAL PROGRESS IN POWER ENGINEERING" OF ACADEMICIANS V. A. KIRILLIN AND M. A. STYRIKOVICH IT WAS NOTED THAT POWER ENGINEERING IS A VERY IMPORTANT CONDITION OF GROWTH OF THE ECONOMY AND ELEVATION OF THE TECHNICAL LEVEL OF PRODUCTION. THAT FOUND EXPRESSION IN THE GOELRO PLAN, CALLED BY LENIN THE SECOND PROGRAM OF THE PARTY. PROBLEMS IN THE DEVELOPMENT OF ATOMIC POWER ENGINEERING WERE ILLUMINATED IN A LARGE SECTION OF THE REPORT. THE START OF THE WORLD'S FIRST ATOMIC POWER STATION IN THE SOVIET UNION IN JUNE 1954 BECAME THE START OF A NEW AND IMPORTANT DIRECTION IN THE DEVELOPMENT OF POWER ENGINEERING. THE DEVELOPMENT OF NUCLEAR REACTORS IN THE USSR HAS PROCEEDED IN SEVERAL DIRECTIONS. CHANNEL TYPE GRAPHITE MODERATED WATER COOLED AND VESSEL TYPE WATER MODERATED WATER COOLED REACTORS HAVE BECOME MOST WIDESPREAD. THOSE REACTORS PERMIT USING ONLY A RELATIVELY SMALL PART OF THE ENERGY OF NUCLEAR FUEL. NEVERTHELESS SUCH A ELECTRIC POWER STATIONS ARE ALREADY ECONOMICALLY ADVISABLE IN REGIONS OF RELATIVELY COSTLY CHEMICAL FUEL. THUS, IN THE PRESENT STAGE ATOMIC AND ORDINARY POWER ENGINEERING SUPPLEMENT ONE ANOTHER. IN ADDITION, THIS STAGE OF ATOMIC POWER ENGINEERING IS PREPARING THE TRANSITION TO FAST NEUTRON BREEDER REACTORS, IN WHICH A LARGER PART OF THE NATURAL URANIUM IS USED. THE PREFERENTIAL DEVELOPMENT OF THERMAL NEUTRON REACTORS WILL PROBABLY CONTINUE TO THE 1980S AND EVEN THE 1990S WHEN, ACCORDING TO THE ESTIMATES OF SPECIALISTS, POWERFUL, ECONOMICALLY COMPETITIVE FAST NEUTRON REACTORS WILL BE CREATED AND PRODUCED, WHICH WILL BE THE BASIS OF ATOMIC POWER ENGINEERING OF THE END OF OUR CENTURY.

UNCLASSIFIED

373 - 031

CIRC ACCESSION NO--AP0133733
ABSTRACT/EXTRACT--SCIENTIFIC

UNCLASSIFIED

PROCESSING DATE--13NOV70

INVESTIGATIONS IN THE AREA OF FAST NEUTRON REACTORS STARTED IN THE USSR AS EARLY AS THE 1950S. THE FIRST SUCH REACTOR WAS CREATED IN OUR COUNTRY IN 1955 AT OBNINSK. A PILOT REACTOR WITH AN ELECTRICAL CAPACITY OF 150 MW IS NOW BEING CONSTRUCTED NEAR SHEVCHENKO. THAT INSTALLATION, BESIDES THE PRODUCTION OF ELECTRIC POWER, IS ALSO INTENDED FOR THE DESALINATION OF SEA WATER. THE REQUIREMENT OF INCREASE OF RELIABILITY WITH INCREASE OF THE UNIT CAPACITIES IS NATURALLY PRESERVED ALSO FOR ATOMIC POWER STATIONS. A CONFIRMATION OF THIS IS THE SITUATION WHICH HAS DEVELOPED IN ATOMIC POWER ENGINEERING IN THE USA. SIMPLE EXTRAPOLATION OF EXPERIENCE IN THE ERECTION AND OPERATION OF SMALL ATOMIC POWER STATION BLOCKS LED TO AN UNDERESTIMATION OF A NUMBER OF DIFFICULTIES AND CAUSED A SUBSTANTIAL LAG IN THE INTRODUCTION OF CAPACITIES, AS A RESULT OF WHICH AN UNDER PRODUCTION AT ATOMIC POWER STATIONS OF OVER 100 BILLION KILOWATT HOURS IS EXPECTED IN THE NEXT FOUR YEARS. SERIOUS DIFFICULTIES HAVE ARISEN IN THE INTRODUCTION OF VESSEL REACTORS INTO OPERATION.

