UNCLASSIFIED   PROCESSING DATE--27NOV70

1/3   028
TITLE--USE OF FUTUROLOGICAL AND SOCIOLOGICAL METHODS IN WORKING OUT LONG
TERM FORECASTS OF SCIENTIFIC RESEARCH IN EPIDEMIOLOGY -U-
AUTHOR-(03)-SUMAROKOV, A.A., SHAKHANINA, I.L., TKACHEVA, M.N.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SOVETSKOYE ZDRAVOOKHRANENIYE, RUSSIAN, NO 6, 1970,
SUBMITTED 13 JANUARY 1970, SIGNED TO PRESS 3 MAY 1970, PP 7-13
DATE PUBLISHED--13JAN70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES; BEHAVIORAL AND SOCIAL
SCIENCES
TOPIC TAGS--EPIDEMIOLOGY, PUBLIC HEALTH, BASIC SCIENCE PLANNING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1923   STEP NO--UR/0753/70/000/006/0007/0013

CIRC ACCESSION NO--AP0133774
UNCLASSIFIED

CIRC ACCESSION NO--AP0133774

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT THE PRESENT TIME, WHEN THE ROLE
OF SCIENCE AS A PRODUCTIVE FORCE IS GENERALLY RECOGNIZED, SUBSTANTIATED
PLANNING OF RESEARCH SERVES AS ONE OF THE MOST IMPORTANT ELEMENTS IN THE
UNIFIED STATE POLICY THAT ENSURES NOT ONLY SCIENTIFIC PROGRESS, BUT
SOCIAL PROGRESS AS WELL. THE PROPERLY COMPILED PROSPECTIVE PLAN, ONE
THAT TAKES SPECIFIC CONDITIONS INTO ACCOUNT, IS A POWERFUL LEVER
AFFECTING THE DEVELOPMENT OF ANY BRANCH OF SCIENCE AND DETERMINING ITS
TENDENCIES AND RATE OF DEVELOPMENT. IT IS THE PLAN THAT IS EXPECTED TO
ENSURE CONCENTRATION OF SCIENTIFIC MANPOWER AND RESOURCES ON THE
DECISIVE LINES OF RESEARCH AND, EQUALLY IMPORTANT, TO IMPROVE THE FORMS
OF RESEARCH ORGANIZATION SO AS TO GUARANTEE A MAXIMUM RESULT FROM
SMALLEST POSSIBLE EXPENDITURES IN THE SHORTEST TIME. SHORT TERM
PLANNING OF SCIENTIFIC RESEARCH (QUARTERLY AND ANNUAL), WHICH HAS BEEN
PRACTICED IN THE SOVIET UNION FOR ALMOST TWO DECADES, DOES NOT MEET
TODAY'S REQUIREMENTS. THE RAPID DEVELOPMENT OF PRESENT DAY SCIENCE AND
THE VOLUMINOUS DATA, IN A NUMBER OF CASES PASSING THE LEVEL OF RESEARCH
THAT HAS BEEN PLANNED, IMPOSE IN THEIR TURN AN IMPERATIVE NEED TO USE
INCREASINGLY REFINED METHODOLOGICAL APPROACHES IN LONG TERM PROSPECTIVE
PLANNING. IT IS THEREFORE NO ACCIDENT THAT THE DECREE OF THE CC CPSU
AND THE COUNCIL OF MINISTERS USSR ENTITLED "MEASURES TO IMPROVE THE
EFFICIENCY OF THE WORK OF SCIENTIFIC ORGANIZATIONS AND TO ACCELERATE USE
OF THE ACHIEVEMENTS OF SCIENCE AND ENGINEERING IN THE NATIONAL ECONOMY"
GIVES AN IMPORTANT PLACE TO THE PROBLEMS OF IMPROVING PLANNING.

UNCLASSIFIED

CIRC ACCESSION NO--AP0133774

ABSTRACT/EXTRACT--IN PARTICULAR, THE IMPORTANCE OF PROSPECTIVE (FOR A 10-15 YEAR PERIOD OR MORE) PROBLEM PLANNING OF RESEARCH IS EMPHASIZED ONCE AGAIN. COMPILATION OF SUBSTANTIATED LONG TERM RESEARCH PROGRAMS IS NOT ONLY RESPONSIBLE WORK, BUT IT IS ALSO VERY COMPLEX AND REQUIRES EXHAUSTIVE INFORMATION ABOUT THE STATUS (DEGREE OF STUDY) OF A SPECIFIC PROBLEM IN THE PAST AND AT PRESENT NOT ONLY IN THE SOVIET UNION, BUT ALSO ABROAD. IN ADDITION, RATIONAL PLANNING IS ONLY POSSIBLE IF THE DIRECTION TAKEN BY THE PROBLEM AND THE RATES OF DEVELOPMENT ARE SCIENTIFICALLY PREDICTED. FACILITY: CENTRAL SCIENTIFIC RESEARCH INSTITUTE OF EPIDEMIOLOGY.

PROCESSING DATE--27NOV70

ACC. Nr:
AP0041771 Abstracting Service:
(c) BIOLOGICAL ABST. 4-70 Ref. Code:
UR 0495

S

36256. SUMAROKOV, A. V., A. A. MIKHAILOV, and V. S. MOISEEV.
(I. M. Sechenov 1st Moscow Med. Inst., Moscow, USSR.) Sostoyanie
serdechno-sosudistoi sistemy pri khronicheskoi pochechnoi nedostatoch-
nosti. [Condition of the cardiovascular system in chronic renal insuffic-
iency.] KARDIOLOGIYA 9(8): 128-135. 1969.--There are many
reasons for the occurrence of disorders in the cardiovascular system
in the case of chronic renal insufficiency. These include anemia,
hypertension, intoxication, various changes in electrolyte balance,
pericarditis, dysproteinemia, and other humoral changes, particularly
disorders in catecholamine metabolism. Research conducted on patients
and rabbits on all of these factors is reviewed. There is a bibliography
with 58 references.--L. K. R.

REEL/FRAME
19751652

UNCLASSIFIED

STUDIES ON CHANGES OF DURING THE INTERACTIONS WITH PROTEINS OF HYPOCALCIEMIC ACTIVITY OF TYROCALCITONINE VARIOUS TISSUES -U-

AUTHOR--STEKOLNIKOV, L.I., TEPELINA, O.M., SUMAROKOV, D.D.

PROCESSING DATE--11SEP70

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 198-204

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CALCIUM, PROTEIN, RABBIT, LIVER, KIDNEY, SPLEEN, BRAIN, HEART, TISSUE PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0643

CIRC ACCESSION NO--AP0102629

STEP NO--UR/0301/70/016/002/0198/0204

UNCLASSIFIED

025

CIRC ACCESSION NO--AP0102629   UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   STUDY OF HYPOCALCIEMIC REACTION IN
RABBITS IN RESPONSE TO THE ADMINISTRATION OF TYROCALCITONINE MIXTURES
WITH LIVER, KIDNEY, SPLEEN, BRAIN AND HEART HOMOGENATES SHOWS THAT AT
THE APPROPRIATE CONDITIONS OF THE EXPERIMENT THE COMPLEXES OF
TYROCALCITONINE WITH TISSUE PROTEINS ARE FORMED, LACKING THE ABILITY TO
DECREASE CALCIUM LEVEL IN THE BLOOD OF ANIMALS.   COMPLEXES ARISING IN
BLOOD DURING THE INTERACTION OF TYROCALCITONINE WITH PROTEINS ARE
UNSTABLE AND SUFFER RELATIVELY RAPID DECOMPOSITION IN THE BODY WITH
HYPOCALCIEMIC FACTOR RELEASE.   THIS PHENOMENON (TYROCALCITONINEPEXIA)
NOT ONLY DEPENDS ON THE SPECIFIC FEATURES OF TISSUES, BUT ALSO ON THE
TEMPERATURE CONDITIONS AT WHICH THE INCUBATION OF TYROCALCITONINE WITH
TISSUE HOMOGENATES TOOK PLACE.

PROCESSING DATE--11SEP70

UNCLASSIFIED

MALININ, S. et al., Vopr. modelir. i optimiz. sistem inform. obsluzh.,
vyp. 2, Moscow, 1970, pp 39-71

where λ_{in} is the line vector $(1 \times m)$ which maps the intensity of the
flow of documents at the input of the process; X is a matrix which maps
conversion of the flow at the input into the flow at the output; λ_{out}
is the line vector $(1 \times n)$ which maps the intensity of the flow of docu-
ments at the output of the process. The time criterion is defined as
the two-dimensional vector $\vec{t} = \{\vec{t}(t); \vec{t}(c)\}$, where $\vec{t}(t)$ is the average
time for distribution of information counted from the moment when it ap-
pears in the medium external to the system; $\vec{t}(c)$ is the average time of
response to demands as reckoned from the instant the system receives the
demand from the user to the instant the user receives the response from
the system.

The cost criterion is understood to mean the intensity of expendi-
tures of materials, labor, equipment and monetary means necessary for
normal functioning of the system.

The proposed model is illustrated by an example of a system of
scientific-information servicing in electrical engineering.

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USSR

MALININ, S., NEMIROVSKAYA, V., RYABEN'KIY, S., YELTARENKO, Ye., RUMYAN-
TSEV, V., SUMAROKOV, L.

"Deterministic Model of Evaluating Variants for Construction of Systems
of Scientific-Information Servicing With Respect to Time and Cost Cri-
teria"

V sb. Vopr. modelir. i optimiz. sistem inform. obsluzh. (Problems of
Modeling and Optimizing Information Servicing Systems--collection of
works), vyp. 2, Moscow, 1970, pp 39-71 (from RZh-Kibernetika, No 7,
Jul 71, Abstract No 7V716)

Translation: In constructing the model, primary attention is given to
selecting the functional structures of systems of scientific-information
servicing. Two methods of data processing are taken into consideration:
centralized and decentralized.

The process of functioning of the systems is represented in the
model by a set of linear expressions of the form

$$\lambda_{out} = \lambda_{in}X,$$

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USSR

UDC: 519.217

RUMYANTSEV, V. P., SUMAROKOV, L. N., TIMOKHIN, S. G.

"Some Problems of Analysis of Linear Stochastic Nets"

V sb. Inzh.-mat. metody v fiz. i kibernet. (Engineering and Mathematical Methods in Physics and Cybernetics--collection of works), Moscow, Atomizdat, 1971, pp 44-62 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V142)

[No abstract]

USSR   UDC 541.49

SUMAROKOVA, T. N., IBRAYEVA, T. D., and NEVSKAYA, YU. A., Institute of

Chemical Sciences, Kazakh. SSR Academy of Sciences, Alma-Ata

"Interaction of Metal Halogenides With Trialkylphosphates. III. Antimony Trichloride-Tributylphosphate"

Abstract: Viscosimetric, densitometric, cryometric, conductivity, and IR spectroscopic studies were conducted on the interaction of $SbCl_3$ with tributylphosphate (TBP). Two complexes were formed: $2SbCl_3 \cdot TBP$ (I) and $2SbCl_3 \cdot 2TBP$ (II). In I the coordinate valence of Sb was 3, and in II 4. Coordination of TBP with Sb(III) in I and II was by means of the oxygen atom in the phosphoryl group.

