- USSR

VARNAVSKIY, I. N., et al., Izvestiya Uchebnykh Vysshikh Zavedeniy--Chernaya
Metallurgiya, No 6, Jun 73, pp 53-56

particles and oxide films, then the heterogeneous nucleation of refractory
oxides and nitrides of titanium in the molten steel is possible under speci-
fied conditions. 3 figures, 1 table, 9 bibliographic references.

2/2

- 50 -

USSR   UDC 621.791.14:669.14.018.44

TRUTNEV, V. V., Candidate of Technical Sciences, KAMYSHEVA, G. P.,
Engineer, and GODIN, V. M., Candidate of Technical Sciences

"Friction Welding of EP56 Steel With EP202 Alloy"

Moscow, Svarochnoye Proizvodstvo, No 10, Oct 70, pp 17-18

Abstract: Welding of EP56 steel with EP202 nickel alloy in the solid phase
by friction was studied; the diffusion processes in this instance occur
significantly more slowly than in the solid-liquid phase during fusion
welding. It is demonstrated that the embrittlement of the welded joint
between the two metals produced in the solid state occurs after heat
treatment as a result of formation of a narrow, softened zone in the
joint. Embrittlement of these joints can be eliminated by increasing the
thickness of the softened zone by introducing an intermediate layer simi-
lar in composition to this zone, for example, by using an interlayer of
austenitic Kh12N22T2,5 steel.

1/1

USSR

BURDANINA, N. A., ZOLOTOTRUBOV, YU. S., KAMYSHEVA, I. N., ZHUKOV, O. K., and KOVALENKO, A. N.; Voronezh State University imeni Leninskiy Komsomol

"Dielectric Losses in Triglycinesulfate Crystals Subjected to Various Effects"

Abstract: The influence of gamma and x-radiation has been studied previously as it concerns the ferroelectric properties of a triglycine sulfate crystal (TGS). Since the parameter most sensitive to radiation is the tangent of the angle of dielectric losses tan δ, it can be expected that even small radiation doses will significantly change both the value of tan δ and the function tan δ(T) for the TGS. In this work the authors study the effect of the amplitude of the measuring field on these same functions. They first study the influence of annealing on the dielectric properties and find that orientation polarization makes a significant contribution to the dielectric permeability of the TGS as a result of heat annealing. The next section is devoted to the influence of the amplitude of the measuring field on samples having different thickness, which is probably determined by the characteristics of the domain structure. Preliminary investigations confirm that the degree of

1/2

USSR

BURDANINA, N. A., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 9, Sep 71, pp 1943-1946

unipolarity in the samples increases as their thickness decreases. The authors then look at the influence of irradiation on the dielectric properties and find that there is a decrease in the dielectric losses in the TGS crystal irradiated with comparatively small radiation doses. The article contains 4 illustrations and 9 bibliographic entries.

USSR

UDC: 582:616-001.4

KAMYSHKO, O. P., LESHCHENKO, V. M., and BALYASNIKOV, V. I., All Union Institute
of Plant Protection, Leningrad, and Central Dermato-Venereological Institute,
Moscow, and Leningrad Scientific Research Institute of Antibiotics

"Mycoflora Would"

Leningrad, Mikologiya i Fitopatologiya, Vol 4, No 6, 1970, pp 523-524

Abstract: A patient was observed who had an ulcer of the shin for 20 years follow-
ing a traumatic injury. Aspergillus clavatus, A. niger, Penicillium chrysogenum,
Scopulariopsis brevicaulis, and Rhizopus sp. were isolated from the ulcer and the
bandages. The cultures of all of these species except Rhizopus sp. had a strong
proteolytic activity, completely liquifying gelatin within 7 days at 24°C. Local
application of fungicides expedited healing of the ulcerous wound. The lasting
presence of fungi in the wound in this case and in similar cases cannot be ex-
plained by saprophytism on dead tissue; one must assume that the fungi bring about
death of living cells through the action of enzymes, toxins, and other substances
and that they thus function as parasites. Fungi may become adapted to parasitism

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USSR

KAMYSHKO, O. P., et al, Mikologiya i Fitopatologiya, Vol 4, No 6, 1970, pp 523-524

of this sort and should then be regarded as infectious agents. Therapeutic meas-
ures for the treatment of slowly healing wounds should be devised on the basis of
a consideration of the composition of mycoflora present in them.

2/2

Aluminum and Its Alloys

BABIN, YU. A., FRIDLYANDER, I. N., KAMYSHKOV, A.S.

"Thermal Stability of Sintered Aluminum Powder"

Translation: A study was made of the thermal stability of SAP-1 [sintered aluminum powder-1] sheets 2.0 and 2.5 mm thick. The sheets were obtained from a flat briquette undergoing degassing annealing at a temperature of $625\pm5°$ for 72 hours and cladded with AMts alloy 4-5% of the side thick. The Al_2O_3 content in the initial powder is ~8.3%. The total gas content in the sheets was ~$3cm^3/100g$. A study was made of the effect of long-term continuous heating at temperatures to 600° and also short-term heating at temperatures exceeding the melting point of the pure aluminum on the structure and properties of the material: in spite of the absence of a strict law, the tendency toward a reduction in strength when testing at a temperature of 350 and 500° after heating to 1000 hours at the same temperature is observed. The data on the material strength at 500° after annealing at 600° connected with polymorphic transformation of the Al_2O_3 at 550° from amorphous to the brittle crystal version deserves special attention. 1/2

USSR

BABIN, YU. A., et al. Tr. Mosk.aviats.in-ta., 1971, vyp. 228, pp 156-165

The test strength at increased temperatures varies little, and after holding at
600°, it even increases. The short-term holding of the alloy in the temperature
range close to the melting point of aluminum leads to very perceptible increase
in the heat resistance. Four illustrations, four tables, and a 6-entry
bibliography.

2/2

1/2   025   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--THE STATE OF THE BIOGENIC AMINO METABOLISM IN PATIENTS WITH ACUTE
LEUCOSIS -U-
AUTHOR-(03)-KAMYSHNIKOV, V.S., IVANOV, YE.P., BANDARIN, V.A.

COUNTRY OF INFO--USSR

SOURCE--ZDRAVOOKHRANENIYE BELORUSSII, 1970, NR 3, PP 48-51

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AMINO ACID METABOLISM, NORADRENALINE, ADRENALINE, SEROTONIN,
WHOLE BLOOD, BLOOD DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1982/1551   STEP NO--UR/0477/70/000/003/0048/0051

CIRC ACCESSION NO--AP0052755
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0052755

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KATECHOLAMIN, TIRAMIN AND SEROTIN METABOLISM HAS BEEN INVESTIGATED IN PATIENTS WITH ACUTE LEUCOSIS IN THE DYNAMICS OF THE DISEASE. AT THE LEVEL OF EXPRESSIVE CLINICAL INDICATIONS A DECREASED EXCRETION OF NORADRENALINUM, OF ADRENALINUM, VANILIN ALMOND AND 5,OXYINDOL,ACETIC ACIDS, A DECREASE OF THE SEROTONIN LEVEL IN THE WHOLE BLOOD AND AN INCREASE OF THE TIROSIN CONTENT IN THE PLASMA HAVE BEEN MARKED. AN EXCRETION OF TIRAMIN, DIOXYPHENILALANINUM AND DOPHAMINE IN THE PATIENTS WHO HAVE BEEN IN THE STATE OF CLINICO HAEMOTOLOGIC REMISSION HAS NOT DIFFERED FROM THE USUAL NORM. IN THE COURSE OF TREATMENT, ENDED BY REMISSION A TENDENCY TOWARDS NORMALIZING THE KATECHOLAMINOUS AND SEROTINOUS METABOLISM HAS BEEN FOUND.

UNCLASSIFIED

AA0052657 *KAMYSHOV* *A.I.*

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,
·Derwent,

244806 HEAT SHIELD on the hot plate spot of.
the exhaust manifold of ship or locomo-
tive diesel engine, is improved by coating the man-
ifold 1 with asbestos sheet 2 and an outer coating
of insulating and heat resisting material 5 which
consists of solidified mixture of soluble glass,
white heat resisting clay and asbestos fibre. The
material 5 is held round the manifold 1 by a steel
net held by wires 4 and hooks 3 (Sec. A.A.). The
heat shield 6 is mounted over the asbestos cover-
ings and consists of internal perforated sheet 9
and plain sheets 7 and 8 welded inside the carcass
of 6 and having air spaces. (Sect. B.B.).

12.4.68 as 1233258/24-6 A.I. KAMYSHOV et al. V.V.
Kubishev Kolomenski Locomotive Plant (9.10.69)
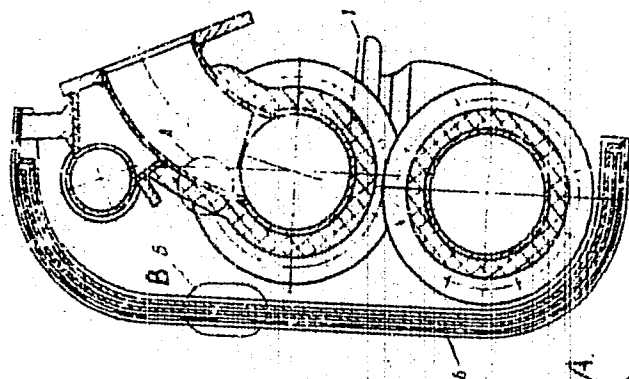Bul. 18/28.5.69. Class 46c, Int. Cl. F 02F.
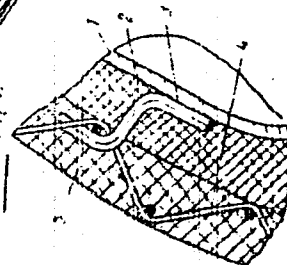
4

19821397

AA0052657   Kamyshov, A. I.; Vorozhikin, V. A.; Shiryayev, V. M.;
  Pakhomov, V. V.; Kolomenskiy Teplovozostroitelnyy Zavod im. V. V. Kuy-
  bysheva

2/2   19821398   Fig. 0

Acc. Nr.: _AP0041291_ $\cancel{K}$ Ref. Code: _UR C209_

USSR   UDC: None

KAMYSHOV, I., Lt. Col, Medical Science Graduate, and LAZAREV, V., ~~Physician-Flyer~~

"Illusions Observed in Flight"

Moscow, Aviatsiya i Kosmonavtika, No. 1, 70, pp 37-38

Abstract: The section of the above-named journal in which this article appears is titled "Flight and Psychology." The article itself deals with sensory illusions of the flier, a consequence, according to the authors, of the transition from the ground of two dimensions to the air space of three, where man's sense organs are better adapted to the former than to the latter. At the present time, the point of view of vestibular illusions is most widespread. According to this point of view, man is oriented in space through his sense of vision, through the vestibular apparatus, by kinaesthetic, vascular, and internal organ signaling. In flight,

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1/3   Reel/Frame

                        __19751126__

AP0041291

however, the action of aerodynamic forces leads to distortions in the sense of gravitation direction; that, in turn, leads to the formation of a new complex of the senses in which vision is the most important factor. Where the pilot cannot see the horizon, his visual sense loses its predominating position to the vestibular sense, among others, and the result is such sensory illusions as mistaking the direction of banking or pitching. At the same time, the experimental evidence indicates that the occurrence of illusions does not depend on the sensitivity of the vestibular apparatus. The author describes an experiment, in which he participated, testing the ability of a student pilot to maintain horizontal flight. In most cases, the plane took on a bank angle of 30° and varied in speed by 10 meters per second after only 10-15 seconds, with the instrument panel covered. The author suggests that the best way to cope with illusions of this kind is to publicize them thoroughly; he complains that although pilots note the appearance of these illusions and how they overcame them in answering their questionnaires, they do not always report them.