UNCLASSIFIED

USSR

UDC 542.67:546.91

KRYSHCHENKO, K. I., STYRKAS, A. D.

"Dissolution of Noble Metals under the Influence of AC Current"

Moscow, Khimicheskaya Promyshlennost', No 5, 1971, pp 363-366

Abstract: A process for the formation of the soluble chlorides of noble metals (platinum, palladium, osmium, and particularly ruthenium, rhodium, and iridium) using AC current (up to 5 a/cm²) and excess hydrochloric acid is presented. This process utilizes powdered metals, thus eliminating the necessity of compressing them into cores, as was formerly the practice. However, the process is equally effective for fixed shapes. It is considered to be a highly effective method of producing a pure product in high yield on an industrial scale.

1/1

Luminescence

USSR

UDC 541.127:541.14+541.515

VOL'KENSHTEYN, F. F., MARKIN, Yu. A., SIVOV, Yu. A., and STYROV, V. V.,
Institute of Physical Chemistry, Academy of Sciences USSR, and Tomsk
Polytechnic Institute

"Theory of Radical-Recombination Luminescence. 3. Kinetics of Radical-
Recombination Luminescence"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 71,
pp 1664-1672

Abstract: The kinetics of the build-up of radical-recombination luminescence (RRL) were first studied by V. A. SOKOLOV and A. N. GORBAN'. The present article is a continuation of these studies. Experiments were performed on a vacuum device with a mercury diffusion pump, permitting a vacuum of 10^{-5} torr. RRL was excited by atomic hydrogen obtained by means of a high-frequency discharge. Kinetic curves were plotted in the 300-550°K range at various hydrogen pressures. Powdered phosphors were applied from an alcohol suspension to glass substrates. It was found that the character of the kinetic isotherms differs for a very clean surface and one that is insufficiently clear. The kinetic curve rises in the former case, falls in the latter case due to the fact that the surface holds residues of pre-chemisorbed hydrogen in the
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USSR

VOL'KENSHTEYN, F. F., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 71, pp 1664-1672

charged state, the hydrogen being gradually removed from the surface as a result of the recombination reaction. After RRL halts, the content of the charged form of chemisorption on the surface first rises, then begins to decline as a result of desorption. The initial ascending branch of the curve is due to the fact that the system approaches steady-state electronic equilibrium in the absence of recombinations. In the case where the discharge is interrupted, then is on again after a certain pause, the "memory effect" is observed. The character of the RRL kinetics here depends on the length of the pause, due to the fact that the quantity of chemisorbed hydrogen remaining on the surface after the pause varies according to the pause length.

The authors thank V. A. SGKOLOV for discussing the results of the work and for his guidance in the experimental portion.

2/2

USSR

UDC 535.373.2

MARKIN, Yu. A., STYROV, V. V., and KHORUZHIY, V. D., Tomsk Polytechnic
Institute imeni S. M. KIROV

"Effect of Surface on Radical Recombination Luminescence Spectra"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 7, 1970,
pp 132-133

Abstract: A study of the effect of the surface on the radical recombination luminescence (RRL) spectra of zinc sulfide phosphors indicates the following:

1. The halfwidth of the emission bands in the case of RRL is, as a rule, greater than in the case of photoluminescence.
2. The halfwidth of RRL and photoluminescence spectra varies differently with temperature, this dependence being more strongly pronounced in RRL.

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USSR

MARKIN, Yu. A., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy --
Fizika, No 7, 1970, pp 132-133

3. There is a shift in RRL emission band maximums with respect to the same bands in photoexcitation.

4. The RRL spectrum is sensitive to the temperature of the specimen.

5. The magnitude of RRL spectra displacement relative to photoluminescence depends on the type of activator.

The authors' laboratory is undertaking experiments to study the role of exciton excitation in RRL at low temperatures, especially in the case of molecular crystals.

2/2

USSR

UDC 661.143.004.14

SOKOLOV, V. A., ~~STYKOV, V. V.~~, NASLEDNIKOV, YU. M., KHORUZHIY, V. D.,
LUBYANSKIY, G. A., and URUSOV, B. G.