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USSR   UDC 541.49

SUMAROKOVA, T. N., IBRAYEVA, T. D., and NEVSKAYA, YU. A., Institute of
Chemical Sciences, Academy of Sciences KAZSSR, Alma-Ata

"reactions of Metal Halides with Trialkylphosphates. I. Stannic Chloride-
Tributyl Phosphate"

Alma-Ata, Izvestiya Akademii Nauk KazSSR, Seriya Khimicheskaya, No 3,
May-Jun 73, pp 21-28

Abstract: Complex formation in the system $SnCl_4$-tributyl phosphate $\left[\,TBP\,\right]$
has been studied by the methods of viscosimetry, as well as volumetrically,
conductometrically and cryometrically. In addition, the transfer of ions in
stannic chloride solutions in TBP has been studied and their IR spectra
were taken. It has been shown that $SnCl_4$ reacts exclusively with TBP via
an oxidation-reduction reaction, leading to the formation of complex com-
pounds: $SnCl_4 \cdot 2TBP$, $2\,SnCl_4 \cdot 2TBP$, and $2\,SnCl_4 \cdot 3TBP$. In $SnCl_4 \cdot 2TBP$ complex,
TBP is coordinated through the oxygen of the phosphoryl group. In the other
two complexes TBP exhibits dual properties, the oxygen of the P-O-C group
also participating in the coordination bond.

1/1

1/2   009   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--ON HAMILTON'S PRINCIPLE FOR NON HOLONOMIC SYSTEMS -U-

AUTHOR--SUMBATOV, A.S.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK MOSKOVSKOGO UNIVERSITETA, MATEMATIKA, MEKHANIKA, 1970, NR
 1, PP 98-101
DATE PUBLISHED-------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--LINEAR DIFFERENTIAL EQUATION, DIFFERENTIAL EQUATION SYSTEM,
 HAMILTON EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0526   STEP NO--UR/0055/70/000/001/0098/0101

CIRC ACCESSION NO--AP0117760
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0117760

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER DEALS WITH SYSTEMS GOVERNED BY STATIONARY LINEAR DIFFERENTIAL EQUATIONS OF IDEAL CONSTRAINTS. THE CONDITIONS OBTAINED ARE NECESSARY AND SUFFICIENT FOR THE EQUIVALENCE OF THE VORONETS-SUSLOV PRINCIPLE AND HAMILTON'S PRINCIPLE. IT IS SHOWN THAT SOME NON HOLONOMIC SYSTEMS SATISFY THESE CONDITIONS.

UNCLASSIFIED

SUMBATOV, L. A.

Medicine

QUANTITATIVE ASSAY OF ACTIVITY OF RENAL OXIDIZING ENZYMES IN THE PRESENCE OF ISCHEMIA AND METABOLIC DEPRESSION

At (medicus)

When creating a "dry" 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 degree of development of hypoxic changes and, in the opinion of a number of authors (A.A. Vishnevskiy et al.) it constitutes 30 minutes. Our previous investigations (G.A. Avrandilev 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 continues 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 40-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, cardiovirase, and lipids — succinate dehydrogenase ... of plasma and mitochondria, and malate dehydrogenase ... which serves as an indicator of intensity of oxidizing processes in Krebs' cycle. We used cytochrome "c", ATP ... to protect the kidney ... cocarboxylase an metabolic activators ...

Experiments were conducted on 12 dogs of both sexes, weighing 3-5 kg. The animals received morphine premedication, hexanal induction and ether-oxygen main anesthesia to the depth at which ... was regulated by means of continuous electrocardiography. 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 rectum). After laparotomy, the left kidney was cut out of the circulation by applying a clamp to its pedicle. Then, one of the mentioned preparations was injected into the inferior vena cava (ATP and cytochrome "c" in

- 50 -

USSR

UDC 622.82:654.9

MALIN, V. A., POLYaKOV, V. S. and SUMENKO, A. I.

"A Radio Signalling Method of Detecting Endogenic Fires"

Translation: It is shown that the temperature of the coal in worked-out areas of a mine can be monitored remotely, and various types of apparatus which have been developed to detect endogenic fires arising in worked-out areas of coal mines are presented. Reliability of monitoring is ensured by the use of sensors of a new design and a single-wire communications channel. Two illustrations.

1/1

USSR   UDC 669.2

SUMIN, S. N., and TUMAREV, A. S., Leningrad Polytechnic Institute imeni
M. I. Kalinin, Chair of General Metallurgy

"Oxidation Mechanism of Cobalt Alloys With Chromium"

Abstract: An experimental investigation by methods described earlier
(Fizika Metallov i Metallovedeniye, Trudy Leningradskogo Politekhnicheskogo
Instituta, 1970, No 305, p 92) was made of the potential oxidation mechanism
of cobalt, chromium, and cobalt-chromium alloys (composition from 100% Co
to 100% Cr. The oxidation rate of cobalt was found to be determined by the
two-way diffusion of cobalt and oxygen. Cobalt alloys with small chromium
additions oxidize at the expense of preferred diffusion of cobalt ions. The
oxidation mechanism of these alloys includes the development of cobalt oxide
and the internal chromium oxidation in the alloy. The oxidation process of
alloys with high chromium additions also develops by means of diffusion of
metal (chromium) and oxygen. The simultaneously originating oxide film con-
sists of a spinel phase and chromium oxide, which later becomes the main
component of the oxide layer. The oxidation of chromium is limited by the
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USSR

SUMIN, S. N., and TUMAREV, A. S., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 5, 1972, pp 341-41

diffusion of oxygen. The $CoCr_2O_4$ spinel oxide appears as a protective oxide on Co-Cr alloys. Three figures, one table, two formulas, fifteen bibliographic references.

2/2

Physical Properties

UDC 669.018.5:538.21

USSR

LIVSHITS, B. G., SUMIN, V. I., LILEYEV, A. S., and SHLYAPIN, A. D., Moscow
Institute of Steel and Alloys

"The Effect of Cubic Crystalline Anisotropy on the Magnetic Properties of the YuNDK35T5 Alloy"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 11, 1970, pp 122-125

Abstract: Temperature dependences of the saturation magnetization coercivity, the constant of uniaxial anisotropy, and the constant of the cubic crystalline anisotropy were investigated on the YuNDK 35T5 alloy (35% Co; 13-14% Ni; 7.5% Al; 5% Ti; 3.5% Cu; the rest Fe) after isothermal treatment. A comparison of experimental and theoretical data led to the conclusion that other anisotropy types in the YuNDK35T5 alloy should be investigated. On the basis of the Stoner-Wohlfartt formula the angular dependences of the coercivity for a single-domain anisotropic-form particle with a cubic crystalline anisotropy were established. Cube crystalline anisotropy was shown to have a consider-able effect on the remagnetization mechanism of the alloy. It also explains the greatly increased coercivity in tempering.

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UDC 669.296

USSR

SUMIN, V. V., KORNILOV, I. I., and PEYZULAYEV, Sh. I.

"Distribution Factors of Titanium and Iron in Zirconium"

Moscow, Tsvetnyye Metally, No. 7, Jul 71, p 50

Abstract: The behavior of titanium and iron admixtures in elec-
tron-beam zone melting of zirconium was experimentally investiga-
ted on the basis of the relation $\dfrac{C_n}{C_0} = \left(\dfrac{K}{K+g} \right)^n$, where

K = distribution factor of Ti and Fe in Zn ; C_n = concentration
of the admixture in the quasi-stationary region of the ingot after
n passages of the zone ; C_0 = concentration of the admixture in
the initial ingot ; g = reduced vaporization coefficient of the
admixture calculated from a given formula. Tabulated experimen-
tal data show the distribution of Fe and Ti after zone melting
of Zn. The average distribution coefficients of Fe and Ti in Zn
were found to be $K_{Fe} = 0.29$ and $K_{Ti} = 0.48$. Two tables, two
formulas, five biblio. refs.
1/1

VOL, A. Ye., GAYDAY, P.I., GORYNIN, I. V., KAPYRIN, G. I., KUZNETSOV, Ya. Ya.,
PROKOF'YEV, S. N., SUMINOV, N. S., CHIZHIKOV, G. I., SHUMSKIY, K. A.

"Copper-Based Alloy"

Translation: An alloy with increased corrosion-fatigue strength in sea water is
suggested. The composition of the alloy (%) is: Al 7-9, Mn 8-12, Fe 2-4, Ni 1.5 -
4, Sn 0.1-05, Si 0.1-0.5, remainder - Cu. The technological properties of the alloy
can be improved by introducing up to 0.3 % Mg and up to 0.2 % Be. These additions
decrease the tendency of the alloy toward film formation. The alloy has (in kg/mm^2)
$\sigma_b \geq 65$, $\sigma_0.2 \geq 30$, HB 180-210, $\sigma_{-1} \geq 17$ at $10 \cdot 10^6$ cycles and is a promising shipbuilding
material.

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USSR

UDC 615.23:547.775+546.171.5

PISKAREV, A. V., NESTERENKO, V. S. and SUMINOV, S. I., Division of Radiation
Pathophysiology and Radiation Pharmacology, Scientific Research Institute of
Medical Radiology, Academy of Medical Sciences USSR, Obninsk

"Effect of Pyrazolone and Hydrazine Derivatives on the Resistance of Mice to
Hypoxia"

Abstract: The effects of 23 pyrazolone and hydrazine derivatives in increasing
the resistance of mice to hypoxia were studied in experiments in which the
animals were lifted to a simulated altitude of 10,000 m (rate of lifting 30
m/sec) or 10,500 m (rate of lifting 11 m/sec) by reducing the pressure in a
chamber after intraperitoneal administration to the animals of the compounds
tested. Of the seven pyrazolone derivatives tested, analgin exerted the
greatest effect in protecting against hypoxia. The antihypoxic activity
decreased in the order analgin > antipyrine > 2-cyano-ethyl-5-pyrazolone >
amidopyrine. Butadion, 1-benzyl-3-methyl-5-pyrazolone, and 1-phenyl-3-methyl-
5-pyrazolone had no significant activity. With the exception of hexylhydrazine
and heptylhydrazine sulfates, all the hydrazine derivatives tested increased
the resistance of the mice to hypoxia after being administered in appropriate

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USSR

doses.   The most pronounced antihypoxic effect was observed on administration of apressin, 1-hydrazinophthalazine-4-carboxylic acid hydrazide, phelazine, phenizine, and 1-(2-cyanoethyl)-1-p-toluenesulfonylhydrazine.   The activity of the pyrazolone derivatives was associated with the hypothermic effect produced by them. While some of the hydrazine derivatives also reduced the rectal temperature of the animals, one may assume that compounds of this type, being MAO inhibitors, could increase the level in the body of biogenic amines (serotonin, adrenaline, and histamine) that are of importance in adaptive reactions.

2/2

Polymers and Polymerization

LEBEDEV, V. T., SUMINOV, S. I., SHIRYAYEVA, G. V., KARPOV, V. L., and NOVIKOV, V. Ya.

"Effect of the Addition of Organophosphorus Compounds on the Polymerization of Methyl Methacrylate in Cellulose"

Abstract: The effect of various classes of organophosphorus compounds on the kinetics of radiation induced polymerization of methyl methacrylate [MMA] in cellulose was studied. The influence of dialkyl-, and trialkyl phosphites and trialkyl phosphates, as well as the effect of the size of alkyl radical within a group on the polymerization rate of MMA in wood was found to be increasing in the order: dialkyl phosphites < trialkyl phosphites < trialkyl phosphates, and within the radical group: methyl < ethyl < butyl analog. It was demonstrated that the concentration of tributyl phosphate [TBP] in MMA has a positive effect on the combustibility of the wood-plastic material [WPM]: a 30% content of TBP imparts fire retarding properties on the WPM. Study of the physical-mechanical properties of WPM containing various concentrations of TBP showed that optimal resistance to static bending across the fibers and to shearing along the fiber length is shown in WPM prepared from a 9:1 mixture of MMA:TBP.