19751127

AP0041291

A true report, he continues, will make it possible to clear up
the cause of loss of control of the horizon, determine the source
of false information, and work out a method for overcoming illu-
sions so that other fliers in a similar situation can take advan-
tage of the experience. He also recommends that fliers be
trained with a curtain over the instrument panel to learn to de-
termine their position after being disoriented. The purpose of
this is to present the student with a perfectly new situation
after the instructor has gone through some evolution so that he
will learn to cope with it when the panel is unmasked again.

3/3

19751128

USSR   UDC 621.762:669.018.95

GORBATOV, A. G., and KAMYSHOV, V. M., Sverdlovsk Institute of the National
Economy

"Electrical Conductivity of Mixtures of Aluminum Nitride and Silicon Nitride"

Kiev, Poroshkovaya Metallurgiya, No 11, Nov 70, pp 61-65

Abstract: A possible diagram of aluminum nitride disordering is proposed
which is based on the measurement of the concentration dependence of elec-
trical conductivity and thermoelectric power of aluminum nitride and its
mixtures with silicon nitride. In order to establish a possible mechanism of
conductivity in aluminum nitride, a study is made of the electrical conduc-
tivity of pure AlN and its mixtures with silicon nitride at different tem-
peratures and partial pressures of nitrogen in the gaseous phase. Poly-
crystalline cylindrical specimens 18 mm in diameter, produced from powders
by hot pressing in graphite press-molds at temperature of $1973-2273^\circ K$ and a
pressure of $1.47 \cdot 10^5$ n/m^2, are used in tests. The porosity of articles
was less than 5%. After pressing, the specimens were mechanically treated
for the removal of carbon from the surface and annealed in a flow of dry
ammonia for a period of 10 hrs at temperatures $1273-1373^\circ K$.
1/1

1/2   032   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--RADICAL ADDITION OF METHYL DIBROMOACETATE TO ETHYLENE AND 1 HEXENE
-U-
AUTHOR-(02)-FREYDLINA, R.KH., KAMYSHOVA, A.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 721-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BROMINATED ORGANIC COMPOUND, ETHYLENE, ACETATE, HEXENE,
   POLYMER, LACTONE, NMR SPECTRUM, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1907   STEP NO--UR/0062/70/000/003/0721/0723

CIRC ACCESSION NO--AP0123691
                         UNCLASSIFIED

2/2   032
CIRC ACCESSION NO--AP0123691   UNCLASSIFIED   PROCESSING DATE--23OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TELOMERIZATION OF C SUB2 H SUB4
WITH CHBR SUB2 CO SUB2 ME (I) WITH PEROXIDIC INITIATION WAS DESCRIBED.
IN AN AUTOCLAVE 42.5 G I AND 2 G BZ SUB2 O SUB2 FLUSHED WITH N,
PRESSURIZED WITH 100 ATM C SUB2 H SUB4, AND THE WHOLE HEATED 7 HR AT
100DEGREES (MAX. PRESSURE 320 ATM), GAVE 66PERCENT CONVERSION PRODUCTS
WHICH YIELDED 35PERCENT OF THIS MATERIAL AS MEO SUB2 CCHBR(CH SUB2 CH
SUB2) SUBX BR (II) (X EQUALS 1), B SUB5 71DEGREES, N PRIME2O SUBD
1.5084, D PRIME2O 1.8446, AND 42PERCENT II (X EQUALS 2), B SUB2
113DEGREES, 1.5056, 1.6555 ALONG WITH TELOMER II (X EQUALS 3) 23PERCENT,
WHICH WAS NOT DESCRIBED FURTHER. II (X EQUALS 1) HEATED 8 HR WITH FE
(CO) SUB5 AT 135DEGREES GAVE 83PERCENT 2,BURMOBUTYROLACTONE, B SUB5
96-7DEGREES, 1.5088, 1.7640. I AND 1-HEXENE IN THE PRESENCE OF
DICYCLOHEXYLPEROXY DICARBONATE INITIATOR GAVE IN 7 HR AT 55DEGREES
80PERCENT CONVERSION PRODUCTS WHICH YIELDED ON DISTN. 70.6PERCENT
1,3,DIBROMO,1,CARBOMETHOXYHEPTANE, B SUB4 117-18DEGREES, 1.4928, 1.5002,
AND THIS AFTER REPEATED FRACTIONATION GAVE THE 2 RACEMIC FORMS, B SUB3
113DEGREES, AND B SUB3 117DEGREES, RESP. WHICH WERE CHARACTERIZED BY NMR
AND IR SPECTRA.   FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW,
USSR.

UNCLASSIFIED

USSR

KAMZINA, L. S., KRAYNIK, N. N., GENE, V. V., and MYL'NIKOVA, I. Ye.,
Institute of Semiconductors, USSR Academy of Sciences

"Elasto-Optical Effect in Ferroelectric Materials With a Diffused Phase
Transition"

Abstract: The authors investigate the elasto-optical effect in ferroelectric
materials with diffused phase transition $PbMg_{1/3}Nb_{2/3}O_3$(PMN) and $PbZn_{1/c}$
$Nb_{2/3}O_3$(PZN). They determine the magnitude of the half-wave mechanical
stresses in the wavelength band of 4000-7000 Å and measure the variation
with temperature of the piezooptical coefficients $\pi_{11}-\pi_{12}$. They also
find the dependence of the slope of the double refraction Δn on the size
of the mechanical load in the area of diffusion of the phase transition.
The authors find that a study of the elasto-optical properties of perovskite
type ferroelectric materials permits a better understanding of the nature
and character of the diffused phase transition and enables the researcher
to distinguish the true electro-optical effect in the total effect; they
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USSR

KAMZINA, L. S., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 9, Sep 71, pp 1862-1864

feel that such investigations are of great practical significance. They show graphically the temperature boundary of diffusion for PZN and PZN. The article contains 3 illustrations, 1 table, and 4 bibliographic entries.

2/2

Immunology

USSR   UDC 615.372:576.851.49(SHIGELLA).015.46

KAMZOLKINA, N. B., Moscow Institute of Epidemiology and Microbiology

"Immunogenic Properties of Sh. sonnei Neurotoxin"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973,
pp 71-75

Abstract: Twenty three series of neurotoxin were obtained from stock cultures
and fresh isolates of Sh. sonnei autolysates; each of the 14 cultures was in
the S phase, with the exception of one. Studies on immunogenicity and toxi-
city were conducted with the neurotoxins or toxoids prepared by heat or forma-
lin treatment. The neurotoxins were demonstrated to be toxic for white mice.
Further experiments with white mice showed that neurotoxins, their toxoids,
and endotoxin (prepared either by the method of Boivin or ethanol precipi-
tation) would render mice immune against Sh. sonnei. However, the immuno-
genicity of the neurotoxins depended on the strain from which they were iso-
lated and the toxoids were less immunogenic. The role of neurotoxins in
infectious processes was demonstrated by the fact that under certain condi-
tions their instillation into the eyes of guinea pigs would prevent develop-
ment of keratoconjunctivitis on subsequent challenge with Sh. sonnei organisms,
following development of immunity.
1/1

Microbiology

USSR

UDC 576.851.48.097.29.097.2

KAMZOLKINA, N. B., Moscow Institute of Epidemiology and Microbiology

"Antigens of E. coli Neurotoxins"

Abstract: E. coli neurotoxins (exotoxins) are of a complex antigenic structure since they contain components present in homologous endotoxins as well as components characteristic of the neurotoxins of Shigella and Salmonella. The latter are quite different from the specific antigens of endotoxins and contain no haptene polysaccharides. However, like endotoxins, E. coli neurotoxins administered parenterally to rabbits induce the formation of two types of antibodies -- to proteins (or lipoproteins) and to polysaccharides. They also yield similar though not always identical diffuse precipitation reactions in agar for haptene polysaccharides. It remains to be elucidated whether or not the polysaccharide and protein complexes of the neurotoxins are identical with those of endotoxins.

1/1

Microbiology

VILSHANSKAYA, R. L., KAMZOLKINA, N. B. and EPSHTEYN-LITVAK, R. V., Moscow Institute of Epidemiological Microbiology

"Neurotoxin as One of the Factors Determining the Toxicity of Escherichia coli"

Translation: Two preparations were obtained from autolysates of freshly isolated cultures of E. coli: neurotoxin by precipitation with trichloroacetic acid at pH 3.5 (Buavin and Mesrobyanin, 1937) and endotoxin from the mother liquor remaining after centrifugation of the precipitated autolysates, subjected to dialysis and precipitation by alcohol (96° proof). Moreover, part of the series of neurotoxins obtained from hemolysis of E. coli cultures possessed also hemolytic capability; however, other series did not contain any determinable hemolysin. The preparations investigated in skin tests on rabbits possessed a marked sensitivity to neurotoxins. Similar preparations of neurotoxin and endotoxin were tested simultaneously on 2-4 rabbits. The toxins were introduced intracutaneously in doses of 0.1 ml of serial double cultures. Reactions within 1 and 2 days after the test with an erythema diameter of not less

1/4

USSR

VILSHANSKAYA, F. L., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiolo-
gii, Vol 48, No 1, Jan 71, pp 137-138

than 5 mm at the site of introduction of the toxins were taken into account.
The geometric mean dose harmful to the rabbit skin (SLD_{50}) was determined by
the method of Larsen and coworkers (1960). The maximum daily dose was express-
ed in gammas of dry amounts of toxins. All of the seven neuro- and endotoxin
series were tested.

It was established that the rabbit skin is more sensitive to the action
of neurotoxins, on introduction of which the SLD_{50} values were considerably
lower than on the introduction of endotoxins, and maximum reaction was observed
during the first 24 hours, whereas following the introduction of endotoxin the
above reaction occurred on the second day after the beginning of the test. The
difference between the SLD_{50} values for the neurotoxins and endotoxins was sta-
tistically significant.