"On the Feasibility of Employing Radical Recombination Luminescence in the
Physicochemical Control of Phosphor Crystals"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collection of
Scientific Works of All-Union Scientific Research Institute for Phosphors and
Ultrapure Substances), 1971, vyp. 6, pp 88-94 (English summary) (from RZh-
Khimiya, No 16, 25 Aug 72, Abstract No 16L135 from summary)

Translation: The article suggests a new method of physicochemical control of
the synthesis conditions and the quality of phosphor crystals, based on the
use of the phenomenon of radical recombination luminescence (RRL). RRL with
high sensitivity detects small concentrations of impurities in a phosphor,
polymorphic transformations, decay of solid solutions, etc. Some examples are
examined.

1/1

USSR

~~STYSIS, V. N.~~ BRASLETOV, V. A.

UDC 621.313.29

"Ionization Source of a Direct Microcurrent"

USSR Author's Certificate No 304669, filed 24 December 1968, published 24 May 1971 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 17, 1971, No H 02n 1/08)

Translation: An ionization source of a direct microcurrent containing a housing and an ionization chamber system made up of an ionizer, a collector, a shield and electrodes is introduced. The invention is distinguished by the fact that in order to improve the metrological properties, all the ionization chambers are executed with one collector, and high voltage electrodes are installed on the shield parallel to the collector plates. The regulating electrodes and the ionizer are attached movably to the source housing.

1/1

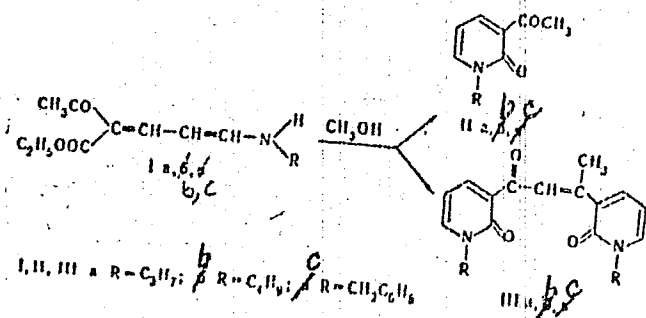
USSR

UDC 547.821.2'824.07:543.422.25

KRASNAYA, ZH. A. STYTSENKO, T. S., PROKOF'YEV, YE. P., and
KUCHEROV, V. F., Institute of Organic Chemistry imeni N. D.
Zelinskogo, Academy of Sciences USSR

"Synthesis of the Derivatives of N-substituted Pyridones Based on
Diene Monoalkylaminoketo Esters"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, 5, May 1973 pp 668-
675
Abstract: Syntheses are described based on the following reaction:



1/2

USSR

KRASNAYA, ZH. A., et al., Khimiya Geterotsiklicheskikh Soyedineniy, 5, May 1973, pp 668-675

The δ -monoalkylaminoketoesters (I) dissolved in methanol at room temperature react thru ring closure to give an 80% yield of an easily separated mixture of 1-alkyl-3-acetylpyrid-2-one (II) and the dimer 1,3-bis[3-(1-alkylpyrid-2-onyl)]-2-buten-1-one (III). Yields, experimental conditions, UV and extensive NMR data are given. Additional reactions are given, such as $IIC + Ib \rightarrow IIIb + dimers$ where the two R groups are not the same; $Ib + C_6H_5COCH_3 \rightarrow mixed -R dimers$; and $I+II \rightarrow dimers$ containing IR from each compound. The % water in the methanol changes the ratios of products II & III, II increasing with increasing H_2O .

2/2

- 30 -

USSR

UDC 621.373.8:621.382

SEGAL', S. G. and STYTS'KO, V. P.

"Inductionless, Phase Type, Radiopulse Binary Elements"

Moscow, Radiotekhnika, Vol 26, No 4, 1971, pp 89-91

Abstract: The authors study various types of phase-type, radio pulse elements, particularly the parametron, syngetron, and the resistance type parametron in which the induction coils have been replaced by transistor circuits with an inductance nature of output impedance. The results of the study show that it is possible to develop various types of phase type, radiopulse elements all of whose elements can be produced using existing integrated circuit technology. Original article: four figures, one formula, and four bibliographic entries.

J/1

172 032

TITLE--BOILING HEAT TRANSFER OF SUBCOOLED LIQUIDS IN HORIZONTAL TUBE. II

PROCESSING DATE--27NOV70

AUTHOR--(02)-VARSHNEY, B.S., STYUSHIN, N.G.