1/1

SUMINOV, S. I., BANDEROVA, L. V., SHATROVA, T. G.

"New Derivatives of Cyclohexenyl-1 and 2-phosphonic Acids"

Abstract: A study was made of new derivatives of cyclohexenyl-1 and 2-phos-
phonic acids. When oxidizing 2-chlorocyclohexyldichlorophosphine (obtained by
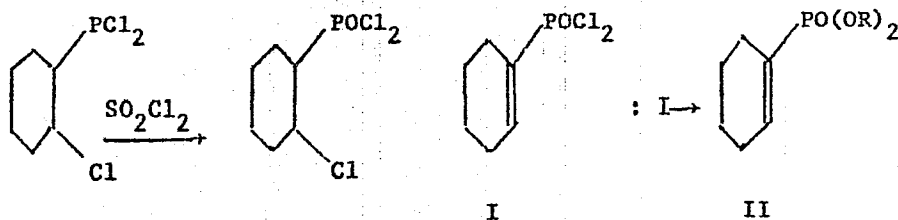addition of PCl_3 to the cyclohexene under the effect of γ-radiation) [L. L.
Shchukovskaya, et al., DAN SSSR, No 179, 892, 1968] by sulfuryl chloride in
an inert organic solvent at 0-10°, the formation of a mixture of acid
dichlorides of 2-chlorocyclohexylphosphonic acid and cyclohexene-1-ylphosphonic
acid (I) with predominance of the latter was observed for the first time. By
analysis for the "common" and "hydrolyzable" chlorine, the content of (I) in
the mixture is greater when the reaction is performed in ether than in CCl_4
or benzene. When treating the (I) isolated by redistillation with aliphatic
alcohols (C_1C_5) in the presence of pyridine, the corresponding esters of
cyclohexene-1-ylphosphonic acid were obtained with a 65-85% yield. The infra-
red spectra of all the substances reveal a C-C absorption band at 1,630 cm^{-1}:

1/2

USSR

SUMINOV, S. I., et al., Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972,
pp 239-240

   Physical characteristics and comparative data are presented for the
mentioned products.

2/2

USSR

LEBEDEV, V. T., SUMINOV, S. I., SHIRYAYEVA, G. V., and KARPOV, V. V.

"Effect of the Addition of Organophosphorus Compounds on the Polymerization
of Vinyl Monomers in Wood Cellulose"

Abstract: Gamma initiated modification of wood cellulose was studied with
mixtures of vinyl monomers and different levels of organophosphorous com-
pounds (OPC). Many OPC accelerated polymerization of vinyl monomers in wood
cellulose, this action decreasing in the following order: trialkyl phosphates
> trialkyl phosphites > dialkyl phosphites, and within these groups methyl >
ethyl > butyl. Treating birch with a mixture of methylmetacrylate and tri-
butyl phosphate (9:1 ratio) gave a fire resistant material of greater strength
than comparable control. Styrene, which normally polymerizes with difficulty
under the influence of radiation was also studied. Addition of 10% of di-
methyl phosphite to styrene increased its polymerization in aspen by 4 times.
When the phosphite fraction was increased to 20%, the polymerization rate was
increased 6-7 fold in comparison to the control.

1/1

USSR

SUMINOV, V. M., GOL'DBERG, M. M., GREBNEV, A. A., Moscow Institute of Aviation Technology

"A Device for Automatic Dimensional Analysis of Microscopic Objects"

Translation: This Author's Certificate introduces a device for automatic dimensional analysis of microscopic objects. The device contains an optical system, a closed-circuit television system, and a display unit. In front of the optical system is a light source, and the closed-circuit TV system has an analyzer at the output. As a distinguishing feature of the patent, the accuracy of analysis is improved by using an input controller made in the form of a set of time-mark elements connected between the output of the TV system and the input of the analyzer. The patent also covers a modification of this device distinguished by the fact that the light source is made in the form of a continuous-emission laser with an attachment for reducing the degree of coherence.

1/1

USSR   UDC: 621.385:530.145.6:62

SUMINOV, V. M., PROMYSLOV, Ye. V., SKVORCHEVSKIY, A. K., KUZIN, B. G.

"Effect Which Misalignment of the Mirrors in a Laser Cavity Has on the
Accuracy of Geometric Parameters of Laser-Drilled Holes"

V sb. Obmen opytom v radioprom-sti (Experience Pooling in the Radio Industry
—collection of works), vyp. 1, Moscow, 1971, pp 26-29 (from RZh-Radiotekh-
nika, No 5, May 71, Abstract No 5D472)

Translation: The authors describe experimental studies carried out on
specimens of Kh18N9T steel in which they determined the effect of cavity
misalignment on the diameter and depth of laser-drilled holes and the change
in weight of the metal removed during machining. It is shown that when the
mirrors are misaligned, there are appreciable changes in the longitudinal
and transverse shapes of finished holes. For all possible versions of mirror
misalignment there is a change in the weight of the vaporized metal with an
increase in the angle of misalignment. The amount of material removed during
machining differs for all cases. Maximum hole parameters are observed with
a certain displacement of the mirrors relative to the end surfaces of the
active medium, rather than with perfect alignment. The most favorable case
is that where the cavity mirrors are oriented in the same direction and
shifted by the same angle. A. K.

1/1

UDC: 621.317.733

USSR

KAZAKOV, S. M., MANTUSH, T. N., SUMITEL'NOV, V. N., Novosibirsk

"Designing High-Speed Phase-Sensitive Frequency-Range Detectors"

Novosibirsk, Avtometriya, No 3, 1970, pp 48-53

Abstract: The article deals with the problem of stabilizing the transfer constant of integrating phase-sensitive detectors for a continuous frequency range by proper selection of the integration time. The possibility of improving the metrological characteristics of the integrating detectors themselves is briefly discussed. The authors describe their own circuit for a phase-sensitive detector with integration by a whole number of half-periods. A block diagram of the device is given. The detector operates satisfactorily in a frequency range from a few dozen Hz to 100 kHz. The error in indication of a 90° shift varies from a few tenths of a degree to a few degrees at the end of the scale, which is acceptable even for high precision digital bridges. The authors thank candidate of technical sciences K. M. Sobolevskiy for his consideration and for his assistance in preparing this article.

1/1

TSVIRKO, Yu. A. and SUMMAR, V. S.

"Frequency of a Gunn Oscillator in a Low-Q Resonance System as a
Function of the Bias Voltage"

Abstract: In the Gunn diode, attention is usually directed to the
increase in frequency of resonance modes caused by the reduction
in capacitance of the force field domain with a variation in the
bias voltage. When the diode is in a resonance system, the fre-
quency is also a function of the effective Q. This brief communi-
cation considers both these effects, which result in only small
frequency variations. The authors obtain an approximate solution
for the oscillations of the diode in a tuned circuit in the form
of a rapidly converging series expansion of the frequency in terms
of Q. They describe experiments to investigate the frequency char-
acteristics of Gunn diodes operating in a mixed resonance mode and
in a mode with domain suppression by a low field in resonance sys-
tems made up of asymmetrical ribbon line segments with 20-30 ohm
impedance. The laboratory specimens were electron GaAs, 85-125 mm
thick, connected in parallel with half-wave line segments.
1/1

USSR

UDC 621.382.2

TSVIRKO, Yu. A., and SUMMAR, V. S.

"Gunn Oscillator in Resonant System With Low Q"

Translation: The dependence on the bias voltage of the oscillation frequency of a Gunn oscillator operating in a resonator contains a component that is linear with respect to a small value -- the inverse effective Q of the system. The results are presented of a measurement of the dependence of the oscillation frequency on the bias voltage for a Gunn semiconductor diode operating in resonant half-wave band systems with low Q. During generation at a mode with domain suppression by a low field, an increase of the voltage can give rise to a decrease of frequency.

1/1

TITLE--STANDARDS OF UNIFIED SYSTEM OF DESIGNER DOCUMENTATION AND PROBLEMS
   OF UNIFICATION IN MECHANICAL AND PRECISION ENGINEERING --U-

AUTHOR-(02)-STEPANOV, YU.I., SUMSHIK, M.R.

CCUNTRY OF INFO--USSR

SOURCE--STANDARTY I KACHESTVO, 1970, NR 4, PP 59-62

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--TECHNICAL STANDARD, ENGINEERING STANDARD

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/2014   STEP NO--UR/0422/70/000/004/0059/0062

CIRC ACCESSICN NC--AP0102044
                           UNCLASSIFIED

CIRC ACCESSION NO--AP0102044

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STANDARDS INCLUDED IN THE
UNIFIED SYSTEM OF DESIGNER DOCUMENTATION INFLUENCE THE ADOPTION OF
DECISIONS ON PROBLEMS OF UNIFICATION IN SHAPING THE DESIGN DOCUMENTS, ON
THE PRINCIPLES OF DESIGN CONTINUITY IN DESIGNING THE PRODUCTS OF
MECHANICAL AND PRECISION ENGINEERING, AND ON TYPIZATION OF PRODUCTION
PROCESSES.

UNCLASSIFIED

UDC 547.7:546.185

USSR

KAZYMOV, A. V., SUMSKAYA, E. B., KIRILLOVA, K. M., and SHCHILKINA, Ye. P.,
Kazan' Institute of the Chemico-Photographic Industry

"Reaction of Cyanomethylenephosphonium Salts With Alkoxyvinyl(butadienyl)
Derivatives of Heterocyclic Bases"

Abstract: Established methods of obtaining trimethinephosphacyanin dyes by
chemical synthesis are unsatisfactory, either because of low yield or the
presence of undesirable concomitants. The authors investigated the alkoxy-
vinyl and butadienyl salts of heterocyclic bases as possible sources of these
dyes, offering at the same time greater convenience and simplicity in synthesis.
Nine phosphorus-containing trimethine and pentamethinecyanin dyes were obtained
through condensation of cyanomethylenephosphonium salts with β-alkoxyvinyl and
δ-alkoxybutadienyl salts of heterocyclic bases. Optical properties of these,
along with some physical data, were obtained. Yields and techniques of syn-
thesis were found to be definitely advantageous in comparison with current
methods of producing these dyes.

1/1

USSR

UDC 547+546.18

KAZYMOV, A. V., and SUMSKAYA, E. B., Kazan' Scientific Technological and
Design Research Institute of Chemical Photography Industry

"Reaction of Zinke Aldehyde with Triphenylcyanomethylenephosphonium Chloride"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 6, No 9, Sep 70, pp 1944-1945

Abstract: It was determined that reaction of triphenylcyanomethylenephospho-
nium chloride with Zinke aldehyde yields hexamethenehemiphosphinine when it
is carried out in acetic anhydride. When the reaction is carried out in
pyridine and acetic anhydride, the product is a symmetric heptamethenephos-
phinine.