Since the live cultures of E. coli, from which neurotoxins and endotoxins
are obtained, produced necrosis on the rabbit skin when introduced in an amount
of 100 million microbial cells (minimum necrosis-producing dose), the question
2/4

- 11 -

USSR

VILSHANSKAYA, F. L., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiolo-
gii, Vol 48, No 1, Jan 71, pp 137-138

arose as to whether the necrotic effect of the live cultures was related to the
toxins resulting from them. Knowing in each case the yield of one or the other
toxin from the microbial cells (neurotoxin 6.8-19.7, endotoxin 0.4-17.1 per cent
of dry weight), the probable content of each of them in 100 million microbial
cells was calculated. For neurotoxins this value exceeded several times the
corresponding SLD_{50} and the probable amount of toxin in 100 million microbial
cells was either very small or did not exist.

The data obtained made it possible to consider doubtful the role of en-
dotoxins in the emergence of the necrotic reaction following the introduction
of live cultures. However, even neurotoxins in the amounts supposedly present
in live cultures (1.7-49.3 γ in 100 million microbes) cannot by themselves cause
necrosis on the rabbit skin (necrosis sets in with the introduction of 200-300
γ or neurotoxins). This prompted us to determine whether the necrosing effect
of the live cultures was not a synergistic effect of neurotoxin and endotoxin.
To test this hypothesis, 0.2 ml of a mixture consisting of equal volumes of

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USSR

VILSHANSKAYA, F. L., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiolo-
gii, Vol 48, No 1, Jan 71, pp 137-138

diluted analogous neurotoxins and endotoxins was introduced subcutaneously to
the rabbits. Nine Mixtures in all were tested. No exacerbation of the skin
reaction was observed in any of the cases.

The results obtained did not exclude, however, the possible participation
of part of the neurotoxins in the emergence of the dermonecrotic reaction. The
fact that not all neurotoxins obtained from hemolysis of E. coli cultures pos-
sessed a hemolyzing capacity indicated the lability of hemolysin and its possi-
ble breakdown during extraction from microbial cells. Apparently, the toxicity
of live E. coli is due more to the neurotoxins than to the endotoxins. This is
indicated by the hemolyzing capability which we established for part of the neu-
rotoxins, by the great sensitivity of the rabbit skin to them, and by the fact
that the speed of the reaction to the neurotoxins does not differ from the speed
of the reaction to live cultures.

4/4

Microbiology

KAMZOLKINA, N. B., EPSHTEIN-LITVAK, R. V., and KOKORINA, T. A., Microbiology
Department, Moscow Scientific Research Institute of Epidemiology and Micro-
biology

"Neurotoxins of Intestinal Bacteria"

Abstract: The antigenic structure of neurotoxins obtained from dysentery
bacteria was studied. Some biological properties of neurotoxins which dis-
tinguish them from the corresponding endotoxins were also studied. Intra-
venous injection of the neurotoxins and of serologically nontypable cultures
of E. coli produced hypothermia symptoms in laboratory animals (guinea pigs
and rabbits) and pareses and paralyses of the extremities (mainly in rabbits).
Injection of E. coli neurotoxins into the lumen of an isolated loop of the
small intestine in a fasting rabbit produced dilatation of the segment with
reduced serous-hemorrhagic effusion as well as numerous hemorrhages in the
mucous membranes of the segment. The complex antigenic structure of the
neurotoxins was demonstrated in a serological study. All neurotoxins of

1/2

USSR

KAMZOLKINA, N. B., et al, Byulleten Eksperimentalnoy Biologii i Meditsiny, Vol 71, No 2, Feb 71, pp 70-73

dysentery and typhoid bacteria contained specific components of the corresponding endotoxins in their structure, as was demonstrated in the agar precipitation reaction of corresponding anti sera with homologous Boivin endotoxins or endotoxins obtained from autolysate cultures. The neurotoxins also contained the antigens usually found with Shigella, Salmonella, and Escherichia. Vi- and H-antigens were found in the neurotoxins of typhoid strains. Several neurotoxins obtained from fresh hemolysing strains contained hemolysin, which was recognized by its action on human erythrocytes.

2/2

KAMZOLOV, V. N., MASLOV, B. N., PIRUMOV, U. G., Moscow

"Study of the Trajectories of Particles in Lavale Nozzles"

Abstract: A method is presented for calculating the trajectories and para-
meters of liquid or solid particles during flow of two phase streams through
Lavale nozzles, allowing the number of particles precipitating onto the wall
of the nozzle to be determined and the momentum loss phenomena related to
this to be evaluated. A method is suggested allowing the known gas parameters
to be used to produce an approximate determination of the trajectories and
parameters of particles in the sub- and supersonic portions of the nozzles
and to determine the number of particles striking the nozzle wall, to deter-
mine approximately the density, velocity and temperature of particles, to
establish certain qualitative specifics of flow, in particular the formation
near the nozzle walls of closed and open zones in which particles of a given
size are absent. One defect of the method is that when calculating the move-
ment of particles, changes in gas parameters caused by delay of particles are
not considered.

1/1

1/2   011   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--AMYLOLYTIC ACTIVITY OF THE APHIOS, APHIS CRACCIVORA, HEMITRAMA
  BYKOVI UZBEKISTANICA -U-
AUTHOR--KAN, A.A.

COUNTRY OF INFO--USSR

SOURCE--UZB. BIOL. ZH. 1970, 14(1), 46-8 (RUSS)

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INSECTA, PLANT PARASITE, AMYLASE, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605002/E09 STEP NO--UR/9079/70/014/001/0046/0048

CIRC ACCESSION NO--AP0139482
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0139482   UNCLASSIFIED   PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. AS DETD. IN HOMOGENATES OF
INSECTS, THE AMYLOLYTIC ACTIVITY WAS HIGHER IN LARVAL STAGES THAN IN
IMAGO STAGES IN BOTH A. CRACCIVORA, AND HEMITRAMA BYKOVI UZBEKISTANICA.
IN IMAGO OF THE LATTER SPECIES, THE ENZYME ACTIVITY WAS HIGHER IN
SPRING, THAN IN SUMMER.   FACILITY: ZNDIZHAN. INST. KHLOPKOVOD.,
ANDIZHAN, USSR.

UNCLASSIFIED

USSR

UDC 621.565:629.12

KAN, A. V., IONOV, A. G.

"Description of the Cooling Installation with Screw Compressors on Amurskiy Zaliv-Class Ships"

Kholodil'naya Tekhnika, No 9, Sep, 1972, pp 19-21.

Abstract: The Amurskiy zaliv is the first of a series of 18,900 ton refrigerated transport ships constructed for the Soviet Union in France. The l.o.a. is 164.5 m, beam 22 m, speed 17.3 knots. There is particular interest in the automated refrigeration equipment, planned to operate without human control 16 hours per day. The installation consists of 5 independent machines (1 reserve), each including a type S 54-2E screw compressor. The cold productivity of the machine is 110,000 kcal/hr at $t_0 = -38°C$, $t_f = 35°C$. Each electric motor is rated at 160 kw. The machine includes an oil separator, condensor with a surface of 69 m^2 with receiver capacity 480 l, 2 filter-dryers, ribbed air coolers for the hatches. Each system carries about 500 kg of freon-22. The single-stage screw compressor consists of driving and driven rotors. The blade shape, plus oil injection, provide a high degree of compression. Cold production is smoothly regulated between 10 and 100% by changing the effective length of the rotors by axial movement of a valve. Experience gained from the operation of these cooling

1/2

USSR

KAN, A. V., IONOV, A. G., Kholodil'naya Tekhnika, No 9, Sep, 1972, pp 19-21.

installations indicates that the use of screw-type, single-stage compressors greatly simplifies the design and operation of cooling installations, that screw-type compressors are reliable, that direct-cooling air coolers are most efficient, and that this freon installation meets todays requirements for size, weight, power and usage characteristics.

2/2

Vacuum Tubes

USSR   UDC 621.385.633

IL'INA, YE. M., KAN, A. M., TIMCHENKO, L. P.

"Two-Dimensional Theory of a Type 0 BWT"

Translation: A two-dimensional nonlinear theory is developed for a type 0 backward-wave generator with a zero space charge. The current lowering for a delay system in a dynamic regime is investigated as well as the change of the electron trajectories under the influence of high-frequency electrical and magnetic focusing fields. The output parameters are computed of a type 0 backward-wave tube as a function of the geometry of the beam and its saturation coefficient of the transit channel, the magnitude of the focusing magnetic field, and the operating conditions. 16 reference. Summary.

1/1

3

USSR

BRODOLIN, L. I., VAYNSHTEYN, V. D., DRACHEV, L. A., KAN, A. Z., KUZNETSOV, B. A., MININ, Yu. P., and PETRUNICHEV, V. N.

"Long-Term Photoscopic Memory"

Translation: A long-term photoscopic memory designed for storing, retrieving, and selecting a symbol image is proposed. The memory contains a light spot commutator -- for example, a cathode ray tube -- a projection objective with telecentric behavior of the beams in the image space, a lense raster information unit, a fast collective, a transmitting cathode ray tube with storage -- for example, the superorthicon type and digital and analog tracking systems for setting the spot on a given address. The memory is distinguished by the fact that to prevent charging the target when retrieving the required microframe, the device contains an electronic image modulator in the transfer section of the transmitting TV-tube. In order to insure a broad range of variation of the capacity of the TV frame and the selection rate, the target of the transmitting TV tube is executed in the form of a metal fiber disc with a coefficient of secondary emission

1/2

USSR

BRODOLIN, L. I., et al., USSR Author's Certificate No 260926, filed 7 Oct 68, published 10 Jun 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika , No 6, Jun 71, Abstract No 6 B325 P)

of the side turned toward the photocathode equal to one. In order to simplify the design and insure the possibility of recording the service information used during operation of the tracking systems in the microframe, the device contains a fiber, vacuum-tight coherent light guide with a cross section equal to the size of the symbol in the focal plane of the collective. The photocathode of the transmitting TV tube is applied to the output end of the light guide, and the input ends of the light guides connected with the photomultipliers of the tracking address system are arranged around the perimeter of the input end. In order to insure the required levels of light flux from the standing light spot, the light spot commutator executed in the form of a cathode ray tube contains a built-in screen which vibrates in its own plane. There is 1 illustration.

2/2

USSR

KAN, D.