5

COUNTRY OF INFO--USSR

SOURCE--TRANS. INDIAN INST. CHEM. ENG. 1969, (APRIL), 56-9

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HEAT TRANSFER, BOILING, WATER, ALIPHATIC ALCOHOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2258

STEP NO--IN/0000/69/000/000/0056/0059

CIRC ACCESSION NO--AP0125836

UNCLASSIFIED

032
CIRC ACCESSION NO--AP0125836
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT. A GENERALIZED CORRELATION FOR
DETG. HEAT TRANSFER COEFFS. IN FULLY DEVELOPED BOILING OF SUBCOOLED
LIQUS., H SUB2 D AND ISO PROH, IN HORIZONTAL TUBES IS GIVEN AS H SUBB-H
SUBC EQUALS 2.6 TIMES 10 PRIME7 ((X-0) PRIME0.1 (T SUBS PRIME-DELTA T
PRIME PRIME SUB) PRIME0.5 (Q-LAMBDA SUBLAMBDA PRIME PRIME V)(GAMMA PRIME
PRIME-GAMMA PRIME) PRIME 0.85)((SIGMA-(GAMMA PRIME MINUS GAMMA PRIME
PRIME)) PRIME0.5 (L-LAMBDA) PRIME0.7, WHERE H SUBB IS THE LOCAL COEFF.
OF HEAT TRANSFER IN BOILING, H SUBC CONVECTIVE HEAT TRANSFER COEFF., X
DISTANCE FROM INLET OF TUBE, D INSIDE DIAM., T SUBS PRIME SATN. TEMP. AT
TUBE INLET, DELTA T PRIME PRIME SUB LOCAL DEGREE OF SUBCOOLING, Q HEAT
FLUX, LAMBDA LATENT HEAT OF VAPORIZATION, GAMMA PRIME AND GAMMA PRIME
PRIME SP. WT. OF LIQ. AND VAPOR, RESP., V LIQ. VELOCITY AT TUBE INLET,
AND SIGMA SURFACE TENSION.
FACILITY: MOSCOW, INST. CHEM. ENG.,
MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 536.248.2

BALAKHONOVA, V. I., NOVIKOV, P. A., SUBACH, V. M.

"Influence of Mass Transfer on Heat Transfer During Evaporation of Liquid with an Open Surface into a Rarefied Gas Medium"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol. 20, No. 3, Mar. 71, p. 405-410.

Abstract: The process of evaporation of a liquid from an open surface is studied for an ambient pressure of $1.33 \cdot 10^3$ and $2.67 \cdot 10^3$ n/m². An experimental investigation is performed to establish the mechanism of the influence of mass transfer on heat transfer during evaporation under free convection conditions. The experiments indicated that blowing of a gas into the boundary layer at first causes an increase in the heat transfer coefficients for low flow rates of gas injected, then with increasing flow rate, the coefficient of heat transfer begins to drop. Thus, the formation of the new phase occurs differently, depending on the relationship of the velocities.

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1/2 032

TITLE--OPTICAL PROPERTIES OF INSB SUBX MINUS INTE SUBI NEGATIVE X SOLID SOLUTIONS -U- PROCESSING DATE--23OCT70

AUTHOR--(04)--GASANLY, N.M., ALIYEV, M.I., KUKHARSKIY, A.A., SUBASHIYEV, V.K.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(3), 576-8

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--OPTIC PROPERTY, IR SPECTRUM, POLYCRYSTAL, INDIUM ANTIMONIDE, ABSORPTION COEFFICIENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1712

STEP NO--UR/0449/T0/004/003/0576/0578

CIRC ACCESSION NO--AP0120424

UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120424

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

ABSTRACT. INFRARED SPECTRA WERE OBTAINED FOR
 COARSE, POLYCRYST. SAMPLES OF (INSB) SUBX MINUS (INTE) SUBI NEGATIVE X
 SOLID SOLNS. PRODUCED BY DIRECT MELTING OF THEIR COMPONENTS AND
 HOMOGENIZATION BY HEATING FOR 200 HOURS AT 450DEGREES. THE VALUE OF X
 RANGED FROM 0.999 TO 0.99999. CURVES INDICATE THE SPECTRAL RELATION OF
 REFLECTION AND TRANSMISSION COEFFS. IN THE 2-25 MU RANGE AS WELL AS THE
 RELATION BETWEEN THE EFFECTIVE MASS OF CONDUCTION ELECTRONS AND COMPN.
 THE EFFECTIVE MASS INCREASED FROM 0.013 AT X EQUALS 0.99999 TO 0.063 AT
 X EQUALS 0.999. THE ABSORPTION COEFF. ALPHA (H OMEGA) WAS OBTAINED FROM
 TRANSMISSION SPECTRA; THE ABSORPTION CROSS SECTION OF LIGHT FOR
 ELECTRONS, (ALPHA DIVIDED BY N), IN THE COMPN. RANGE 0.85 SMALLER THAN
 OR EQUAL TO 0.85 SMALLER THAN OR EQUAL TO X SMALLER THAN OR EQUAL TO
 0.999, OBTAINED AT 7 MU, CHANGED FROM 4.3 TIMES 10 PRIME NEGATIVE17 TO 7
 TIMES 10 PRIME NEGATIVE17 CM PRIME2.
 Leningrad, USSR. FACILITY: INST. POLUPROV.,