1/1

KAZYMOV, A. V., and SUMSKAYA, E. B., Kazan' Scientific Research and Develop-
ment Institute of the Chemical Photographic Industry

"Reaction of Triphenylcyanomethylenephosphonium Chloride With Tetraalkyl
Acetates of Unsubstituted and Mesoalkylsubstituted Malonedialdehydes"

Abstract: Triphenylcyanomethylenephosphonium chloride when heated in pyridine,
reacts with 1,1,3,3-tetraethoxypropane. The reaction lasts 5 hrs at 125-130°,
yielding 2,6-bis-cyano-1,1,1,7,7,7-hexaphenylpentamethylenephosphonium perch-
lorate, m.p. 232.5-233°. The 4-methyl and 4-ethyl derivates, melting at
229-230°C and 242-244°C respectively, were similarly prepared.

1/1.

USSR   UDC 518.9

GAMBROV, L. A., SUMTSOV, A. A., DAGYAN, A. V.

"The Problem of Distribution of Resources as a Game with Matrix Strategies"

Translation: The problem of the distribution of several types of means of attack and defense between objects of fixed values is studied as a game with matrix strategies. The case is studied in which the stategies of the attacker include the possibility of using special attack devices for suppression of defense.

1/1

UNCLASSIFIED

TITLE--RADICAL OPERATION IN CANCER OF THE PAPILLA DUODENI REGION -U-   PROCESSING DATE--11SEP70

AUTHOR--SHALIMOV, A.A., SUMTSOV, N.A.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 3, PP 32-39

DATE PUBLISHED------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SURGERY, CANCER, PANCREAS, DUODENUM, BILE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0852

STEP NO--UR/0589/70/104/003/0032/0039

CIRC ACCESSION NO--AP0102813

UNCLASSIFIED

CIRC ACCESSION NO--AP0102813

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CANCER OF THE PERIAMPULLARY ZONE
(PANCREATIC HEAD, MAJOR PAPILLA DUODENI, DISTAL PORTION OF THE BILE DUCT
AND DUODENUM IN THE REGION OF THE DUODENAL PAPILLA) OCCURS MORE
FREQUENTLY THAN IT WAS CONSIDERED TO BE. IN THE CITY OF KHARKOV WITHIN
A 9 YEAR PERIOD (FROM 1959 TO 1967) ON THE AVERAGE AN INTENSIVE INDEX OF
MORTALITY DUE TO CANCER OF THE PANCREAS AND PERIAMPULLARY ZONE IS EQUAL
TO 6.7 FOR 100,000 POPULATION. PANCREATODUODENAL RESECTION IS BELIEVED
TO BE THE PRINCIPAL RADICAL SURGERY IN CANCER OF THE PERIAMPULLARY ZONE.
ONE OF THE AUTHORS (A. A. SHALIMOV) HAS ELABORATED TWO VARIANTS OF
PANCREATODUODENAL RESECTION AND PERFORMED 86 SUCH OPERATIVE PORCEDURES.
THE POSTOPERATIVE MORTALITY WAS 31.4PERCENT. ELEVEN PERSONS
(18.6PERCENT OF DISCHARGED PATIENTS) SURVIVED FOR OR OVER 5 YEARS AFTER
THE OPERATION, TWO OF THESE PATIENTS SHOWED AN OVER 10 YEAR SURVIVAL.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11SEP70

1/2   015

TITLE--WELDING OF MEDIUM CARBON STEELS IN CARBON DIOXIDE WITHOUT PRELIMINARY HEATING -U-

AUTHOR--NIKHINSON, YU.I., SUMVATIN, V.I.

COUNTRY OF INFO--USSR

SOURCE--SVAR. PROIZVOD. 1970, (2), 20-3

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--STEEL WELDING, CARBON STEEL, CARBON DIOXIDE ARC WELDING, WELDING ELECTRODE, METAL HEATING, METAL CRACKING/(U)45L STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1378

STEP NO--UR/0135/70/000/002/0020/0023

---CTION NO--AP0107851

UNCLASSIFIED

CIRC ACCESSION NO--AP0107851
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CRACKFREE WELDING OF STEEL 45L
WITH ELECTRODES UONI-13-55 UNDER CO_2 REQUIRES HEATING; A METHOD
WITHOUT PRELIMINARY HEATING IS DEVELOPED.

Acc. Nr.: *AP0046762*

Ref. Code: *UR0125*

USSR

UDC 621.791.75

NIKHILSON, YU. I., SIMYATIN, V. I., GOLEMBO, S. B., SLOBIN, B. Z., GRUDO, A. I., VAYSBURD, I. SH.

"Welding the Frame of the Self-Propelled Chassis T-16M"

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 44-46
(from Avtomaticheskaya Svarka, No 1, 1970, p 80)

Translation: The results of selecting the technological process for welding steel 45L with an increased carbon content are discussed. It is recommended that the welding be performed in two layers without preliminary heating. There are 3 illustrations.

1/1

di 18

Reel/Frame
19790066

USSR

UDC: 539.374

IL'YUSHIN, A. A., Corresponding Member of the USSR Acadamy of Sciences; MOVLYANKULOV, Kh.; SUNCHALIYEV, R. M.; and FILATOV, A. N.

"Some Methods for Investigating Nonlinear Problems in Viscous-Elasticity Theory"

Doklady Akademii Nauk SSSR, vol 206, No 1, 1972, pp 59-61

Abstract: The authors find a simplified form of the general equations for the nonlinear theory of viscous-elasticity by eliminating the inertial term, thus obtaining an equation which describes quasi-static problems of the theory. They consider that this simplified form is reduced to a system of ordinary integrodifferential equations by the straight-line or Bubnov-Galerkin methods and show how these equations can be averaged for solving dynamic problems in nonlinear viscous-elasticity theory. They show also how the "freezing" method can be used to investigate integral equations which arise in quasi-static problems of the theory. They are associated with the Cybernetics Institute and Computer Center, Uzbek Academy of Sciences, at Tashkent.

1/1

USSR

SUNDUCHKOV, K. S.

"Current Phase Measurements at Low UHF Signal Levels"

Abstract: The measurement system proposed in this paper has the signal to be measured and the local oscillator signal pass simultaneously through the input circuits of the measuring instrument receiver channel. The level of the signal to be measured is less than 10^{-10} watts and the measurement interval is limited to less than 0.1 seconds with an accuracy of $1-3°$ in phase. A formula is found for the phase measurement error, and the value of this error is determined for intermediate frequencies of 10 kH and 1 MHz. The block diagram of the measuring apparatus is given. Experiments performed on this equipment to determine the amplitude-phase error of the uhf mixer are described. It was found that this error is practically eliminated by stabilizing the d-c current of the mixer diodes.

1/1

USSR   UDC: 621.396.6:621.315.61(088.8)

PROKOPOVA, T. V., ZOLOTAREV, L. L., ZAVARZINA, Z. Ya., GLOBA, G. G., PEY-
KAROVA, A. A., SUND'YA, G. A.

"A Photosensitive Electrical Insulating Lacquer"

Translation: This Author's Certificate introduces an electrical insulating
photosensitive lacquer based on epoxidized rubber stock with the addition
of thermo- and photopolymerization initiators, a plasticizer and a modifier.

1/1

Extraction and Refining

USSR   UDC 621.791.85

SUNDYREV, I. A., and MAKUNIN, M. S., Moscow

"Formation of Metal Drops During Electron Beam Melting of Metals"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May/Jun 73, pp 53-57

Abstract: The radius of drops can be calculated from formula $R = K \sqrt[8]{Q}$ where K is the formation coefficient of drops, which is a constant value under given conditions, and which depends only on the physical properties of the metal, $cm(sec/g)^{1/8}$; Q is the rate of melting. This equation relates the size of metal drops formed on the electrode to the physical properties of the metal and the rate of metal melting. The density of the metal has the strongest influence on the radius of drops. Viscosity and surface tension, as well as the rate of melting have very little effect on the size of drops. The size of drops does not depend on the shape of the electrode surface. Theoretical conclusions were verified experimentally during melting of molybdenum and nickel. Many points in this article are debatable and the whole subject needs further study.

1/1

Acc. Nr.

AP0048844   Abstracting Service:
             CHEMICAL ABST.   Ref. Code
                                               UR 0459

91041q Determination of the composition of the reaction mixture in the polymerization of organocyclosiloxanes by means of gel chromatography. Andrianov, K. A.; Zhdanov, A. A.; Zavin, B. G.; Sunekants, T. I. (Inst. Elementoorg. Soedin., Moscow, USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 20-5 (Russ). The contents of high b.p., low mol. wt. organocyclosiloxanes (present in a mixt. with polymers), e.g., octaphenylcyclotetrasiloxane, hexaphenylcyclotrisiloxane, 1,3,5,7-tetramethyl-1,3,5,7-tetraphenylcyclotetrasiloxane (I), 1,1,5,5-tetramethyl-3,3,7,7-tetraphenylcyclotetrasiloxane (II), 1,1,3,5,7-pentamethyl-3,5,7-triphenylcyclotetrasiloxane, 1,2,3,3,5,5-hexamethyl-7,7-diphenylcyclotetrasiloxane, 1,3,5-trimethyl-1,3,5-triphenylcyclotrisiloxane, heptamethylphenylcyclotetrasiloxane, octamethylcyclotetrasiloxane (III), hexamethyltrisiloxane, ferrocene, hexamethyldisiloxane, and SKTV-1 poly(dimethylsiloxane) rubber (mol. wt. 450,000) were studied by gel chromatog. The distribution factors (K_d) were calcd. from elution vols. (V_e) (C_6H_6 eluent). The K_d and V_e were inversely proportional to the mol. wt., e.g., I and II had identical V_e and K_d. Elution of SKTV-1 and III on a 96:4 styrene-divinylbenzene copolymer gave satisfactory results and was highly reproducible. A good correlation was obtained between gel chromatog. and gravimetric anal. of III. A ratio between gel chromatographic peaks gave a good indication of monomer consumption during polymn.

CKJR

REEL/FRAME
19800611

USSR

ZVYAGIN, V.I., SUNEP, YU.I., ZATCLCKA, S.I., YEGOROV, A.I., AKMENTIN'SH, YA.YA., PUNDUR, P.A.

UDC 621.382.3

Translation: The method described for determination of the effectiveness of collection of non-equilibrium carriers in various regions of a silicon planar transistor involves measurement of the charge collected by a p-n junction. Corresponding measurements are conducted on a KT331 device before and after irradiation by nuclear radiation. Formulas are given which connect the effectiveness of collection with the volume life time of non-equilibrium charge carriers. Author's abstract.

1/1

UNCLASSIFIED

TITLE--THE INTERACTION OF MATTER AND RADIATION IN THE HOT MODEL OF THE UNIVERSE -U-

PROCESSING DATE--23OCT70

AUTHOR-(02)-SUNIAEV, R.A., ZELDOVICH, L.B.