"Ultrasound Restores Sight"

Moscow, Sotsialisticheskaya Industriya, 9 Apr 71, p 4

Translation: One year ago, Sotsialisticheskaya Industriya published material
entitled "Thank You, I Can See Well!", in which a new method of restoring
vision using ultrasound was related. The newspaper fell into the hands of the
engineer V. I. Kul'bashnyy. Vasiliy Ivanovich had suffered from nearsighted-
ness since he was very young. His left eye had gradually gone blind. All
known methods of treatment failed, but Kul'bashnyy did not lose hope of seeing
well. And then there was the article in the paper. "But, treating nearsighted-
ness by ultrasound?" specialists said doubtfully. "No such thing has ever
been done." All the same, S. L. Averbukh, Candidate of Medical Sciences and
head of the Krivoy Rog Center for the Protection of Children's Vision, under-
took this difficult operation. But alas! Industry still does not turn out
special ultrasonic optical equipment. Dmitriy Georgiyevich Zheleznyak, turner
at the Krivoy Rog Metallurgical Plant imeni V. I. Lenin and nurse Klavdiya
Feodoseyevna Chuplaya showed a great deal of resourcefulness and inventiveness
at this point. V. I. Kul'bashnyy went through the entire course of ultrasonic

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USSR

KAN, D., Sotsialisticheskaya Industriya, 9 Apr 71, p 4

exposure together with a new method of treatment, stimulating the functioning of the central part of the retina with light. The results exceeded all expectations. The patient's sight was restored.

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1/2   023

UNCLASSIFIED

PROCESSING DATE---30OCT70

TITLE--OPTIMIZATION OF DIPPING AND DRYING TO IMPROVE THE DISTRIBUTION OF A
BINDER IN NCNWOVEN MATERIALS -U-

AUTHOR-(03)-TIKHOMIROV, V.B., KAN, G.E., SAMOYLOVA, L.V.

COUNTRY CF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., TEKHNOL. TEKST. PROM. 1970, (1), 84-7

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--RAYON, NATURAL FIBER, RUBBER ADHESIVE, FABRIC, BONDING
MATERIAL

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0945

STEP NO--UR/0324/70/000/001/0084/0087

CIRC ACCESSICN NO--AP0124605

UNCLASSIFIED

CIRC ACCESSION NO--AP0124605 UNCLASSIFIED   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES OF THE NONWOVEN
FABRICS, BASED ON COTTON OR RAYON FIBERS BONDED WITH RUBBER LATEXES,
DEPEND CONSIDERABLY ON THE AMT. OF THE BINDER (C) AND THE MOISTURE
CONTENT (W) AFTER DRYING: A STATISTICAL EXPT. WAS CARRIED OUT TO
OPTIMIZE C AND W. THE FOLLOWING 8 VARIABLES WERE STUDIED: THE DISTANCE
TRAVELED IN THE IMPREGNATING BINDER BATH, THE PRESSURE EXERTED BY THE
TAKE UP ROLLERS, THE RATE OF FABRIC TRAVEL, LATEX CONCN., BATH SIZE,
FIBER TYPE, CONCN. OF METAZIN IN THE BATH, CONCN. OF NEKAL IN THE LATEX.
    FACILITY: MOSK. TEKST. INST., MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--13NOV70

1/2   021
TITLE--EXAMINATION OF THE FUNCTIONAL CONDITION OF THE THYROTROPIC AREA OF
THE HYPOTHALAMUS IN EXPERIMENTAL TUBERCULOSIS -U-
AUTHOR-(02)-BROUN, G.R., KAN, G.S.

COUNTRY OF INFO--USSR

SOURCE--PATOLOGICHESKAYA FIZIOLOGIAY I EKSPERIMENTAL'NAYA TERAPIYA, 1970,
VOL 14, N* 3, PP 70-71
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TUBERCULOSIS, BRAIN, RABBIT, THYROID GLAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0507   STEP NO--UR/0396/70/014/003/0070/0071

CIRC ACCESSION NO--AP0126255
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0126255
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACUTE EXPERIMENTS WERE CARRIED OUT
ON RABBITS. THE FUNCTIONAL CONDITION OF THE ANTERIOR HYPOTHALAMIC AREA
WAS STUDIED IN FEEDING THE ANIMALS WITH METHYLTHIOURACIL, AS WELL AS ON
THE 3RD, 7TH, 11TH, 15TH AND 20TH 25TH DAYS AFTER THE INFECTION WITH A
VIRULENT CULTURE OF MYCOBACTERIUM TUBERCULOSIS. THE PERCENTAGE OF
ACTIVE POINTS ALONG THE TUNGSTEN ELECTRODE PASSING THROUGH THE ANTERIOR
HYPOTHALAMIC AREA, SERVED AS AN INDEX OF THE FUNCTIONAL CONDITION. THE
NUMBER OF ACTIVE POINTS IN THE ANTERIOR HYPOTHALAMIC AREA PROVED TO BE
INCREASED BOTH IN FEEDING WITH METHYLTHIOURACIL AND IN INFECTION WITH
TUBERCULOSIS. A POSSIBLE ROLE OF HYPOTHALAMUS IN THE MECHANISM OF
CHANGES OF THE THYROID GLAND FUNCTION IN TUBERCULOSIS IS SUGGESTED.
FACILITY: OTDEL IMMUNOLOGII I EKSPERIMENTAL'NOY PATOLOGII
LENINGRADSKOGO NAUCHNO-ISSLED. INSTITUTA TUBERKULEZA.

UNCLASSIFIED

USSR

UDC 632.95

SUVOROV, B. V., KAGARLITSKIY, A. D., KAN, I. I., YEMEL'YANOV, V. L., KUTZHANOV, R. T., and PAVLOV, YE. A.

"A Means of Obtaining 3-Cyanopyridine"

USSR Author's Certificate No 311914, filed 28 Jan 70, published 11 Oct 71 (from Referativnyy Zhurnal -- Khimiya, No 10 (II), 1972, Abstract No 10N604P by T. A. Belyayeva)

Translation: 3-CNC$_5$H$_4$N (I) is obtained by oxidative ammonolysis of 2-R-5-R' C$_5$H$_3$N (II) (R and R' = alkyl, alkenyl) over a transition-metal catalyst. A mixture of steam and air (300-500 and 100-300 mole, respectively, to each mole of (II) is used as an oxidizing agent. Through a reaction tube (1100X22mm) filled with granulated catalyst (V$_2$O$_5$ and TiO$_2$ in a 1:16 molar ratios) are passed II (R=Me, R'=CH=CH$_2$), water Air, and NH$_3$ at a rate of 23 g, 950 g, 3000 l, and 75 g respectively for each liter of catalyst every hour at a temperature of 370° for 10 hours (time of contact: 0.4 seconds). The catalyst is washed with petroleum ether, extracted with CHCl$_3$ and dried over Na$_2$SO$_4$. I is separated by rectification. The yield is 83.2%, boiling point 100-4°/24, melting point 50.4°. I is used as a plant-growth stimulant in agriculture, and for the production of nicotinamide. 1/1

TITLE--EFFECT OF AMMONIA ON THE DETERMINATION OF SOME PYRIDINE DERIVATIVES
   BY GAS LIQUID CHROMATOGRAPHY -U-
AUTHOR-(03)-KAN, I.I., SEMBAYEV, D.KH., SUVOROV, B.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 374-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, METHODS AND EQUIPMENT

TOPIC TAGS--AMMONIA, PYRIDINE, GAS CHROMATOGRAPHY, AQUEOUS SOLUTION,
   LIQUID CHROMATOGRAPHY, CHROMATOGRAHIC ANALYSIS, ALDEHYDE, ORGANIC
   NITRILE COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2168   STEP NO--UR/0075/70/025/002/0374/0377

CIRC ACCESSION NO--AP0125749
                              UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--30OCT70

CIRC ACCESSICN NC--AP0125749
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   MORE COMPLETE ELUTION OF
SUBSTANCES FROM THE COLUMN DURING GAS LIQ. CHROMATOG. OF AQ. SOLNS. OF
PYRIDINE BASES AND THEIR O CONTG. AND N CONTG. DERIVS. WITH GLYCEROL AND
POLYETHERS USED AS LIQ. PHASES CAN BE ACHIEVED BY ADDING 1.01-0.05 VOL.
PERCENT NH SUB3 TO THE CARRIER GAS. A METHOD IS SUGGESTED FOR THE ANAL.
OF A MIXT. OF PYRIDINE, ME AND ET DERIVS. OF PYRIDINE, CERTAIN
PYRIDINECARBOXALDEHYDES, AND PYRIDINEMONOCARBONITRILES. PYRIDINE MIXTS.
ARE ANALYZED ON A CHROMATOGRAPH WITH A 150 CM LONG AND 0.4 CM INTERNAL
DIAM. COLUMN, THE STATIONARY PHASE 30PERCENT GLYCEROL ON CELITE, COLUMN
TEMP. 80DEGREES, RATE OF HE CARRIER GAS 1.5 ML-MIN, OF H 50 ML-MIN, OF
AIR 75 ML-MIN. THE EMERGENCE, TIME UNDER THESE CONDITIONS IS 16.2, 14,
22.1, 26.3, AND 9.8 MIN FOR PYRIDINE, 2-PICOLINE, 3-PICOLINE,
4-PICOLINE, AND 2,6,LUTIDINE, RESP. PYRIDINE BASES IN A MIXT. WITH
PYRIDINECARBOXALDEHYDES AND PYRIDINEMONOCARBONITRILES ARE ANALYZED ON A
CHROMATOGRAPH WITH A 200 CM LONG COLUMN OF 0.4 CM DIAM., STATIONARY
PHASES 25PERCENT TWEEN 20 ON INZ-600, PRETREATED WITH HCL AND 5PERCENT
ALC, ALKALI.   THE COLUMN TEMP. IS 140DEGREES, RATE OF N 58.6 ML-MIN, H
50 ML-MIN, AND AIR 250 ML-MIN. THE ELUTION TIME IS 3.0, 6.3, 26.9, AND
33.0 MIN FOR PYRIDINE, 3-PICOLINE, 3-PYRIDINECARBOXALDEHYDE, AND
NICOTINCNITRILE, RESP. A MIXT. OF 2-PICOLINE, 3-ETHYLPYRIDINE,
2,METHYL,5,ETHYLPYRIDINE, PICOLINONITRILE, NICOTINONITRILE,
2,METHYL,5,CYANO AND 2,CYANO,5,ETHYLPYRIDINE IS ANALYZED ON A COLUMN,
200 CM LONG, 0.4 CM DIAM., COLUMN TEMP. 170DEGREES, RATE OF N 33.5
ML-MIN. THE ELUTION TIME IS 2.2, 4.7, 6.0, 18.4, 11.8, 15.5 AND 41.9,
RESP.
UNCLASSIFIED

3/3   013   UNCLASSIFIED   PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0125749
ABSTRACT/EXTRACT--FACILITY: INST. CHEM. SCI., ALMA-ATA, USSR.