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ELECTROABSORPTION OF GALLIUM SELENIDE -U-
AUTHOR--(04)-GADZHIYEV, V.A., SOKOLOV, V.I., SUBASHIYEV, V.K., TAGIYEV,
B.K.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1350-4
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ABSORPTION SPECTRUM, GALLIUM SELENIDE, PHOTON, EXCITON,
IONIZATION, LIQUID NITROGEN, FORBIDDEN BAND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3009/0113 STEP NO--UR/0181/70/012/005/1350/1354
CIRC ACCESSION NO--AP0138978
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0138978

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTROABSORPTION SPECTRUM OF GASE WAS INVESTIGATED AT 80, 295, 345, AND 395 DEGREE SK IN FIELDS OF 5 TIMES 10 PRIME 3 -2 TIMES 10 PRIME 4 V-CM. COMPARISON OF EXPTL. RESULTS WITH THE THEORETICAL EXPRESSION FOR THE 1ST HARMONIC ALPHA SUB1 OF A COMPLETE VARIATION OF THE ABSORPTION COEFF., $\Delta(\alpha(\omega, F))$ EQUALS $\alpha(\omega, F) - \alpha(\omega, 0)$ (ω EQUALS PHOTON ENERGY, F EQUALS ELEC. FIELD) FOR THE CASE OF DIRECT ALLOWED TRANSITIONS WITHOUT ACCOUNTING FOR EXCITONS SHOWED A CONSIDERABLE DIFFERENCE BETWEEN THEM. THE EXPTL. DETD. ALPHA SUB1 IS MORE DEPENDENT ON TEMP. AND IT DECREASES WITH INCREASING ENERGY OF THE QUANTUM MORE RAPIDLY THAN PREDICTED BY THE THEORY. EXPTL. DATA CAN BE EXPLAINED IF IT IS ASSUMED THAT THE MAIN CONTRIBUTION TO ELECTRO ABSORPTION COMES FROM DECOMP. OF EXCITONS IN THE 2-DIMENSIONAL CASE. AT ROOM TEMP. THE ENERGY OF IONIZATION OF EXCITON E SUBEX EQUALS 67 MEV AND THE WIDTH OF THE FORBIDDEN BAND E SUBG EQUALS 2.036 MEV. AT LIQ. N TEMP. THE OBSD. SPECTRUM OF ELECTROABSORPTION IS RELATED TO DECOMP. OF EXCITON PEAKS. E SUBEX IS 70 MEV AND E SUBG IS 2.131 MEV. FACILITY: INST. POLUPROV., LENINGRAD, USSR.

UNCLASSIFIED

1/2 044

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--DEPENDENCE OF THE LIFETIME OF OPTICAL PHONONS IN GALLIUM ARSENIDE
ON THE HOLE AND ELECTRON CONCENTRATION -U-

AUTHOR--(03)-EVDOKIMOV, V.M., KUKHARSKIY, A.A., SUBASHIYEV, V.K.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA I TEKHNIKA POLUPROVODNIKOV, VOL. 4, MAR. 1970, P. 573-576

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--OPTIC PROPERTY, PHONON, GALLIUM ARSENIDE, ELECTRON DENSITY, IR
SPECTRUM, SEMICONDUCTOR MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1994/0994

STEP NO--UR/0449/70/004/000/0573/0576

CIRC ACCESSION NO--AP0115015

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2/2 044

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PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0115015