COUNTRY OF INFO--USSR

SOURCE--ASTROPHYSICS AND SPACE SCIENCE, VOL. 7, APR. 1970, P. 20-30

DATE PUBLISHED----APR70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--HOT MODEL, SPACE MATTER, RADIATION SPECTRUM, ASTROPHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0261

STEP NO--NE/0000/70/007/000/0020/0030

CIRC ACCESSION NO--AP0126033

UNCLASSIFIED

2/2   019

CIRC ACCESSION NO--AP0126033   UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL DEMONSTRATION THAT THE HEATING OF THE PRIMEVAL PLASMA BEFORE THE EPOCH OF RECOMBINATION RESULTS IN DISTORTIONS IN THE RAYLEIGH JEANS REGION OF THE MICROWAVE RELIC RADIATION SPECTRUM. IT IS POINTED OUT THAT PRESENT OBSERVATIONAL DATA LLOW THE ESTIMATION OF ENERGY INJECTION LIMITS WITH CERTAIN LIMITS FOR THE AMOUNT OF ANTIMATTER IN THE UNIVERSE, FOR THE PARAMETERS OF PRIMEVAL TURBULENCE AND FOR THE ADIABATIC FLUCTUATION SPECTRUM OF SMALL MASSES. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT PRIKLADNOI MATEMATIKI, MOSCOW, USSR.

UNCLASSIFIED

025

TITLE--SMALL SCALE FLUCTUATIONS OF RELIC RADIATION -U-

UNCLASSIFIED

PROCESSING DATE--23OCT70

AUTHOR-(02)-SUNIAEV, R.A., ZELDOVICH, I.B.

COUNTRY OF INFO--USSR

SOURCE--ASTROPHYSICS AND SPACE SCIENCE, VOL. 7, APR. 1970, P. 3-19

DATE PUBLISHED----APR70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--GALAXY, ASTROPHYSICS, ADIABATIC PROCESS, HEATING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0260

STEP NO--NE/0000/70/007/000/0003/0019

CIRC ACCESSION NO--AP0126032

UNCLASSIFIED

CIRC ACCESSION NO--AP0126032   UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL DEMONSTRATION OF THE INCONSISTENCY OF THE ADIABATIC RELATION ASSUMED BY SILK (1967, 1968) TO EXIST BETWEEN THE DENSITY PERTURBATIONS IN THE INITIAL PLASMA AND THE RADIATION TEMPERATURE FLUCTUATIONS AT THE MOMENT OF A PLASMA RECOMBINATION WHICH LED, ACCORDING TO THE ISOTROPIC COSMOLOGICAL MODEL, TO THE FORMATION OF GALAXIES. CALCULATIONS INDICATE THAT THE EXPECTED TEMPERATURE FLUCTUATIONS SHOULD BE SMALLER THAN THE ONES IMPLIED BY THIS ADIABATIC RELATION. FLUCTUATIONS OF THE RELIC RADIATION DUE TO SECONDARY HEATING OF THE INTERGALACTIC GAS ARE ALSO ESTIMATED. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT PRIKLADNOI MATEMATIKI, MOSCOW, USSR.

UNCLASSIFIED

USSR

SUNIK, L. M., Chair of Pathological Anatomy, Tashkent Medical Institute, Tashkent

"The morphological and Histochemical Characteristics of the Healing of Surgical Wounds Under Conditions of Hypodynamia and a Kinetic Load"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 12, Dec 71, pp 32-36

Abstract: Forty-two rats were subjected to laparotomy by a Kerr incision 2-2.5 cm long on the right side, whereupon the would was sutured with a slik thread. After the operation, 18 rats (group I) were placed into small cage compartments, so that their movements were restricted to a great extent, while 24 rats (group II) were placed into a large case and subjected every day to exercise on a treadmill for 20 min that was equivalent to running over a distance of ~2 km. Under the effect of the kinetic load applied to rats in group II, healing of the wound proceeded faster than in group I. Vascularization and metabolism in the would region were more intensive in group II than group I. The scar that formed on healing was softer and more elastic in animals of group II than those of group I.

1/1

USSR

KONEV, V. N., CHEBOTIN, V. N., SUNTSOV, N. V., and STAVTSEVA, L. I., Ural
State University imeni A. M. Gor'kiy

"Nickel Oxidation in an Atmosphere With Various Amounts of Sulfur Dioxide"

UDC: 620.193.5

Abstract: The presence of sulfur dioxide in the air strongly increases the
nickel oxidation rate and causes the formation of scale of a complex composi-
tion. However, research in the subject is far from complete. The scale
produced in this study at 750 and 800°C comprises three layers. According to
x-ray diffraction and microscopic examination data, the outer layer is the
most dense, the middle layer is relatively porous and contains a NiO phase,
while the inner layer, with a metallic glitter, closely adheres to the metal
and comprises the Ni_3S_2 phase. The crystal lattice parameter of NiO decreases
with an increase in SO_2 in the oxidizing atmosphere. The growth of scale on
the nickel is, under all conditions, described by the parabolic law. The NiO
layer grows at the scale-gas boundary. The higher rate of scale growth from
NiO with SO_2 in the atmosphere may be explained by an increase in the con-

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USSR

KONEV, V. N., et al, Zashchita Metallov, Vol 6, no. 4, Jul-Aug 70, pp 448-450

centration of cation vacancies in the oxide on sulfur dissolution in it. Use is made of the relationship between the constant of the parabolic law K and P_{SO_2} in a mixture of SO_2+O_2 at P_{O_2} = constant obtained in earlier research to explain the formation of Ni_3S_2 phase which grows with a increase in P_{SO_2}. The results of this study suggest that sulfur is transfered toward the metal through the NiO phase by diffusion through the scale lattice rather than along the microcracks and pores. The disappearance of Ni_3S_2 in the scale when passing from 800 to 850°C is apparently related to a decrease in sulfur solubility in NiO with an increase in temperature. The maximum S solubility in NiO is at 800°C.

2/2

- 21 -

USSR

MAKUNIN, M. S., ZHELADNOV, V. I., TYUPOV, G. G., FILIPPOV, A. F., and SUNDYREV, I. A., Moscow

"Elimination of Nitrogen and Oxygen From Chromium-Nickel Alloys During Electron Beam Smelting"

Abstract: Oxygen was removed from Ni-Cr-Ti alloy during a 5-min-long exposure to an electron beam when the surface temperature of the molten metal was 1600-1620°C. The residual concentration of oxygen was 0.001%, regardless of the initial oxygen concentration. Metallographic analysis of the initial and refined metal showed that oxygen was present in this alloy in the form of a complex spinel consisting of Cr_2O_3, Al_2O_3, and TiO_2 (if Ti is present). The refined metal was purer and the inclusions in it were distributed more uniformly. In order to decrease the concentration of nitrogen in Ni-Cr alloy from 0.099-0.047 to 0.02-0.01%, a 20-minute exposure of molten metal to the electron beam was required. For nickel alloys containing 8 and 20% Cr, the elimination of nitrogen amounted to 30-40%. The addition of 1.5% Ti to nickel alloy containing 8% Cr did not change the elimination kinetics of nitrogen. However, the purification rate of the alloy containing 20% Cr and 2% Ti from nitrogen was
1/2

USSR

MAKUNIN, M. S., et al, Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan/Feb 73, pp 39-43

higher compared with the same alloy without Ti. A sharp decrease in the concentration of oxygen and nitrogen during melting of the electrode and a short exposure of molten metal to the electron beam showed that this method of refining of metals has many advantages. The largest amount of gases were removed from the thin layer of molten metal during the fusion of the electrode and from molten metal drops. The rate of elimination of nitrogen from the molten metal is controlled by the mass transfer processes.

2/2

- 61 -

L/2   029

TITLE--THE INTERACTION OF MATTER AND RADIATION IN THE HOT MODEL OF THE
UNIVERSE. II -U-

UNCLASSIFIED

PROCESSING DATE--27NOV70

AUTHOR-(02)-SUNYAEV, R.A., ZELDOVICH, YA.B.

COUNTRY OF INFO--USSR

SOURCE--ASTROPHYS. SPACE SCI. (NETHERLANDS), VOL 7, NO. 1, P. 20-30 (APRIL
1970)

DATE PUBLISHED----APR70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, PHYSICS

TOPIC TAGS--COSMOLOGY, SPACE MATTER, SPACE RADIATION, ASTROPHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0536

STEP NO--NE/0000/70/007/001/0020/0030

CIRC ACCESSION NO--AP0135999

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0135999
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR PT. I SEE ABSTR. A47611 OF
1969. HEATING OF THE PRIMAEVAL PLASMA PRIOR TO THE EPOCH OF
RECOMBINATION RESULTS IN DISTORTIONS IN THE RAYLEIGH JEANS REGIONS OF
MICROWAVE RELIC RADIATION SPECTRUM (LAMBDA IS SIMILAR TO 1-60 CM, OR
MORE EXACTLY LAMBDA EQUALS 2.5 OMEGA PRIME SEVEN EIGHTHS NEGATIVE CM).
THE PRESENT OBSERVATIONAL DATA ALLOW LIMITS TO BE SET TO SUCH ENERGY
INJECTION FROM WHICH FOLLOW UPPER LIMITS TO (A) THE AMOUNT OF ANTIMATTER
IN THE UNIVERSE; (B) THE PARAMETERS OF PRIMAEVAL TURBULENCE; AND (C) THE
ADIABATIC FLUCTUATION SPECTRUM FOR SMALL MASSES (M IS LESS THAN 10
PRIME11 M TIMES THE MASS OF THE SUN). IF THE HEATING TAKES PLACE PRIOR
TO THE EPOCH T EQUALS 10 PRIME10 OMEGA TWELVE FIFTHS SEC (AND IN
PARTICULAR AT THE ANNIHILATION OF ELECTRON POSITRON PAIRS AT T SIMILAR
TO 10 PRIME8 MINUS 10 PRIME10 K, T IS LESS THAN 300 SEC), NO OBSERVABLE
DISTORTIONS ARE EXPECTED IN THE RELIC RADIATION SPECTRUM. HERE OMEGA
EQUALS P-PERIT IS THE DIMENSIONLESS AVERAGE DENSITY OF MATTER IN THE
UNIVERSE.   FACILITY: ACAD. SCI., USSR, MOSCOW.

UNCLASSIFIED

1/2   021

UNCLASSIFIED

TITLE--SMALL SCALE FLUCTUATIONS OF RELIC RADIATION -U-   PROCESSING DATE--20NOV70

AUTHOR-(02)-SUNYAEV, R.A., ZELDOVICH, YA.B.

COUNTRY OF INFO--USSR

SOURCE--ASTROPHYS. SPACE SCI. (NETHERLANDS), VOL. 7, NO. 1, P. 3-19 (APRIL 1970)

DATE PUBLISHED----APR70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--COSMOLOGY, GALAXY, SPACE RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0551

STEP NO--NE/0000/70/007/001/0003/0019

CIRC ACCESSION NO--AP0136014

UNCLASSIFIED

CIRC ACCESSION NO--AP0136014   UNCLASSIFIED   PROCESSING DATE--20NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PERTURBATION OF THE MATTER DENISTY
IN A HOMOGENEOUS AND ISOTROPIC COSMOLOGICAL MODEL WHICH LEADS TO THE
FORMATION OF GALAXIES SHOULD, AT LATER STAGES OF EVOLUTION, CAUSE
SPATIAL FLUCTUATIONS OF RELIC RADIATION. SILK (SEE ABSTR. A36977 OF
1968) ASSUMED THAT AN ADIABATIC CONNECTION EXISTED BETWEEN THE DENSITY
PERTURBATIONS AT THE MOMENT OF RECOMBINATION OF THE INITIAL PLASMA AND
FLUCTUATIONS OF THE OBSERVED TEMPERATURE OF RADIATION DELTA T-T EQUALS
DELTA RHO SUBM-3 RHO SUBM.   IT IS SHOWN IN THIS ARTICLE THAT SUCH A
SIMPLE CONNECTION IS NOT APPLICABLE DUE TO: (1) THE LONG TIME OF
RECOMBINATION; (2) THE FACT THAT WHEN REGIONS WITH M SMALLER THAN 10
PRIMES N SUBMASS OF THE SUN BECOME TRANSPARENT FOR RADIATION, THE
OPTICAL DEPTH TO THE OBSERVER IS STILL LARGE DUE TJ THOMPSON SCATTERING;
(3) THE SPASMODIC INCREASE OF DELTA RHO SUBM-RHO SUBM IN RECOMBINATION.
AS A RESULT THE EXPECTED TEMPERATURE FLUCTUATIONS OF RELIC RADIATION
SHOULD BE SMALLER THAN ADIABATIC FLUCTUATIONS. IN THIS ARTICLE THE
VALUE OF DELTA T-T ARISING FROM SCATTERING OF RADIATION ON MOVING
ELECTRONS IS CALCULATED; THE VELOCITY FIELD IS GENERATED BY ADIABATIC OR
ENTROPY DENISTY PERTURBATIONS.   FACILITY: ADAC. SCI. USSR.,
MOSCOW.