UNCLASSIFIED

AA0044800   UR 0482
Soviet Inventions Illustrated, Section II Electrical, Derwent,
                                                        2/70

243915 POWERMETER contains a sensitive element of a
deformation sensitive material. The strain
wire is placed between two hard and electrically
insulating plates such as glass to increase rigidity.
Briefly, the device consists of a top and bottom
glass plates 1 and 2. The plates are fixed to the
power receiving elements 3 and 4. Between the
plates is placed a thin conductor 5 with a high
resistance and of high flexibility. When a force
is acting perpendicularly to the axis of the con-
ductor, the conducting wire changes shape and cross-
section area.
13.7.67 as 1173520/18-10.K.N.KAN & A.F.NIKOLAEVICH.
LENINGRAD INSTRUMENT DES.INST.(26.9.69) Bul 17/
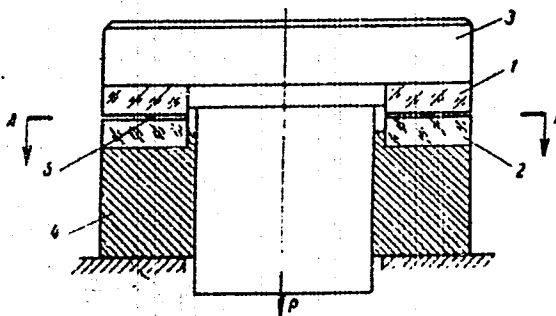14.5.69. Class 42k. Int.Cl.G 01 1.

AUTHORS: Kan, K. N.; Nikolayevich, A. F.

Leningradskiy Institut Aviatsionnogo Priborostroyeniya

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19771631

AA0044800

19771632

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AA0047071⁻   *KAN K.N* UR 0482

Soviet Inventions Illustrated, Section II—Electrical, Derwent,

241776 RELAXATION TENSOMETER comprises a base 1, an
active grip 2 and passive grip 3, loading
mechanism 4, force measuring device 5 and compensator
for linear shrinkage 6. The compensator is in the
form of a hollow cylinder of the same material as
the tested sample with the end surface resting on
the base and axially in line with the grips and its
height is equal to the operating length of sample
7 and the area of cross-section is many times bigger
than that of the sample.
The sample is lowered by mechanism 4 and the
effort is measured by device 5. A deformation in
shape gradually takes place in the material of the
sample and leads to its shrinkage.
12.7.67 as 1171877/25-29.K.N.KAN & A.F.NIKOLAEVICH.
LENINGRAD AVIATION INSTRUMENTS INST.(5.9.69) Bul 14/
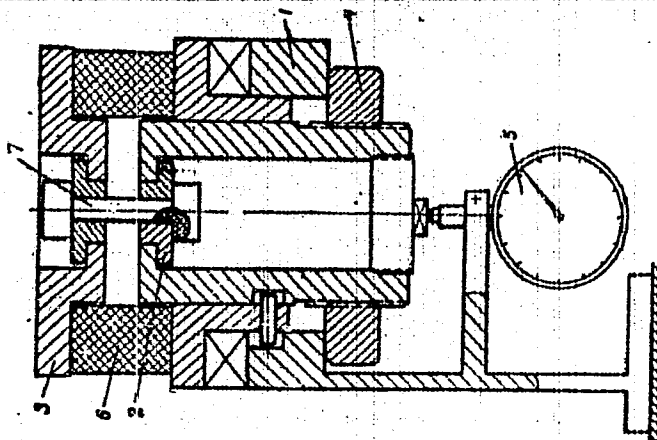18.4.69. Class 42k. Int.Cl.G 01 l.

19790533

AA0047071

AUTHORS: Kan, K. N.; Nikolayevich, A. F.

Leningradskiy Institut Aviatsionnogo Priborostroyeniya

19790534

USSR   UDC 531.383

BARANOV, I. A., KAN, S. G., SEVODIN, YE. P., YAKOVLEV, I. V., Moscow Aviation
Engineering Institute

"Vibration of Gyromotors With Spherical Air Bearings"

Abstract: Comparative studies of the vibration parameters of gyromotors with air
and ball bearings are reported. The studies were conducted on synchronous gyro-
motors with a kinetic moment of 500 g cm sec at a rotation rate of the rotor of
24,000 rev/min. The mean square value of the amplitude A_Σ of the axial and
radial vibration acceleration was measured experimentally and the amplitude
spectrum of the axial and radial vibration acceleration was recorded. A_Σ was
measured in the three regimes of acceleration, working revolutions and coasting
while the amplitude spectrum was taken only at working revolutions. The results
showed that the vibrograms of the gyromotors with air bearings were considerably
different from the vibrograms of gyromotors with ball bearings both qualita-
tively and quantitatively. Gyromotors with ball bearings showed a characteristic

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smooth increase in the amplitude of A_Σ in the acceleration process and a de-crease at the time of coasting with a small number of resonance peaks. At working revolutions, the amplitude A_Σ was not constant and varied over time. The amplitude A_Σ of gyromotors with air bearings rose sharply at startup as a result of dry friction in the bearings. After the formation of a supporting gas film in the bearing, A_Σ dropped sharply and then rises smoothly until the rotor goes into working revolutions. A similar picture, but in the reverse order, occurs at coasting. Both under acceleration and in coasting there are no clearly expressed resonance peaks, thus indicating the good damping proper-ties of air bearings. The amplitude A_Σ of gyromotors with air bearings at working revolutions is 50-100 times less than the amplitude of A_Σ of gyromotors with ball bearings. The amplitudes of the components of the vibration spectrum are less by an order of magnitude.

2/2

USSR   _ UDC 624.07:534.1

KAN, S. N., INGUL'TSOV, V. L., KALACHEV, A. Yu.

"Stability and Free Oscillations of Conjugate Conical Shells"

Translation: The problem is solved within the framework of the engineering
moment theory. The equilibrium equation and the corresponding boundary
conditions are represented in displacements. The search for critical loads
and natural frequencies consists in reducing the boundary value problem to
a series of Cauchy problems, the solution of which is obtained by the Runge-
Kutta numerical method. Authors' abstract.

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USSR

GINZBURG, I. N., KAN, S. N.

"Selection of Optimal Parameters of Eccentrically Attached Stringers of a Cylindrical Envelope in Elastic Compression"

Teoriya Plastin i Obolochek [Theory of Plates and Envelopes -- Collection of Works], Moscow, Nauka Press, 1971, pp 55-59, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V371 by the author's).

Translation: Optimal planning of eccentrically attached cylindrical envelopes is stated as a problem of mathematical programming. The goal function is the weight of the structure, the limitations are the conditions of strength, stability and certain structural limitations. The material of the structure, dimensions and axial compressive load are considered fixed, while the thickness of the envelope, height and thickness of the stringer (of rectangular cross section) and distance between stringers are to be determined. The solution is performed by the gradient method on the Ural-2 computer. The results are presented as graphs showing the dependence of optimal weight on axial compressive load individually for the internal and external locations of the stringers, and various relationships of the length of the shell to the radius of the midsurface.

1/1

USSR   UDC: 621.378.325

BYKOVSKIY, N. Ye., KAN, V., KRYUKOV, P. G., MATVEYETS, Yu. A.,
NI, N. L., SENATSKIY, Yu. V., and CHEKALIN, S. V.

"Increasing the Energy Ratio of Ultrashort Laser Pulses to Noise"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 68-70

Abstract: The purpose of this paper is to investigate the contrast,
i.e., the ratio of the basic pulse energy to the background noise
radiation energy, of a laser generating ultrashort pulses. The
laser considered uses neodymium glass. In real lasers, the limit-
ing contrast is reached not because of the nonlinear losses in the
interaction of the radiation with the optical material of the
laser equipment, as some researchers insist, but for other rea-
sons. These losses weaken the most intense of the pulses, and
consequently reduce the contrast. This brief communication demon-
strates how these losses can be reduced in exchange for a reduc-
tion in the energy density of the resonator. The theory behind
this procedure is presented, and the schematic of an amplifier for
the laser in a stable two-component medium is reproduced. Esti-
mates, made from oscillograms, indicated that the contrast was
at least doubled by this device.
1/1

USSR   UDC: 681.3

VEPRIK, V. N., KAN, V. G., ZHIRATKOV, V. I., MIKHASHOV, A. I.

"Some Singularities in the Construction of Distributed Universal Computer Systems"

V sb. Vychisl. sistemy (Computer Systems--collection of works), vyp. 39, Novosibirsk, 1970, pp 137-146 (from RZh-Matematika, No 11, Nov 71, Abstract No 11V788)

Translation: Distributed universal computer systems are classified with regard to types of data transmission networks. The authors consider the peculiarities of distributed universal computer systems with fixed directional connections and universal computer systems with commutation of messages. Note is taken of the effect which these peculiarities have on the productivity of the computer system. V. Mikheyev.

1/1

USSR

UDC: 681.3

VEPRIK, V. N., ZHIRATKOV, V. I., KAN, V. G., MIKHASHOV, A. I.

"Some Peculiarities in the Construction of Distributed Universal Computer Systems"

V sb. Vychisl. sistemy (Computer Systems--collection of works), vyp. 39, Novosibirsk, 1970, pp 137-146 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V788)

Translation: Distributed universal computer systems are classified with regard to types of data transmission networks. The authors consider the singularities of distributed universal computer systems with single and repeated establishment of communications as well as those with fixed directions of communications, and those with message commutation. Mention is made of the effect which these singularities have on the productivity of universal computer systems. V. Mikheyev.

1/1

USSR   UDC 681.325.65:537.312.62

KAN, Ya. S., BELYAVSKIY, V. L., VASILENKO, Yu. A., and KAKURIN, N. Ya.,
Khar'kov Institute of Radioelectronics

"A Multiple-Valued Logic Element"

Translation: Multiple-valued logic elements (MLE) whose circuitry is based
on amplitude, phase, and frequency representation of data are well-known.
A common shortcoming of their circuits is that they are monofunctional and
not sufficiently reliable in operation, especially when there is a large
number of input variables. In order to guarantee reliable operation on
the part of an MLE that can perform a sufficiently large number of multiple-
valued logic functions, it is suggested that the MLE be constructed in such
a way that information can be coded spatially. This can be accomplished by
using cryotrons as components of the MLE, since they make it possible to
use a purely geometric principle of information conversion. In the proposed
logic element, the cores of the cryotrons in each line are connected in
series. The beginnings of the cores of the odd cryotrons in an odd and

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USSR

even line are interconnected. The ends of the cores are also interconnected. The windings of the odd cryotrons in the odd lines and the windings of the even cryotrons in the even lines are connected in series and joined to the unit outputs of the inverters. The unit inputs of the inverters are connected with the sources of the input variables x_i. The windings of the even cryotrons in the odd lines and the windings of the odd cryotrons in the even lines are connected in series and joined to the zero inputs of the inverters. 1 illustration.