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYTICAL AND EXPERIMENTAL INVESTIGATION OF THE IR REFLECTION SPECTRA OF SEMICONDUCTORS BEYOND THE INTRINSIC ABSORPTION EDGE, IN THE CASE WHERE THE PLASMA FREQUENCY IS CLOSE TO FREQUENCY OF THE OPTICAL PHONONS. IT IS SHOWN THAT IN ORDER TO OBTAIN INFORMATION ON THE INTERACTION BETWEEN THE PHONONS AND THE FREE CHARGE CARRIERS, IT IS ESSENTIAL TO TAKE INTO ACCOUNT THE DAMPING OF BOTH THE ELECTRON AND PHONON SYSTEMS. A PHENOMENOLOGICAL LIFETIME OF OPTICAL PHONONS (DEFINED AS A QUANTITY RECIPROCAL OF THE DAMPING IN THE OSCILLATOR EQUATION DESCRIBING LATTICE VIBRATIONS) IS INTRODUCED WHICH CHARACTERIZES THE DAMPING OF THE PHONON SYSTEM. IT IS FOUND THAT THE PHONON LIFETIME DECREASES MONOTONICALLY WITH INCREASING NUMBER OF HOLES, WHICH AN INCREASE IN THE ELECTRON CONCENTRATION LEADS TO AN ABRUPT INCREASE IN THE PHONON LIFETIME. THIS UNEXPECTED RESULTS IS ATTRIBUTED TO THE DIFFERENT SCREENING ACTION OF ELECTRONS AND HOLES.
FACILITY: AKADEMIIA NAUK SSSR, INSTITUT POLUPROVDNIKOV, LENINGRAD, USSR.

UNCLASSIFIED

1/2 034

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--THE PROBLEM OF DETERMINING THE EFFECTIVE MASS AND THE RELAXATION
TIME OF THE CARRIERS IN SEMICONDUCTORS FROM INFRARED SPECTRA OF LIGHT
AUTHOR--(02)--KUKHARSKIY, A.A., SUBASHIYEV, V.K.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA I TEKHNIKA POLUPROVODNIKOV, VOL. 4, FEB. 1970, P. 287-293.

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SEMICONDUCTOR MATERIAL, CARRIER SCATTERING, CARRIER DENSITY,
RELAXATION PROCESS, IR SPECTRUM, ELECTRIC CONDUCTIVITY, ION TRAP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1466

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CIRC ACCESSION NO--AP0112460

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2/2 034

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PROCESSING DATE--20NDV70

CIRC ACCESSION NO--AP0112460

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE DIFFERENCE BETWEEN THE PHENOMENOLOGICAL RELAXATION TIMES OF FREE CARRIERS, DETERMINED IN THE PAST FROM THE SHAPE OF THE INFRARED REFLECTION SPECTRA OF A NUMBER OF SEMICONDUCTORS, AND THESE SAME RELAXATION TIMES DETERMINED FROM STATIC ELECTRICAL CONDUCTIVITY DATA. IT IS SHOWN THAT THIS DIFFERENCE CAN BE SUBSTANTIALLY DECREASED BY CARRYING OUT A CORRECT AVERAGING OF THE FREE CARRIER CONTRIBUTION TO THE DIELECTRIC CONSTANT WITH RESPECT TO THE RELAXATION TIMES. THIS AVERAGING IS CARRIED OUT FOR AN ARBITRARY DEGREE OF DEGENERACY OF THE ELECTRON GAS. THE CASE OF SCATTERING OF CARRIERS BY IONIZED CENTERS IS CONSIDERED IN GREATEST DETAIL.
FACILITY: AKADEMIIA NAUK SSSR, INSTITUT POLUPROVOODNIKOV, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.382.2

DUDNIK, YE.P., YEREMIN, V.K., LEVINSON, D.I., RYKOV, S.M., STROKAN, N.B.
SUBASHIYVA, V.P., TISHKIN, N.I. [Physico-Technical Institute imeni A.F. Ioffe,
Academy of Sciences, USSR, Leningrad]

"High-Resolution Counters Of Germanium With Radiation-Induced Defects"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 779-781

Abstract: The characteristics are presented of counters obtained as usual on the basis of germanium with $N_D - N_A \sim 10^{12} \text{ cm}^{-3}$ but with a decrease of more than one order of magnitude of the background of impurities and defects N_T . The amplitude spectrum of a specimen of ^{137}Cs is shown. The resolution of the counters at this line is less than $R = 1.2$ percent. The dependence is shown of the constant capture time on the electrical field intensity. 2 fig. 15 ref. Received by editors, 5 Nov 1971.

SUBBOTA, A. G.