UNCLASSIFIED   PROCESSING DATE--27NOV70

1/2   024

TITLE--ISOTYPIC N,GERMANIUM,N,SILICON HETEROJUNCTIONS -U-

AUTHOR-(04)-FEDOTOV, YA.A., GRUZDEVA, G.A., KOVALEV, A.N., SUPALOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(5), 825-9

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SILICON SINGLE CRYSTAL, GERMANIUM SINGLE CRYSTAL, EPITAXIAL
GROWTH, HYDROGEN, PHOTOELECTRIC PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0894   STEP NO--UR/0449/70/004/005/0825/0829

CIRC ACCESSION NO--AP0136328
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0136328
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS STUDIED OF THE
TECHNOLOGY OF THE PREPN. OF ISOTYPIC HETEROJUNCTIONS N,GE,N,SI ON THEIR
ELEC. AND PHOTOELEC. CHARACTERISTICS. THE ISOTYPIC HETEROJUNCTIONS WERE
PREPD. BY THE IODIDE TRANSPORT METHOD, WITH H AS THE CARRIER GAS. GE
EPITAXIAL LAYERS WERE GROWN ON FREE SI SURFACES OR IN THE OPENINGS IN A
SI OXIDE LAYER, WHICH WERE OBTAINED BY THE PHOTOLITHOGRAPHIC METHOD.
THE ADDNL. INTRODUCTION OF LINEAR DEFECTS DURING THE GROWTH OF GE IN THE
OPENING OF OXIDE LAYER SUBSTANTIALLY CHANGES THE D. OF STATES ON THE
GE-SI INTERFACE.   FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW,
USSR.

UNCLASSIFIED

USSR   UDC 616.12-78

MAKAROV, L. V., and SUPER, N. A., All Union Scientific Research Institute of
Surgical Apparatus and Instruments, Moscow

"Selecting the Structural Design of an "Artificial Heart" of the Diaphragm Type"

Abstract: This theoretical article (with diagram) explains the structural features
of artificial hearts with diaphragm or cavity pumps.

SUPIN, A. Ya., Institute of Evolutionary Animal Morphology and Ecology imeni
A. N. Severtsov, Academy of Sciences USSR, Moscow

"Evoked Potential of the Rabbit Visual Cortex Following Local Stimulation of
the Receptive Fields"

Abstract: The visual cortex of curarized rabbits was stimulated by the presen-
tation, removal, or shifting of a spot of light on the screen of a cathode
tube; the light was only slightly brighter than the background illumination.
A complex of evoked potentials was recorded in response to stimulation:
primary deep negative response, secondary deep negativity, slow deep positive
wave. The region where the cortical responses were recorded proved to be
highly localized both vertical and horizontally, unlike the responses to
diffuse stimulation, and they disappeared when the spot was shifted only a few
degrees from the optimum position. The primary response and secondary deep
negativity was accompanied by excitation of the cortical neurons in the same
place, whereas the slow deep positive wave was associated with inhibition of
their activity.

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USSR   UDC 612.843.7

SUPIN, A. YA., Institute of Evolutionary Morphology and Animal Ecology imeni
A. N. Sebertsov, Academy of Sciences USSR, Moscow

"Excitability Cycles and Rhythmic Responses of Visual Cortical Neurons to
Point and Diffuse Light Stimuli"

Abstract: The responses of 38 neurons, selected from ore than 100 neurons for
their intense reaction to short-term stimulation of their receptor fields by
punctiform light were compared with the responses produced by diffuse light
stimuli and electrical stimulation of the optic nerve. The tests were performed
on unanesthetized rabbits which had been immobilized by Diplacin. It was found
that the different forms of stimulation affected the character of the response
as well as the excitability cycle of a given pair of stimuli. Diffuse light
and electrical stimuli produced a brief period of initial excitation of a
neuron which was followed by a deep inhibitory interval. Point visual stimu-
lation, on the other hand, produced strong and relatively long-lasting excita-
tion and only slight inhibition. The responses to repeated point stimuli were
not repressed. This pattern was observed with both paired and rhythmic stimula-
tion. When rhythmic stimuli were applied to the same point in the perceptive
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USSR

field, sustained excitation was observed at stimulation frequencies below 15/sec. At higher frequencies, only on- and off-responses were produced as a result of repeated stimulation. Such an observed threshold frequency (of 15/sec) was not observed when the rhythmic stimuli were applied to different point of the receptive field. The author concludes that visual cortical neurons can respond to continuous excitation at practically any frequency of afferent transmissions. This dependence of the effectiveness of inhibitory response on the duration of the stimulus is considered to be an indication for the pronounced capability of this form of inhibition toward time accumulation. Consequently the character of the interactions of excitation and inhibition processes at a cortical neuron depends considerably on the type of the applied stimulation so that it is necessary to include these processes in the analysis of afferent signals.

2/2

USSR

UDC 612.825.5

LADYGINA, T. F., and SUPIN, A. YA., Institute of Evolutionary Animal Morpho-
logy and Ecology imeni A. N. Severtsov, Academy of Sciences USSR, and Moscow
State University imeni M. V. Lomonosov, Moscow

"Acoustic Projection in the Dolphin Cerebral Cortex"

Abstract: To determine the boundaries of the acoustic zone in the cortex of
the dolphin (phocaena phocaena), the responses to clicks were recorded from
different spots. Maximum activity was detected in the parietal region 1.5
to 2.5-3 cm lateral to the sutura sagittalis and 3.5 to 5.5-6 m caudal to
the sutura coronalis. Two main responses were found: rapid negative with
a latent period of about 6 msec, and slow positive with a latent period of
15 to 20 msec. The distribution of potentials in the cortex appears to be
different from that in other animals. In addition to these two main responses,
a very rapid one (with a latent period of less than 1 msec) was recorded from
all of the electrodes. The fact that it did not disappear or even decrease
when the electrodes were shifted beyond the cortex suggests that it is of
noncortical origin.

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ON THE MECHANISMS OF THE «ENHANCING RESPONSE» IN THE RABBIT VISUAL CORTEX

Supin A. Ya.

*The A. N. Severtsov Institute of Evolutional Morphology
and Ecology of Animals, Academy of Sciences, USSR, Moscow*

Summary

Some mechanisms of the previously described «enhancing evoked potential» in the visual cortex of an unanaesthetized rabbit were investigated. This response was evoked by repeated pairs of stimuli at intervals from 100 to 150 msec., e. d. when the test stimulus coinsided with the postinhibitory rebound after the reaction to the first (conditioning) stimulus. The enhancing response had greater duration than the primary response to a single stimulus. The enhancing response was evoked by both the optic nerve stimulation and stimulation of the subcortical white matter. The enhancing response was accompanied by a high-amplitude EPSP and by a burst of spike discharges

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REEL/FRAME

19770573

AP0044103

in cortical neurons. The correlation between amplitude and duration shorter duration with larger amplitude and non-linear dependence of amplitude upon intensity of the subcortical white matter stimulation were specific properties of the enhancing response. Consideration of possible mechanisms of enhancement of the response during postinhibitory rebound suggested that this response might be generated by a recurrent excitatory intracortical system. This suggestion is in agreement with the data on properties of the enhancing response.

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19770574

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1/2   028   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--RESTORATION CYCLES OF EVOKED POTENTIALS AND CORTICAL INHIBITION -U-

AUTHOR--SUPIN, A.YA.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL VYSSHEY NERVNOY DEYATEL'NOSTI, 1970, VOL 20, NR 2, PP
  450-458
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RABBIT, CEREBRAL CORTEX, NEURON, INHIBITION, VISION, NERVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1698   STEP NO--UR/0247/70/020/002/0450/0458

CIRC ACCESSION NO--AP0106442
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0106442

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. A STUDY WAS MADE OF RESTORATION
CYCLES OF PRIMARY RESPONSES IN THE RABBIT'S VISUAL CORTEX UNDER
CONDITIONS OF PAIRED STIMULATIONS OF THE OPTIC NERVE OR THE LATERAL
GENICULATE BODY. THE RESTORATION CYCLE OF THE PRIMARY EVOKED POTENTIAL
AS WELL AS OF THE CORRESPONDING PRIMARY ACTIVITY BURST OF CORTICAL
NEURONS LASTS ABOUT 1 SEC. A SIMILAR RESTORATION CYCLE IS RECORDED
AFTER THE STIMULATION OF THE EXTRASTRIATE CORTEX, WHICH POINTS TO THE
CORTICAL ORIGIN OF THE EFFECT. PROLONGED SUPPRESSION OF THE TEST
PRIMARY RESPONSES IS NOT ATTENDED WITH EVOKED POTENTIALS OR CHANGES IN
THE UNIT BACKGROUND ACTIVITY OF A SIMILAR DURATION AFTER CONDITIONING
STIMULATION. IN OTHER WORDS, THE PROTRACTED INHIBITORY PROCESS CAUSING
THE SUPPRESSION OF PRIMARY RESPONSES DIFFERS FROM THE WELL KNOWN
INHIBITORY PHENOMENA IN THE CORTEX. IT IS ASSUMED THAT IT IS OF A
RECURRENT CHARACTER.   FACILITY: LABORATORY OF COMPARATIVE
NEUROBIOLOGY, SEVERTSOV INSTITUTE OF ANIMAL EVOLUTIONARY MORPHOLOGY AND
ECOLOGY, USSR ACADEMY OF SCIENCES, MOSCOW.

UNCLASSIFIED

USSR

UDC 632.95

SELEZNEVA, T. YE., SISTER, YU. D., SUPIN, G. S.

"Amperometric Titration of Sulfur Containing Biologically Active Substances. Analysis of Cyneb"

Tr. 2-go VSes. soveshch.po issled. ostatkov pestitsidov i profilakt. zagryaz-neniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-Union Conference on the Investigation of Pesticide Residues and Preventive Contamination of Food Products, Feeds, and Environment), Tallin, 1971, p 249 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N476)

Translation: Cyneb is dissolved in 5 moles of KOH; the solution is neutralized with HCl or HNO_3 to pH 6.8, and is titrated with Hg^{2+} or Ag^+ salts on a platinum rotating microelectrode with respect to a saturated Hg_2Cl_2-electrode with a potential of +0.6 volts. The relative error in analyzing 10^{-7}-10^{-5} moles of cyneb in 50 ml of the solution is 0.3-0.6%.