2/2

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1/2   011   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--NEW MACHINE FOR PRODUCING RUBBER CEMENT -U-

AUTHOR-(05)-KURINNYI, A.YE., KANANIN, B.G., KASHKOVSKIY, S.S., BAGRINTSEV,
   I.I., PELTYUKOV, A.V.
COUNTRY OF INFO--USSR

SOURCE--KHIM. NEFT. MASHINOSTR. 1970, (2) 42-3

DATE PUBLISHED-------70

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

TOPIC TAGS--RUBBER ADHESIVE, RUBBER WORKING MACHINERY, MATERIAL MIXING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1505   STEP NO--UR/0314/70/000/002/0042/0043

CIRC ACCESSION NO--AP0112499
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0112499
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NOVEL MIXING APP. WAS DEVELOPED
FOR THE PREPN. OF RUBBER CEMENT FROM RUBBER MIXT. NO 109 DISSOLVED IN
GASOLINE. A CROSS SECTIONAL DIAGRAM OF THE APP. AND ITS MODE OF
OPERATION ARE PRESENTED. THE NEW APP. REDUCED THE PREPN. TIME FROM 3-6
HR TO 40-60 MIN.

UNCLASSIFIED

Acc. Nr.: __AT0043972__   ✗   Ref. Code: __UR 0151__

JPRs 49849

Excitation of Longitudinal Seismic Waves in Saturated Ground

(Abstract: "Characteristics of Excitation of Longitudinal
Seismic Waves During Shots in Water-Saturated Ground," by
B. A. Kanareykin, Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy,
Geologiya i Razvedka, No. 1, 1970, pp. 98-105)

In seismic work in Western Siberia (in areas without
permafrost) shots are usually set off in water-saturated deposits,
usually waterlogged clayey loams or sands. This paper discusses
the behavior of longitudinal waves under such conditions based
on experimental data obtained in Tyumenskaya Oblast in 1967.
Shots were set off in holes 150 mm in diameter at depths from
1 to 7 m. Weight of the TNT charge varied from 0.05 to 1.6 kg.
Oscillations were detected using a SP-15 seismic detector attached
to a borehole wall at a depth of 1,420 m. The shot point was
at a distance of 800 m from the borehole. Forty seismograms
were processed. It is demonstrated on the basis of experimental
data that repeated pulsations of the gas bubble can occur in
water-saturated weakly bonded sandy ground similar to those

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AT0043972

occurring during shots in water. Repeated pulsations evidently
occurred as a result of liquefying of the ground under the
influence of a shock wave. Repeated pressure pulsations cause
the formation of repeated seismic waves with a gradually decreas-
ing amplitude. The dependence between the time shift between
the primary direct wave and the direct wave from the first
repeated shock wave is well approximated by a theoretical depen-
dence following from the Cole-Friedman formula under the condi-
tion that the liquefied ground is identified with a liquid having
a specific gravity equal to the specific gravity of the ground.
The excitation function $p_0(t)$ for initial propagation of waves
from a shot in waterlogged sands is satisfactorily approximated
by a dependence in the form:

$$p_0(t) = p_0/\exp/\exp(-t/\theta_0 Q^{1/3})+0.2 \exp(-0.04t/\theta_0 Q^{1/3})$$

where θ_0 is a time constant dependent on the properties of the
explosive. The first component of the excitation function
$p_0(t)$ corresponds to the initial region of high pressures and
the second corresponds to the characteristics of pressures
caused by motion of the gas sphere. Change in the frequency
makeup of primary direct waves with a change in weight of the
charge in this case must be related to the characteristics of

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pressures within the gas bubble during its initial expansion.
A large part of the energy of primary direct waves for the
frequency interval $f = 20-100$ cps is formed due to the second
component of the excitation function $p_0(t)$.

19770405

USSR   UDC: 538.576.5:621.396.96

VARGANOV, M. Ye., KANAREYKIN, D. B., POMEKHIN, V. A.

"Transformations of the Polarized Basis in Statistical Modeling of the Dispersion Characteristics of Objects"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, pp 730-736

Abstract: A statistical model of a radar target is defined as an adequate statistical description of the dispersion operator of the target defined in some polarization basis as a random function of coordinates and time. In the general case, the statistical model of an object is a multidimensional law of the probability distribution of its dispersion operator. One of the most widely used methods for synthesizing such a model iv statistical modeling of the dispersion characteristics of the object. In the general case, the polarization basis of the radar station may not coincide with that of the dispersion operator on the initial modeling stage. This paper examines a procedure for transformation of the polarization basis as part of a general algorithm for statistical modeling of dispersion characteristics. Principles are defined which govern the change in the dispersion operator of an object due to transformations of this type.

1/1

USSR   UDC 621.396.677.095.1:621.396.96

POTEKHIN, V.A., DZHUN', V.I., KANAREYKIN, D.B.

"Concerning The Choice Of Receiving Antenna Polarization In Radar Stations With A Synthesized Aperture"

Abstract: Previous works have shown that in principle the resolution of radar systems with a synthesized aperture (RSA) can be improved by the method of polarized selection of target and background signals. In the present paper the possibilities are considered of such an increase of the resolution of RSA under the condition of steadiness and ergodicity of the interference reflections. The results obtained can be used in all areas of radio engineering where antenna arrays are used (radio astronomy, radio navigation, etc.) for an evaluation of the gain in the resolution because of polarized selection. 1 fig. 9 ref. Received by editors, 24 Dec 1970.

1/1

Instruments and Measurements

USSR   UDC;621.396.69(088.8)

SILIN'SH, Ya. Y., KANAREYKIN, V. P.

"A Device for Checking Contact Between Electromagnetic Commutating Units"

USSR Author's Certificate No 264478, filed 29 Nov 67, published 20 Jun 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V461 P)

Translation: This Author's Certificate introduces a device for checking
contact between electromagnetic commutating units. The device contains an
electromagnetic counter and two transistors. As a distinguishing feature
of the patent, accuracy and reliability in determining contact are improved
by connecting the base of the input transistor to the coil of the unit being
tested, while the collector is connected to the electromagnetic counter.
The second transistor is connected between the base of the first transistor
and one terminal of the power supply, and its base is connected to the
contact being checked.

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USSR   UDC 576.856.7.095.6.083.31

KANAREYKINA, S. K., Institute of Medical Biological Problems, Moscow

"Proliferation of Leptospirae on Solid Culture Media"

Abstract: The lag phase (period elapsing between inoculation of a fresh medium with microbes and the beginning of cell division) was determined in 36 pathogenic and five saprophytic (Patoc I, Rat seamarang, Dubna 3, BSh, and 969 biflexa) strains of Leptospirae. On modified Cox and Larson's solid medium, all pathogenic strains regardless of their serotype have a lag phase of 5-19 days, with the largest number of colonies (65% of the total) developing on the 8th day. In the liquid medium, this phase is shorter by 1 or 2 days. All of the saprophytic Leptospirae investigated have the same lag phase of 2-4 days in the liquid and the solid medium. The largest number of colonies (97%) develops on the 4-5th day of growth. It is suggested that the marked difference in the lag periods on the solid medium may be used as a criterion in differentiating pathogenic from saprophytic strains of Leptospirae.

1/1

Radiobiology

USSR

UDC 577.391:616.001.28

KANARIK, U., SIBUL', I., and VAKHER, Yu.

"The Endocrine Stress Syndrome in Chicks Following Gamma-Ray Irradiation"

Tallin, Izvestiya Akademii Nauk Estonskoy SSR, Biologiya, No 3, 1970, pp 277-280

Abstract: A total of 800 white leghorn chicks 10- to 35-days old were irradiated once with 700 to 1,100 r of Co^{60} rays. During the first day and 20 to 35 days after exposure, the relative weight of the adrenals and thyroid markedly increased, while that of the thymus and spleen decreased. But two years later the weight of the adrenals and thyroid was normal, but the weight of the thymus and spleen remained depressed. Apparently a decrease in weight of the thymus and spleen is a more regular phenomenon associated with development of the radiation endocrine stress syndrome in chicks than hypertrophy of the adrenals and thyroid.

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USSR

UDC: 537.291

KANASHEVICH, V. I., LAPTEV, S. V., RYBIN, S. N., and CHURSIN, G. P.

"Measuring the Paths of Charged Particles in a Material"

Moscow, Pribory i Tekhnika Eksperimenta, No 4, July-August 1972, pp 43-45

Abstract: The instrument described in this paper is a further development of a device for measuring the path of charged particles in a material as a function of the particle energy. The method of the instrument involves measuring the energy spectrum of the particles in a cyclotron beam after their passage through a target using 30 pieces of the material. Drawings of the instrument are given, together with a textual explanation. The device was used to determine the energy of a beam on various materials in order to study excitation reaction functions evoked by deuterons on a ^{59}Co nucleus; a curve is plotted for the energy spectrum of the deuteron elastic scattering. A curve for the path of alpha particles in Al as a function of the particle energy is also shown. The work was done at the Institute of Nuclear Physics, Kazakh Academy of Sciences, at Alma-Ata.

1/1

USSR   UDC: 621.396.69:621.318(088.8)

GAVRILOV, V. M., SMORGONSKAYA, A. I., KANASHINSKIY, Yu. A., Novocherkassk
Permanent Magnet Plant

"A DC Electromagnet"

USSR Author's Certificate No 259274, filed 23 Aug 68, published 24 Apr 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V440 P)

Translation: This Author's Certificate introduces a DC electromagnet which
contains a magnetic circuit with pole piece, a permanent magnet, and a mag-
netizing coil connected to a source of direct current and used to control
the magnitude of the magnetic field intensity in the working gap. in order
to reduce the magnetizing power, the magnetizing coil is placed on a mag-
netically soft sleeve which covers a permanent magnet equipped with a pole
piece.

1/1

1/2   023   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--ALUMINUM POLYOLEFIN COMPOUNDS -U-

AUTHOR-(05)-CHIRKOV, N.M., BEYKHOLD, G.A., BRIKENSHTEYN, KH.M., KANASHKIN,
   YU.E., MATKOVSKIY, P.YE.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,692
REFERENCE--OTKRYTIYA, IZOBRET., PROM OBRAZTSY, TOVARNYE ZNAKI, 1970 47(9),
DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, ALUMINUM, POLYOLEFIN RESIN, POLYMERIZATION,
   ETHYLENE, METAL CONTAINING POLYMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0848   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136282
                         UNCLASSIFIED

2/2   023   UNCLASSIFIED   PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AA0136282
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AL, POLYOLEFIN COMPDS. ARE PREPD.
   BY POLYMN. OR COPOLYMN. OF C SUB2 H SUB4 WITH OTHER ALPHA, OLEFINS IN AN
   INERT HYDROCARBON SOLVENT IN THE PRESENCE OF AL OR ITS ALLOYS (E.G., IN
   THE FORM OF POWDER, FLAKES, WIRE, AND SHAVINGS) AND A CATALYST. THE
   CATALYSTS USED ARE TRANSITION, METAL HALIDES OR HYDROXYHALIDES SOL. IN
   HYDROCARBONS, E.G. V HYDROXYCHLORIDE.   FACILITY: FILIAL
   INSTITUTA KHIMICHESKOY FIZIKI AN SSSR.