THE EFFECTS ON THE BODY OF
ELECTROMAGNETIC RADIATION OF THE SHF RANGE

I. R. Petrov and A. G. Subbota

Voenna-Meditsinsky Zh. 2 (1966) 16-21
(from Russian)

DRIC Transl. No. 2255

July 1972

Translated by Dr. B.F. Toms

BR 30223

Logic & Game Theory

UCD 62-50

USSR

KRASOVSKIY, N. N. and SUBBOTIN, A. I., Sverdlovsk

"Approximation in a Differential Game"

Moscow, Prikladnaya Matematika i Mekhanika, Vol 37, No 2, Mar - Apr 1973, pp 197-204

Abstract: The material in this article is a further development of positions described by the same authors in various previous papers, particularly in this journal Volume 34, No 6 (1970). This article covers a special case of the type of problem described in this previous citation. The basic situation is a differential game described by the equation $\dot{x} = f(t, x, u, v)$, where x is a phase vector and u and v are the control strategies of the players. The first player is striving to approach a specific point in the game space. The previous article demonstrated that the problem of approaching this point within a specific time frame is solved by constructing a set which is u -stable with respect to the target set, contains the initial position, and intersects the target set within the required time. This set is called a stable bridge in the $\{t, x\}$ space. A specific example of such a set is the set of "positional absorption" of the target set at the desired moment. The desired strategy is extremal to the stable bridge.

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KRASOVSKIY, N. N. et al., Moscow, Prikladnaya Matematika i Mekhanika, Vol 37, No 2, Mar - April 1973, pp 197 - 204

On the basis of this formal structure, a stochastic procedure can be developed which, with sufficiently small steps, will approach the target within any pre-defined neighborhood. However, if there is an error in the control organ, an additional lower bound on the step size may be required. This may introduce excessive limitations on the measurement error. The present article describes a minor change in the strategies discussed by the authors in Dokl. AN SSSR, Vol 196, No 2 (1970) and by Baybazarov in Izv. AN SSSR, Technical Cybernetics, No 2 (1972), basically requiring a replacement of the extremal control which also attempts to move the control point sufficiently close to the target, but not necessarily to the closest possible point of the target set. The procedure is illustrated with examples, some of which refer to previous publications cited in the bibliography. In particular, a procedure given by the authors in Tr. Matem. in-ta. AN SSSR, Vol 128 (1972) should be replaced by the procedure given in this article for some irregular cases as described.

The authors feel that the procedure described relates the theory of strictly positional differential games to a theory suggested by L. S. Pontryagin (Uspekhi Matem. Nauk, Vol 21, No 4, 1967; Mishchenko and Pontryagin, Dokl. AN SSSR, Vol 174, No 1, 1967; Pontryagin, Dokl. AN SSSR, Vol 174, No 6, Vol 175, No 4, 1967).

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KRASOVSKIY, N. N. et al., Moscow, Prikladnaya Matematika i Mekhanika, Vol 37,
No 2, Mar - April 1973, pp 197 - 204

The two approaches yield a stable combined control scheme based solely on
information about the achieved states of the controlled object.

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USSR

UDC 517.91

KRASOVSKIY, N. N., Academician, SUBBOTIN, A. I., and USHAKOV, V. N., Institute of Mathematics and Mechanics of Ural Scientific Center, Academy of Sciences USSR, Sverdlovsk

"Minimax Differential Game"

Moscow, Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 277-280

Abstract: The article considers a conflict-controlled system whose motion is described by the equation

$$\dot{x} = f(t, x, u, v).$$

Here x is an n -dimensional phase vector; u and v are control vectors of players 1 and 2 which satisfy the constraints $u \in P, v \in Q$, where P and Q are certain compacta; $f(t, x, u, v)$ is a continuous function satisfying the Lipschitz condition with respect to x in each bounded region. It is assumed that the motions of the system can be continued for any finite time interval.

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KRASOVSKIY, N. N., et al., Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 277-280

The closed sets M and N are given in the space $\{p = (t, x)\}$. A study is made of the guidance problem confronting player 1; using information on position $(t, x[t])$ being realized, player 1 must select a control $u[t]$ such that, without disturbing the phase constraint $(t, x[t]) \in N$, the point $(t, x[t])$ is brought onto set M . The opponent's behavior is constrained only by the constraint $v[t] \in Q$, and cases are not excluded where the selection of control $v[t]$ also rests on information about the control $u[t]$ which is being realized.