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USSR

UDC 632.95

MIKHAYLOV, V. S., SUPIN, G. S.

"Determination of Residual Amounts of Phthalophos and Benzophosphate by the Oscillopolarographic Method"

Tr. 2-go Vses. Soveshch. po issled. ostatkov pestitsidov profilakt. zagryaz-neniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-Union Conference on the Investigation of Pesticide Residues and Preventive Contamination of Food Products, Feeds and Environment), Tallin, 1971, pp 237-240 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N442)

Translation: In analyzing residues of phthalophos (I) and phosalone (II) in apples, a sample was extracted by acetone, evaporated and hydrolyzed with 1M KOH; 2M AcOH was added to a pH of 5; the solution was blown with an inert gas and the oscillopolarogram was reduced on a Hg-drop electrode. The sensitivity of the method is 0.2 mg/kg of I or II; the degree of detection is 65.4 ± 8.9 and $63.3 \pm 6.0\%$ respectively.

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UDC 632.95

USSR

SUPIN, G. S., BEZUGLYY, S. F., MAKAROVA, S. V., OVSISHCHER, M. R., KALASHNI-KOVA, V. N., MIKHEYEVA, S. YA., and ZAKS, P. G.

"Mercurometric Volumetric Method of Determining Phthalophos (With Visual and Amperometric Endpoint)"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 81-83 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N409)

Translation: A specimen containing phthalophos (I) is hydrolyzed in an alkaline medium, the resultant dimethyl dithiophosphate is volumetrically analyzed with 0.01 N $Hg(NO_3)_2$ in the presence of a 1% alcohol solution of diphenylcarbazone until the pink color becomes lilac blue. Amperometric titration is done with a vibrating platinum electrode or a dropping mercury electrode relative to a saturated Hg_2Cl_2 electrode. The sensitivity of amperometric titration is 0.06 mg of I, and that of the visual method is 0.6 mg of I.

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USSR

UDC 632.95:661.718.1

BAKANOVA, Z. M., MANDEL'BAUM, YA. A., SUPIN, G. S., MEL'NIKOV, N. N.,
and ABBAKUMOVA, N. V., All-Union Scientific Research Institute of
Chemical Plant Protectants

"Properties of Methylnitrophos and Methods for Its Analysis"

Abstract: Chemically pure methylnitrophos consists of two isomers,
viz. O,O-dimethyl-O-4-nitro-3-methylphenyl thiophosphate (70-75 per-
cent) and O,O-dimethyl-O-6-nitro-3-methylphenyl thiophosphate (25-30
percent). Isomer I is the principal active ingredient of commercial
methylnitrophos, isomer II the synergist for isomer I. Studies con-
ducted in 1964-1968 showed that methylnitrophos matches the insecti-
cidal properties of isomer I (Sumithion, Metathion). This is con-
firmed by data of the Ternopol' Agricultural Experiment Station on the
effectiveness of Metathion and methylnitrophos against the beet leaf
miner and beet leaf aphid, as well as by results obtained in experi-
ments of the Georgian Subtropical Laboratory on the effectiveness of

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- 145 -

USSR

BAKANOVA, Z. M., et al., Khimiya v Sel'skom Khozyaystve, Vol 8, No 1, Jan 70, pp 32-35

these preparations against the citrus white fly. Both isomers of methylnitrophos, as well as free 3-methyl-4-nitro- and 3-methyl-6-nitrophenols were determined by the authors by the polarographic method. The article describes the analysis procedure.

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USSR   UDC 614.35:615.285.7

SUPIN, G. S., and IVANCHENKO, V. V., Candidate of Chemical Science, All-Union
Scientific Research Institute of Chemical Means of Plant Protection, Moscow,
and the Saratov Scientific Research Institute of Agrarian Hygiene

"The Use of Polarography in Determining Residual Amounts of Organophosphorus
Pesticides"

Abstract: A study of the application of the classic polarographic method
and its modifications to determine residual amounts of organophosphorus
pesticides showed the method to be very sensitive in all cases reviewed.
The authors conclude that the various polarographic methods can be used to
work out a reliable system for determining traces of any organophosphorus
pesticides.

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USSR   UDC 619:615.415

KOYSHIBAYEV, G. K., Aspirant, and SUPIN, G. S., Candidate of Chemical
Sciences, Helminthology Laboratory of the USSR Academy of Sciences and the
All-Union Scientific Research Institute of Chemical Plant Protection

"The Effect of Temperature on the Activity of Chlorophos Ointment"

Abstract: In 1969-1970, a 40% chlorophos ointment was used for the treatment
of ear skin filariasis in cattle. Since the effectiveness of treatment was
98.3% and the ointment may be used again, the shelf-life of this compound
was tested. The test ointment was prepared by mixing five parts of 80%
chlorophos with four parts of anhydrous lanolin and one part of water. Aliquot
samples were sealed in flasks, kept for 3 months at temperatures of 56°, 35°,
and $18-20^\circ C$, and then the concentration of the biologically active substance
was determined by a special polarographic method. Samples kept as 56° C lost
all chlorophos; samples kept at 35° lost 34% of initial chlorophos content;
and samples kept at room temperature retained all of the inital chlorophos
content.

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UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--PROPERTIES AND METHODS FOR ANALYZING METHYLNITROPHOS -U-

AUTHOR-(05)-BAKANOVA, Z.M., MANDELBAUM, YA.A., MELNIKOV, N.N., SUPIN, G.S., ABBAKUMOVA, N.V.

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(1), 32-5

DATE PUBLISHED------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ISOMER, ORGANIC PHOSPHOROUS INSECTICIDE, ORGANIC NITRO COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1159

STEP NO--UR/0394/70/008/001/0032/0035

CIRC ACCESSION NO--AP0109276

UNCLASSIFIED

CIRC ACCESSION NO--AP0109276
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE PROPERTIES WERE GIVEN OF
  METHYLNITROPHOS, A MIXT. OF O,O,DIMETHYL,O,4,NITRO,3,
  METHYLPHENYLTHIOPHOSPHATE (I) (70-75PERCENT) AND O,O,DIMETHYL,O,
  6,NITRO,3,METHYLPHENYLTHIOPHOSPHATE (II) (25-30PERCENT), AND ITS BIOL.
  ACTIVITY. ISOMER I IS THE ACTIVE SUBSTANCE, AND II ACTED
  SYNERGISTICALLY. FORMULAE ARE GIVEN PERMITTING CALCN. OF THE CONTENT OF
  PARTICULAR ISOMERS WITH AN ACCURACY OF SIMILAR TO 2.5PERCENT.

UNCLASSIFIED

USSR   UDC: 621.396.6-181.5

SUPLIVENKO, V. N., NESTERENKO, B. O., OVCHINNIKOV, Yu. A.

"Recording the Static Parameters of Integrated Circuitry"

Translation: A method is outlined for recording the static parameters of integrated microcircuits by using the appropriate measuring device and the N-373-2 microammeter-millivoltmeter chart recorder. An attachment is developed for reading out the measurement results from the chart. Resumé.

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Acc. Nr: *AP0037232*   S   Ref. Code: UR 0391

PRIMARY SOURCE: Gigiyena, Truda i Professional'nyye
                  Zabolevaniya, 1970, Nr 2, pp 37-40

PROBLEMS OF INDUSTRIAL HYGIENE IN THE PRODUCTION OF HIGH-GRADE
                    COMMERCIAL GLASS

Suponitskiy, M. Ya.; Shelyfman, F. M.; Zelentsova, S. P.;
Faktorov, I. Ye.; Tupchiy, Ye. P.; Voloshina, E.I.; Levin, M. V.

Summary

    Pollution of atmospheric environment with arsenous acid anhydride. lead, manganic oxide and other substances is possible in production of high-grade commercial glass. Workers engaged in the latter are, at the same time, exposed to the effect of infrared radiation, elevated air temperature, noise, vibration. They demonstrate physiological shifts of thermoregulation and and the incidence of affections implicating cardiovascular system, digestive organs, etc is elevated among them. The authors suggested a number of measures aimed at improving hygienic conditions of work, some of which had been implemented.

D.R.

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REEL/FRAME
19730157

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USSR   UDC 621.382.5

SUPOSTAT, S. A., TIKHOMIROV, V. G.

"Device for Measurement of the Thermoelectric and Thermomagnetic Efficiency
of Semiconductor Substances"

V sb. Nizkotemperaturn. termoelektrich. materialy (Low-Temperature Thermo-
electric Materials--Collection of Works), Kishinev, 1970, pp 35-38 (from
RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5B194)

Translation: The paper describes a device based on the Harman method for
direct measurement of thermoelectric and thermomagnetic efficiency, which
makes it possible to conduct a study in the temperature range 100-400°K.
2 ill. 1 ref. Summary.

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UNCLASSIFIED

TITLE--COMPLEX TREATMENT WITH ANTIBIOTICS AND HEMOTRANSFUSIONS OF PATIENTS WITH TYPHOID AND PARATYPHOID DISEASES -U-

PROCESSING DATE--13NOV70

AUTHOR--SUPRANOVICH, N.S.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 6, PP 142-144

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD TRANSFUSION, ANTIBIOTIC, PARATYPHOID FEVER, TYPHOID FEVER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1766

STEP NO--UR/0475/70/000/006/0142/0144

CIRC ACCESSION NO--AP0129314

UNCLASSIFIED

2/2   018

CIRC ACCESSION NU--AP0129314   PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A RAPID THERAPEUTIC EFFECT WAS
ACHIEVED FOLLOWING ANTIBIOTICOTHERAPHY IN COMBINATION WITH
HEMOTRANSFUSION IN 58.6PERCENT, AND A SLOW EFFECT IN 27.1PERCENT OF
PATIENTS WITH TYPHUS ABDOMINALIS. NO ALTERATION OF THE COURSE WAS
OBSERVED IN 14PERCENT. HEMOTRANSFUSIONS MAY BE EMPLOYED AT ANY PERIOD
OF THE DISEASE AS THEY DO NOT WORSEN THE PATIENT'S CONDITION.   PATIENTS
TREATED BY THIS METHOD SHOWED A SHORTER PERIOD OF FEVER, REDUCTION OF
INTOXICATION, MORE REPID RECONVALESCENCE, FEWER COMPLICATIONS, RELAPSES.
     FACILITY: KAFEDRA INFEKTSIONNYKH BOLEZNEY L'VOVSKOGO
MEDITSINSKOGO INSTITUTA.

Molecular Physics

USSR

DAVYDOV, A. S., SUPRUN, A. D. (Institute of Theoretical Physics of the
Ukrainian Academy of Sciences, Kiev)

"Configuration Changes and Optical Properties of α-Spiral Protein Molecules"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, January 1974, pp 44-50

Abstract: The paper deals with the excited states of a protein molecule and
with the changes in molecular configuration connected with these excitations.
A possible optical manifestation of such excited states is also investigated.
With excitation of exciton states in an α-spiral the energy level correspond-
ing to an excited state of an isolated peptide group is shown to split into
two zones -- "symmetric" and "antisymmetric."

In the study of the changes in the α-spiral configuration, the anti-
symmetric excitations are of essential importance. With optical excitation
of the α-spiral two states transversely polarized ($E_c^\perp$ and $E_a^\perp$) and one state
polarized in the longitudinal direction ($E\parallel$) are realized.