UNCLASSIFIED

USSR   UDC 599.32-12:616.981.452-036.22(252-925.2)

NAUMOV, N. P., LOBACHEV, V. S., DMITRIYEV, P. P., KANATOV, Yu. V., and
SMIRIN, V. M., Moscow State University and Central Asian Antiplague Institute

"Experience in Studying the Dispersal Rate and Paths of Movement of Plague
Epizootics in the Northern Desert"

Abstract: Microbiological, immunological, and ecological data were employed
to trace the paths and rates of plague epizootic dispersal northward across
a front of over 200 km east of the Aral Sea in 1966-1969. Data were obtained
for the most part from Rhombomys opimus Licht. and its parasites. Presence
of animals with acute manifestations of plague and incomplete antibodies was
assumed to suggest a new invasion. Prior to the period of investigation,
plague foci were noted only on the outskirts of this territory following a
rodent and ectoparasite eradication program conducted in 1958. In the spring
1966 northward dispersal began from foci just north of the Syr-Dar'ya River.
Most progress occurred during 5 months of summer and fall and ranged from 15 to
50 km per year. By fall 1969 the epizootic became stabilized somewhat. For-
ward progress was stalled in areas that had been subjected to one-time eradica-
tion programs, but it was not entirely arrested. The radial dispersal of the

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epizootic that was revealed suggests that the disease is spread predominantly through the dispersal of young R. opimus. This research demonstrates that epizootics can be traced reliably by direct observation in the field.

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USSR   UDC 616.981.455-085.351-039.71-07:616.15-097.5-078.7

KANATOV, Yu. V., AYTKALIYEV, B. A., SHMUTER, and TYULEMBAYEV, M. A., Central
Asian Antiplague Institute, Alma-Ata, and Central Institute for the Advanced
Training of Physicians, Moscow

"Sensitivity of Reaction With Sensitized Erythrocytes for Detection of
Antibodies in Persons Vaccinated Against Tularemia"

Abstract: The accumulation of antibodies in persons vaccinated against
tularemia was traced using the agglutination, passive hemagglutination, and
antigen neutralization tests and the sensitivity of these tests was compared.
Specific antibodies were detected from 3 to 15 days after vaccination by all
the serological tests used. The antibody titers were somewhat higher in the
passive hemagglutination test than in the agglutination test during the first
few days after vaccination. The titers were highest in the antigen neutrali-
zation test at all the periods checked, mainly due to detection of the total
complete and incomplete antibodies.

1/1

Lasers and Masers

MALYSHEV, B. N., KANAUKH, N. P., PARAMONOVA, N. A., KULIKOVSKIY, B. N.

"Space-Energy Characteristics of the Liquid Circulation of $POCl_3Sn-Cl_4Nd$ Lasers"

Translation: The space-energy characteristics of a $POCl_3SnCl_4Nd$ circulation liquid pulsed laser were investigated and compared at various flow rates of the active liquid through the laser cell: at rest and for laminar and turbulent flow of the liquid. Authors abstract.

1/1

USSR   UDC: 621.373:530.145.6

MALYSHEV, B. N., KANAUKH, N. P., PARAMONOVA, N. A., KULIKOVSKIY, B. N.

"Space-Energy Characteristics of a $POCl_3SnCl_4Nd$ Liquid Circulation Laser"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1,
Moscow, 1971, pp 139-140 (from RZh-Radiotekhnika, No 5, May 71, Abstract No
5D172)

Translation: The space-energy characteristics of a $POCl_3SnCl_4Nd$ liquid pulse
laser of the liquid-circulation type are studied and compared for various
rates of flow of the active liquid through the laser cell: for quiescent,
laminar and turbulent liquid flow. Two illustrations, one table, bibliog-
raphy of one title. Resumé.

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Acc. Nr. *AP0045176*   Abstracting Service: *5-70*   Ref. Code
CHEMICAL ABST.   *UR0191*

91064z Rheological properties of thermosetting plastics studied on a rotational plastometer. Danilkin, N. N. Kanavets, I. F. (USSR). *Plast. Massy* 1970, (1), 29-31 (Russ). The rheological properties of molding materials K-214-2 and K-18-2 were studied by means of a Kanavets plastometer at shear rate (γ) of 10^{-2}-10^2 sec^{-1} at 300-50 kg/cm^2 pressure. Increased deformation rate led to higher rigidity and viscous flow resistance. The max. shear strength (σ) of K-18-2 and K-214-2 were measured as a function of γ. At high enough γ, the shear stress was inversely proportional to γ, presumably due to increased polycondensation rates which led to higher viscosity and subsequently to degradation.

CKJR

REEL/FRAME
19780076

1/2   027   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--HARDENING PROCESS AND THE ELECTRIC INSULATING PROPERTIES OF
   THERMOSETTING PLASTICS -U-
AUTHOR-(03)-KISELEVA, V.A., SOKOLOV, A.D., KANAVETS, I.F.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (2), 35-9

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--HARDNESS, CHEMICAL REACTION KINETICS, ELECTRIC INSULATION,
   PHYSICAL CHEMISTRY PROPERTY, DIELECTRIC PROPERTY, THERMOSETTING
   MATERIAL, PLASTIC/(U)K21 22 PHENOIC PLASTIC, (U)K18 2 PHENOIC PLASTIC,
   (U)K211 3 PHENOIC PLASTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1706   STEP NO--UR/0191/70/000/002/0035/0039

CIRC ACCESSION NO--AP0112700
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0112700   UNCLASSIFIED   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HARDENING KINETICS OF 3
PHENOLIC PLASTICS (I), K-21-22, K-18-2, AND K-211-3, AND THE EFFECTS OF
PHYSIOCHEM. FACTORS ON THE INSULATING PROPERTIES OF PLASTIC ARTICLES
WERE STUDIED. THE DIELEC. PROPERTIES OF I DETERIORATED DURING HARDENING
IN A MOLD (I.E., THE DIELEC. LOSS FACTOR INCREASED, WHEREAS THE SP. BULK
AND SURFACE RESISTANCES CORRESPONDINGLY DECREASED). PRELIMINARY DRYING
OF MOLDING MATERIALS WAS USEFUL ONLY WHEN THEIR MOISTURE CONTENT WAS
LARGER THAN 2PERCENT, OTHERWISE THE PHYSIOCOMECH. PROPERTIES
DETERIORATED. THREE INDEPENDENT METHODS (KANAVETS PLASTOMETER, CHANGES
IN THE EXTRACTANTS CONTENT, AND CHANGES IN THE ELEC. CONST.) SUGGESTED
THE MOST EFFECTIVE HARDENING PROCEDURE, VIZ., HARDENING IN A MOLD SHOULD
TAKE ONLY AS LONG AS IS REQUIRED FOR EACH MATERIAL TO ATTAIN A CERTIAN
SHEAR STRESS, WHILE FURTHER HARDENING SHOULD TAKE PLACE OUT OF THE MOLE
(WHICH ENSURES INCREASED HARDENING OF THE BINDER AND REMOVAL OF A
SIGNIFICANT PORTION OF THE VOLATILE COMPOS.).

UNCLASSIFIED

USSR

KANAVETS, V. I. and STABINIS, A. Yu.

"Spontaneous Radiation and Self-Excitation of a Small Volume of a Classical, Nonlinear Active Medium"

Abstract: The purpose of this paper is to study coherence effects in various modes including self-excitation of an active medium. This can be done in the classical approximation by considering spontaneous radiation of a system of nonlinear oscillators in a small volume. The choice of initial phase distribution of the oscillators depends on the method of exciting the medium, although the initial phases are usually distributed according to a random law. Initial amplitudes of the oscillators are assumed to be equal. The authors begin their analysis by writing the equation for oscillations in a small volume of a classical active medium, where the length of the medium is much smaller than the oscillation wavelength, in the dipole approximation. It is assumed that the oscillators interact through the characteristic radiation field.

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USSR   UDC: 621.385.623.4

BURNEYKA, K. P., KANAVETS, V. I., MOZGOVOY, Yu. D., SANDALOV, A. N.

"On the Optimum Parameters of Multicavity Klystron Bunchers"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronic Technology.
Scientific and Technical Collection. SHF Electronics), 1971, vyp. 2, pp
29-37 (from RZh-Elektronika i yeye Primeneniye, No 6, Jun 71, Abstract No
6A155)

Translation: The parameters of bunchers in klystrons with 2-6 cavities are
optimized for quality. Numerical methods of solving equations are used,
employing a disc model of the beam. It is shown that Coulomb forces can be
used to improve electron bunching. Optimum bunching is achieved under con-
ditions where nonlinear processes take place in the space-charge waves.
Optimum phase shifts between the cavity fields and the current correspond
to energy transfer from the beam to the fields of the cavities. The quality
index increases with an increase in the total number of klystron cavities.
As the number of the drift region increases, the optimum value of the length
of the drift region gradually decreases, while the alternating voltages of
the gaps increase. Bibliography of 1 title. Resumé.
1/1

"Bunching Quality Index and Electronic Efficiency of a Quadrupole-Resonator
Klystron"

Abstract: The processes in a quadrupole-resonator klystron with a beam of given
perveance are calculated considering the effect of coulomb forces and the return
movement of electrons in the output resonator. Approximation of the given field
and the one-dimensional disc model of the beam were used. The correspondence
between the magnitude of the bunching quality index and the electron efficiency
is investigated. When studying the relations between the bunching quality index
and the electron efficiency it is necessary to consider the optimizing effect
of the space charge on the processes of formation of the cluster and power take-
off. In the example of a four-resonator klystron it is demonstrated that when
selecting the optimal parameters of the buncher and output resonator the value
of the bunching quality index and the electron efficiency approximately coincide.
For nonoptimal parameters of the buncher the electron efficiency can be larger
than the bunching quality index. The two variables are plotted according to
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calculated values as a function of a variety of parameters: voltage on the next
to the last resonator, width of the output gap for various amplitudes of the
high-frequency field in the gap with optimal phase, for various phases with op-
timal amplitude, and for optimal phase and amplitude.

2/2

UDC 621.385.632

USSR

BURNEYKA, K. P., KANAVETS, V.I., NI, N.P., SANDALOV, A.N.