This is the essence of the problem to which the study of many differential games reduces. The article gives a mathematical formalization of the problem which fully reflects this essence. It is shown that the guidance

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KRASOVSKIY, N. N., et al., Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp .
277-280

problem is unsolvable in the proposed system of definitions and cannot have a solution under any positional method of forming the control u . A study of the solvability conditions of the guidance problem contains elements of a constructive solution. There is no assumption as to the fulfillment of the condition

$$\min_{v \in Q} \max_{u \in P} s'f(t, x, u, v) = \max_{u \in P} \min_{v \in Q} s'f(t, x, u, v)$$

under which typical differential games possess equilibrium situations in a class of pure positional strategies.

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PROCESSING DATE--20NOV70

TITLE--ON THE STRUCTURE OF DIFFERENTIAL GAMES --U-

ALTHDR--(G2)--KRASOVSKIY, N.N., SUBBOTIN, A.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, DOKLADY AKADEMII NAUK SSSR, VOL. 190, NO. 3, 21 JAN 70, PP 523-526

DATE PUBLISHED--21JAN70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--GAME THEORY, VECTOR, ALGEBRAIC EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0478

CIRC ACCESSION NO--AT0113373

STEP NO--UR/0020/70/190/003/0523/0526

UNCLASSIFIED

2/2 014

CIRC ACCESSION NO--AT0113373

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT. A DIFFERENTIAL GAME FOR MINIMAX
 TIME TO ENCOUNTER IS CONSIDERED. THE PURPOSE OF THE ARTICLE IS TO SHOW
 THE GAME STRUCTURE IN A CLASS OF APPROXIMATION STRATEGIES. THE SYSTEM
 IS DESCRIBED BY THE EQUATION $\dot{x} = F(t, x, u) + F$
 $F(t, x, v)$ WHERE x IS A PHASE VECTOR AND u, v ARE CONTROL
 VECTORS TAUGHT TO THE FIRST AND SECOND PLAYERS AND CONTRAINED BY THE
 CONDITION $u \in U, v \in V$, WHERE THE SETS U AND V ARE
 BOUNDED AND CLOSED. THE F ARE CONTINUOUS FUNCTIONS SATISFYING
 THE LIPSCHITZ CONDITION WITH RESPECT TO x . APPROXIMATION STRATEGIES U
 U_{δ} AND V_{δ} ARE DEFINED AS SYSTEMS OF SETS $U_{\delta}(t, x)$ AND $V_{\delta}(t, x)$
 OF THE COVERING δ . THREE THEOREMS CONCERNING THE STABILITY OF SETS
 OF STRATEGIES ARE PRESENTED. FACILITY: MATHEMATICS INSTITUTE
 IMENI V. A. STEKLOV OF THE ACADEMY OF SCIENCES USSR.

UNCLASSIFIED

1/2 010

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--ELECTROPHILIC HALOGENATION OF OLEFINS, V. KINETICS AND MECHANISM OF BETA METHYLALLYL HALIDE CHLORINATION -U-
AUTHOR--(04)-BODRIKOV, I.V., SPIRIDONOVA, S.V., SMDLYAN, Z.S., SUBBOTIN, A.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 684-90

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORINATION, ELKENE, EXCHANGE REACTION, REACTION KINETICS, CHEMICAL REACTION MECHANISM

CENTRGL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--2000/1958

CIRC ACCESSION NO--AP0125547

STEP NO--UR/0366/70/006/004/0684/0690

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UNCLASSIFIED

PROCESSING DATE--300CT70

CIRC. ACCESSION NO--AP0125547

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

ABSTRACT. THE CHLORINATION OF H SUB2 C:CMECH
 SUB2 X (I) (X IS CL, BR, OR I) GIVES THE SUBSTITUTION PRODUCTS H SUB2
 C:C(ClCH SUB2 Cl)CH SUB2 X, CLCH SUB2 CME:CHX, AND THE ADDN. PRODUCTS CLCH
 SUB2 CMECLCH SUB2 X. THE REACTION RATE IS INCREASED BY HCL, WHICH IS
 LIBERATED IN THE COURSE OF THE REACTION. THE CONSUMPTION OF CL
 INCREASES IN THE FOLLOWING I SERIES (X GIVEN): I LARGER THAN BR LARGER
 THAN CL. THE SUBSTITUTION PRODUCTS ADDN. PRODUCTS RATIO INCREASES IN
 THE REVERSE ORDER. THE SUBSTITUTION PRODUCTS ARE FORMED THROUGH THE
 INTERMEDIATE CARBONIUM ION AND THE ADDN. PRODUCTS THROUGH A CYCLIC
 CARBONIUMION.

FACILITY: GOR'K. POLITEKH. INST., GORKI, USSR.

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