The article includes a figure depicting schematically a portion of the
α-spiral and 20 equations. There are five references.
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USSR

UDC 539.376+532.135

SUPRUN, A. N.

"On Measures of the Action and Reaction of Rheological Models"

Tr. Gor'kov. inzh.-stroit. in-ta (Works of Gor'kiy Structural Engineering Institute), 1971, No. 58, pp 9-13 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V531)

Translation: It is proposed that variable values of a special mechanical scheme (chain) be used in the analysis of rheological models after assigning them the form of measures of action and reaction of the medium being modeled. Two simple formulas of the linear-fractional type were obtained for this purpose. The values of the measures of action and reaction of the rheological model introduced in them are variables of the mechanical chain and coincide, however, in form with the corresponding variables of the medium being modeled. The latter make it possible to achieve joint studies of a rheological model as an independent mechanical system and as a phenomenological analog of a continuous system. Three corresponding structural schemes are given. M. I. Rozovskiy.

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Acc. Nr: AP0049041   Ref. Code: UR0357

PRIMARY SOURCE: Vestnik Oftal'mologii, 1970, Nr 1
                PP 19-23

SOME PROBLEMS OF PATHOGENESIS AND TREATMENT OF OCULAR HYPERTENSION IN CLIMACTERIUM

Suprun, A.V.; Krymskaya, M.L.; Zmanovskiy, Yu.F.; Bove, M.V.

Summary

Results consecutive to dynamic examination of 40 women with climacteric syndrome and deranged regulation of the intraocular tension are reported. The follow-up time ranged from 2 to 7 years. Clinical and electrophysiological (EEG and REG) investigations furnished evidence that in 35 patients subcortical brain structures were involved in the pathological process with attendant changes in the cerebral circulation, commonly of functional nature. Pathogenetic treatment (sedative and hormonal therapy) contributed to the improvement of the general condition of patients and to the normalization of intraocular pressure in them. In 12 women symptoms of the climacteric -

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REEL/FRAME
19800825

AP0049041

syndrome vanished, intraocular tension returned back to normal with no objective changes visible on the level of the eyes. Twenty women exhibited upset regulation of the intraocular pressure without any other signs of glaucoma, while in 8 others initial primary glaucoma was diagnosed. The authors conclude that, alongside manifestations of primary glaucome, women with pathological climacterium may present specific disturbances of the intraocular pressure regulation without any other symptoms of glaucoma, these disturbances having a tendency towards involution. This condition is considered by them as ocular hypertension, appearing as a symptom of climacteric syndrome.

19800826

USSR   UDC: 620.193.27

MARKOVICH, R. A., and SUPRUN, L. A., Central Scientific Research Institute
of the Maritime Fleet

"Corrosion Resistance and Kinetics of Failure of Carbon Steel in Running
Sea Water"

Moscow, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70, pp 557-561

Abstract: A study was made of the mechanism of the effect of a
stream on the corrosion rate of steel in the form of a rotat-
ing disk. The specific nature of diffusion to the surface of
the flat disk makes it possible to simulate diffusion processes
occurring in a turbulent flow on a disk functioning under laminary
conditions. A curve in the original article demonstrates the
effect of the speed of rotation on the corrosion rate of type-
20 steel in various neutral solutions. Another figure illustrates
the dependence of the corrosion rate of a steel disk and the limit current
density on the square root of the speed of rotation in sea water. The
corrosion rate of steel in NaCl solutions is about 1.5 times higher than
that in synthetic sea water; this is explained by the presence in the
latter of magnesium and calcium salts. The hydroxides of pola-
net of which are formed in the areas adjoining the cathodic areas of
in the corroding surface.

USSR

MARKOVICH, R. A., and SUPRUN, L. A., Zashchita Metallov, Vol 6,
No 5, Sep-Oct 70, pp 557-561

sea water is considerably lower than the limit cathode current. To some
extent this is related to additional diffusional difficulties caused by
the corrosion films deposited during the tests on the surface of the
steel. A decrease in the dissolution rate with an increase in rpm of the
disk is noted.

1/2   025   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--GLUCOCORTICOID FUNCTION OF THE ADRENAL CORTEX IN ACUTE AND
   EXACERBATED CHRONIC INFLAMMATION OF THE GENITALS -U-
AUTHOR--SUPRUN, L.YA.

COUNTRY OF INFO--USSR

SOURCE--ZDRAVOOKHRANENIYE BELORUSSII, 1970, NR 2, PP 14-17

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADRENAL CORTEX, REPRODUCTIVE SYSTEM, BLOOD PLASMA,
   CORTICOSTEROID, URINE, METABOLISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GLUCOCORTICOID FUNCTION OF THE ADRENAL CORTEX IN 111 PATIENTS WITH INFLAMMATION OF THE INTERIOR GENITAL ORGANS WAS INVESTIGATED, 37 FEMALES HAD AN ACUTE INFLAMMATORY PROCESS, 74, A CHRONIC RECURRENT ONE. THE RATE OF EXPRESSIVENESS OF THE ADRENAL CORTEX HYPOFUNCTION DEPENDED UPON THE DURATIVE INFLAMMATORY PROCESS AND GRAVITY OF THE DISEASE DEVELOPMENT. THE CONTENT OF FREE 17 OX IN THE BLOOD PLASMA AND THE CORTICOSTEROID FREE FRACTION IN THE URINE OF PATIENTS WITH INFLAMMATION OF THE GENITALS TURNED TO BE HIGHER THAN IN NORMAL SUBJECTS, THAT WAS AN EVIDENCE OF THE METABOLIC CHANGE OF THE CORTICOSTEROID HORMONES IN INFLAMMATORY AFFECTIONS OF THE FEMALE GENITAL ORGANS.

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TITLE--SODA FREE PROCESS FOR REMOVING SCALE FROM EVAPORATORS -U-

AUTHOR-(C5)-SHCHEGOLEV, V.N., CHERNEGOVA, I.K., SUPRUNCHUK, V.K.,
AVDEYEVA, A.V., VDOVENKO, I.D.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE PROCESS CONSISTS OF
  CIRCULATING AQ. 5-10PERCENT HCL CONTG. 0.5-1PERCENT OF AN INHIBITOR,
  E.G., A DIALKYLDIMETHYLAMMONIUM CHLORIDE, THROUGH THE EVAPORATOR IN A
  SPECIAL WAY FOR LESS THAN OR EQUAL TO 5 HR AT 60DEGREES. THIS METHOD
  REMOVES MORE SCALE AND DRASTICALLY REDUCES THE AMT. OF CORROSION. AN
  APP. IS DIAGRAMMED AND ITS OPERATION IS DESCRIBED, INCLUDING THE OPTIMUM
  CONDITIONS FOR CARRYING OUT THE PROCESS. THE PROCESS IS BEING USED IN
  MANY SUGAR FACTORIES.   FACILITY: INST. OBSHCH. NEORG. KHIM.,
  KIEV, USSR.

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USSR   UDC 512.86

SUPRUNENKO, D. A., Academician of the Academy of Sciences Belorussian SSR

"Minimum, Irreducible, Solvable Linear Groups of Prime Degree"

Abstract: The article gives a complete classification of the minimum, irreducible, solvable subgroups of the group $GL(p, \Delta)$, where p is a prime and Δ is an algebraically closed field. Let $\mathfrak{M}_p$ be the set of all minimum, irreducible, solvable subgroups of the group $GL(p, \Delta)$. Each group from $\mathfrak{M}_p$ turns out to be monomial, finite, and either biprimary or a p-group. Then, H from $\mathfrak{M}_p$ is a Miller-Moreno group; i.e., each true subgroup of the group H is Abelian. The principal result of the article is the construction of the subset $\mathfrak{M}_{p'}$ of the set $\mathfrak{M}_p$ such that each subgroup from $\mathfrak{M}_p$ is conjugate in $GL(p, \Delta)$ to one and only one subgroup from $\mathfrak{M}_{p'}$. Any group from $\mathfrak{M}_p$ is given by the two matrices which generate it. (The proof will be published in a separate article.)

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USSR

SUPRUNENKO. D. A.

"Finite Irreducible and Solvable Linear Groups"

Abstract: A proof is given of the monomialness of the finite ir-
reducible and solvable subgroup of the group $GL(n,\Delta)$ and of the
reducibility of the finite nilpotent subgroups $GL(n,\Delta)$, where
Δ is some subfield of a field of real numbers and n is an odd
number. Principal attention is devoted to finite irreducible
and solvable subgroups of the group $GL(p,\Delta)$, where p is an odd
prime number. If V is a linear space of dimension n over the
arbitrary field Δ, subgroup G of the complete linear group $GL(V)$
is defined as monomial if there exists the expansion $V = W_1 + \ldots + W_n$
with unidimensional imprimitivity systems W_i of group G. Thirteen
lemmas and one theorem are stated and proved. The author is asso-
ciated with the Institute of Mathematics, Academy of Sciences,
BSSR.

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Higher Algebra & Geometry and Topology

Abstract: The following theorem is proved: Let m be the product
of all different prime divisors of the number n, Γ the maximum
transitive nilpotent subgroup of the group S_n = $S(X)$, N a normal-
izer of stabilizer $\Gamma_a, a \in X$. Then $N : \Gamma_a$ = m: i. e., the num-
ber of orbits of unit length of the stabilizer Γ_a equals m.

        The following corollary is formulated: Let H be a transi-
tive nilpotent subgroup of the group S_n = $S(X)$, and $a \in X$.
Then the stabilizer H_a has at least m orbits of unit length.

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USSR

SUPRUNENKO, Academician of the Belorussian Academy of Sciences D. A. (Institute of Mathematics, Belorussian Academy of Sciences)

"Normalizer of an Intransitive Group"

Minsk, Doklady Akademii Nauk BSSR; March, 1971; pp 197-9

ABSTRACT: Given that H is a subgroup of the symmetric group $S(X)$, P is a subset of X invariant with respect to H. It is evident that P determines the representation of the group H:
$$r_p : H \rightarrow S(P), \quad r_p(h) = h_p, \quad h_p(x) = h(x), \quad h \in H, \quad x \in P.$$
Given also that P and Q are subsets of X invariant with respect to H such that the representations r_p and r_Q are equivalent, and N is the normalizer of H in $S(X)$. For g of N the expressions $U = g(P)$, $V = g(Q)$ are valid.

Then the representations r_U and r_V are also equivalent.

The article includes 13 equations. Two theorems are proven. There is one bibliographic reference. 1/1

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SUPRUNENKO, D. A., Academician of the Academy of Sciences Belorussian SSR,
Institute of Mathematics, Academy of Sciences Belorussian SSR

"Subgroups of a Full Linear Group Over a Body D Which Contain the Group of All
Special Triangular Matrices U(n,D)"

Abstract: The article proves the following two theorems:

1. Every irreducible subgroup of the group GL(n,D), where n > 1, which contains
U(n,D) contains SL(n,D).

2. Let G be a reducible subgroup of the group GL(n,D) containing the group U(n,D).
Then the matrices g of the group G take the form

$$g = \begin{bmatrix} g_1 & g_{12} & \cdots & g_{1l} \\ 0 & g_2 & \cdots & g_{2l} \\ \cdot & \cdot & \cdots & \cdot \\ 0 & 0 & \cdots & g_l \end{bmatrix},$$

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