"Investigation Of A Two-Sectioned Frequency Multiplier Based On A TWT"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 6, pp 31-39 (from RZh--Elektronika i yeye primeneniye, No 10, October 1970, Abstract No 10A161)

Translation: A two-sectioned frequency multiplier based on a TWT is investigated. Multifrequency nonlinear one-dimensional TWT theory is used for theoretical analysis. The effect is considered of the Coulomb forces and the difference of potentials between sections, on the processes in the device. The choice is considered of an optimum regime corresponding to the maximum value of the conversion factor of the frequency. A comparison of the theoretical and experimental results shows that to a large degree optimization depends on the space charge parameter. Long lived clusters are generated in an optimum regime. In that case an effective strengthening of the high-frequency field of the harmonics occurs in the output section. The parameters of the multiplier are improved by the introduction of a change of potentials.

Summary.
1/1

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UDC 621.385.632

BURNEYKA, K.P., GRIGORENKO, L.P., KANAVETS, V.I.

"Investigation Of TWT Frequency Converter With Pre-Modulation By Electron Beam"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 5, pp 73-81 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8A147)

Translation: A two-sectioned combination frequency converter is investigated, which incorporates a klystron electron buncher and an inherent TWT frequency converter. During the theoretical consideration, a discrete model of the electron flow was used and waves of four frequencies were taken into account. The results of the calculation were found to be in accordance with the results of an investigation of an experimental model. Summary.

1/1

USSR   UDC: 621.385.6

VASIL'YEV, Ye. I., KANAVETS, V. I., and LOPUKHIN, V. M.

"Electronic Conductivity and Efficiency of a Klystron Resonator"

Kiev, Izvestiya VUZ SSSR--Radioelektronika, No 9, 1972, pp 1146-1153

Abstract: Complaining that insufficient attention has been devoted
by the literature to the question of frequency characteristics, the
authors develop in this paper a method for determining the elec-
tronic conductivity and frequency characteristics of an output kly-
stron resonator and present some of the results of their analysis.
In their computations, they consider the effect of the Coulomb
forces and the inverse motion of the electrons. The computation
of the electronic conductivity is made for rectangular current
bunchings at the resonator input, the duration of the bunchings
being equal to one-fourth and one-eighth the oscillation period.
Such bunchings can be obtained in optimized bunchers of multi-
resonant klystrons. The method developed by the authors permits
nonlinear computation of the conductivity components, and indicates
that optimal modes of resonator operation are possible when the
resonators have ordinary Q and wave resistance values.
1/1

1/2   038   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--GROUPING OF ELECTRONS IN A KLYSTRON BY USING A NONLINEAR WAVE
  PROCESS -U-
AUTHOR-(02)-BURNEYKA, K.P., KANAVETS, V.I.

COUNTRY OF INFO--USSR

SOURCE--RADIOELEKTRONIKA, VOL. 8, MAR. 1970, P. 370-376

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--KLYSTRON, ELECTRON CAPTURE, COULOMB FIELD, ELECTROMAGNETIC
  WAVE GENERATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0154   STEP NO--UR/0452/70/008/000/0370/0376

CIRC ACCESSION NO--AP0123925
                      UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE—30OCT70
CIRC ACCESSION NO—AP0123925

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THEORETICAL ANALYSIS OF THE EFFECT
OF COULOMB FORCES ON THE PROPERTIES OF THE ELECTRON ARRANGEMENT IN A
THREE RESONATOR TRANSITTYPE KLYSTRON, USING A SEQUENCE OF CHARGED DISKS
AS THE ELECTRON BEAM MODEL AND ASSUMING THAT THE VARIABLE ELECTRON BEAM
VELOCITY COMPONENT IS SMALL. SELECTION OF THE PARAMETERS OF THE SPATIAL
CHARGE IS CARRIED OUT FOR THE OPTIMIZATION OF ELECTRON BUNCHING IN TWO
AND THREE RESONATOR KLYSTRONS. IT IS SHOWN THAT THE MAXIMUM FIRST
HARMONIC AMPLITUDE AT THE BUNCHER OUTPUT IS OBTAINED WHEN THE LENGTH OF
THE INITIAL SECTION OF DRIFT IS GREATER THAN THE OPTIMAL LENGTH OF THE
BUNCHER. THE ESSENTIAL ROLE OF THE EXCITATION OF FINITE AMPLITUDE WAVES
IN THE ELECTRON BEAM SPATIAL CHARGE FOR KLYSTRON PERFORMANCE
OPTIMIZATION IS NOTED. IT IS FOUND THAT A POTENTIAL JUMP CAN IMPROVE
ELECTRON BUNCHING ONLY WHEN THE KLYSTRON PARAMETERS ARE NOT OPTIMAL.

UNCLASSIFIED

UDC 621.335.623

USSR

EURNEYKA, K. P., KAHAVETS, V. I.

"Influence of Space Charge on Electron Bunching in a Two-Resonator Klystron With a Finite Transit Angle in the Gap"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 2, pp 26-32 (from RZh--Elektronika i yeye primeneniye, No 7, July 1970, Abstract No 7A131)

Translation: The effect is theoretically investigated of the space charge on electron bunching in the drift region with modulation of the beam by the resonator field with a finite transit angle in the gap, and also with assignment of the initial rate of modulation at the frequency of the signal, and at double the frequency. A disk model of the beam is investigated. The results of the investigation are compared with the results of kinematic theory. Graphs are presented of the dependence of the amplitude of the first harmonic of the current and the qualitative index on the system parameters. 5 ref. Summary.

1/1

TITLE--DEUTERON GENERATION ON NUCLEI BY HIGH ENERGY PROTONS -U-

AUTHOR--(05)-GORYACHEV, YU.M., KANAVETS, V.P., LEVINTOV, I.I., MOROZOV,
B.V., NIKIFOROV, N.A.
COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(3), 629-35

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PARTICLE PRODUCTION, DEUTERON, PROTON BOMBARDMENT, SECONDARY
EMISSION, DIFFERENTIAL CROSS SECTION, BERYLLIUM, CARBON, ALUMINUM,
COPPER, TITANIUM, SILVER, GOLD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1063   STEP NO--UR/0367/70/011/003/0629/0635

CIRC ACCESSION NO--AP0110753
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0110753

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CROSS SECTIONS FOR THE
PRODUCTION OF D, P, AND PI POSITIVE MESONS HAVE BEEN MEASURED IN THE
INTERACTION OF 6.8-GEV-C P WITH BE, C, AL, CU, TI, AG, AND AU NUCLEI.
THE SECONDARY PARTICLES WITH A MOMENTUM OF 1.23 GEV-C HAVE BEEN
REGISTERED AT 15 MILLIRADIANS IN THE LAB. SYSTEM. THE DEPENDENCE OF THE
DIFFERENTIAL CROSS SECTIONS ON THE MASS NO., A, OF THE NUCLEI CAN BE PUT
IN THE FORM D PRIME2 SIGMA-DP D OMEGA IS SIMILAR TO A PRIMECHI, WHERE
CHI SUBD EQUALS 1.24 PLUS OR MINUS 0.01, CHI SUBP EQUALS C.69 PLUS OR
MINUS 0.03, AND CHI SUBPI POSITIVE EQUALS 0.45 PLUS OR MINUS 0.03. THE
OBTAINED RESULTS MAY BE BROUGHT INTO CONSENT WITH THE BUTLER PEARSON
MECHANISM OF THE D PRODUCTION IF THE ABSORPTION OF D AND N IN THE
NUCLEUS IS TAKEN INTO ACCOUNT.   FACILITY: INST. TECR. EKSP. FIZ.,
MOSCOW, USSR.

Ref. Code: UR 0056

INVESTIGATION OF THE INSTABILITY OF A PLASMA IN A MIRROR TRAP

Kanayev, B. I.; Yushmanov, Ye. Ye.

The ion-cyclotron instability observed in the ПР-5 installation differs in many respects from instabilities of the same type encountered in experiments with other mirror traps. This implicates a principally different nature of this instability. In the present work the most characteristic feature which is considered is the wave structure of the unstable oscillations; in particular an attempt is made to answer the question whether the oscillations are transverse of possess $k_{\parallel} = 0$. The method employed for this purpose is based on a determination of orientation of external magnetic fields of the wave and their phasing relative to the electric potential wave. For $k_{\parallel} = 0$ a characteristic feature is the presence of a specific effect related to longitudinal nonuniformity of the plasma cluster. The results are in accordance with those which one would expect for transverse oscillations.

The transverse character of the oscillation indicates that instability in ПР-5 does

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not refer to the Harris type as in case of mirror traps with external injection of neutral particles. Apparently one must also reject the explanation of instability predicted earlier as a result of build-up of transverse oscillations by the drift mechanism or as a result of the nonmaxwellian nature of the distribution function since the observed value of the parameter $k\rho_i$ is too small for this. The most probable seems to be the explanation proposed recently by Kadomtsev and Pogutse according to which the phenomena observed are negative mass instabilities.

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QUASISTATIONARY CO_2 LASER WITH PULSED EXCITATION

Several methods of obtaining high inversion population in CO_2-N_2-He the advantages of pulsed excitation of molecules in the discharge [3] and nonequilibrium discharge of supersonic flow in a vacuum [4, 2], is described in this article.

lasers are discussed in the literature [1-3]. A laser model that combines the advantages of pulsed excitation of molecules in the discharge [3] and nonequilibrium discharge of supersonic flow in a vacuum [4, 2], is described in this article.

The experiment is illustrated in Figure 1. The working mixture flowed through high-speed valve 1 and nozzle 3 and was accelerated to a velocity of $5 \cdot 10^4$ cm/sec into laval nozzle 3 and was accelerated to a velocity of $5 \cdot 10^4$ cm/sec into laval vacuum in the system was about 10^{-5} torr. Booster volume 6 is a high-capacity pump, with which free discharge of the flow in the vacuum in $20 \cdot 10^{-5}$ sec was simulated. The stationary flow mode was established in sec after actuation of the valve and a rectangular pulse with a duration up to $2 \cdot 10^{-3}$ sec was admitted to the discharge channel, comprising grid 4. The length of an individual discharge channel in the direction of flow was 2 cm, and the diameter was 0.5 cm. The summary transparency of the grid was 40%.
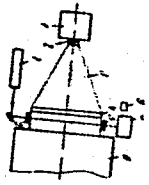
The chief difference between this model and the one described in [4], using high gas pumping rates to increase discharge power, is the fact that the flight time of CO_2 molecules through the discharge gap for the typical conditions (summary of the described experiments (summary density of the mixture in the discharge area $\sim 4 \cdot 10^{17} - 1.5 \cdot 10^{18}$ cm^{-1}) is considerably shorter than the characteristic life-time of the level 00°1 of CO_2 (τ_v).

Figure 1.

Figure 1.

[1 - USSR - L]

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