USSR

ROMANOVA, N. I., et al., Metallokeramicheskiye Tverdyye Splavy, Metallurgiya Press, 1970, 352 pages
Chapter VII. (Continued)

7/10

USSR

ROMANOVA, N. I., et al., Metallokeramicheskiye Tverdyye Splavy, Metallurgiya
Press, 1970, 352 pages

Chapter VIII. (Continued)

8/10

ROMANOVA, N. I., et al., Metallokeramicheskiye Tverdyye Splavy, Metallurgiya
Press, 1970, 352 pages

10/10

1/2   021   UNCLASSIFIED   PROCESSING DATE—30OCT70
TITLE—CONFORMATIONAL ANALYSIS OF 4,CYCLOHEXENES USING HETERONUCLEAR
    DOUBLE RESONANCE —U—
AUTHOR-(04)-ZEFIROV, N.S., SERGEYEV, N.M., CHEKULAYEVA, V.N., GURVICH,
    L.G.
COUNTRY OF INFO—USSR

SOURCE—DOKL. AKAD. NAUK SSSR 1970, 190(2), 345-7

DATE PUBLISHED————70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—CYCLOHEXENE, PROTON, NMR SPECTRUM, CHEMICAL SUBSTITUENT,
    ORGANIC NITRO COMPOUND, BUTADIENE, NITRILE, ACRYLATE, ORGANIC SYNTHESIS

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—2000/1081   STEP NO—UR/0020/70/190/002/0345/0347

CIRC ACCESSION NO—AT0124738
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AT0124738
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   FROM PROTON NMR SPECTRA OF
  CYCLOHEXENES WITH CHO, CO SUB2 ME, CN AND AC SUBSTITUENTS IT WAS
  CONCLUDED THAT 3,CYCLOHEXENE,1,CARBOXALDEHYDE HAS 70PERCENT CONFORMATION
  I (X EQUALS CHO), AND THAT THE CORRESPONDING CARBOMETHOXY COMPD. HAS
  85PERCENT CONFORMATION I (X EQUALS CO SUB2 ME).   KEEPING O SUB2
  NCH:CHCN WITH BUTADIENE,1,1,4,4,D SUB4 IN THE PRESENCE OF HYDROQUINONE 3
  DAYS GAVE 70PERCENT TRANS,1,NITRO,2,CYANO,4,CYCLOHEXENE, 3,3,6,6,D SUB4,
  M. 93-5DEGREES; THE ME TRANS,2,ACETYL,4,CYCLOHEXENE,1,CARBOXYLATE,
  3,3,6,6,D SUB4, B SUB1 124-6DEGREES, M PRIME20 SUBD 1.4770 WAS PREPD.
  FROM THE DIENE AND ME ACETYLACRYLATE IN 15 HR AT 100DEGREES IN MEPH.
     FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR   UDC 547.341.3:543.422.3'6

STEPANOV, B. I., CHEKUNINA, L. I., and BOKANOV, A. I., Moscow Chemical
Technological Institute imeni D. I. Mendeleyev

"Synthesis and Investigation of p-Nitrophenylethynylphosphines and
Phosphine Oxides"

Abstract: A synthetic method has been developed for arylbis(p-nitrophenyl-
ethynyl)phosphines based on the reaction of aryldichlorophosphines with
copper p-nitrophenylacetylenide. Introduction of a dimethylamino group
into the aromatic ring of the phenylbis(p-nitrophenylethynyl)phosphoric
compounds results in an appearance of new bands in electronic spectra
which are due to the electronic transfer with delocalization of the
electron through the phosphorus atom.

1/1

USSR   UDC 543.422.27:541.515:547.1'118

SOLODOVNIKOV, S. P., BOKANOV, A. I., CHEKUNINA, L. I., and STEPANOV, B. I.,
Institute of Elemental Organic Compounds, Academy of Sciences SSSR and
Moscow Chemical Technology Institute imeni D. I. Mendeleyeva

"ESR Spectra of the Anion Radicals of Phenyl-bis-(p-nitrophenylethynyl)
phosphine and Phosphenoxides"

Abstract: The ultrafine structures of ESR spectra of the anion radicals of
$(p-NO_2C_6H_4C{\equiv}C-)_2-P(C_6H_4X-p)$ (I), for X = H, Cl, $N(CH_3)_2$ and $(p-NO_2C_6H_4C{\equiv}C-)_2$
$P(O)C_6H_5$ (II). The electrons appear to be localized only in the p-nitro-
phenylacetyl fragment of (I) for X = H. The substitution of $N(CH_3)_2$ for H
results in a small increase in the splitting of the P relative to H (and
also to X = Cl). The secondary spectra of (I) and (II) have the same form
as those of the anions. The polarographic reduction of I for X = H and II
did not show a σ-system for the nitrophenylethynyl group through the P atom.
Measurement of the electrode potential of the first half wave relative to a
saturated calomel electrode in acetonitrile gave the following values for
$-E_{1/2}$ in volts: $C_6H_5NO_2$, 1.10; p-HC $C_6H_4NO_2$, 0.99; (I) for X = H, 0.94;
and (II), 0.94.
1/1
                                  - 25 -

USSR   UDC 547.538.2'341.3:543.257.1

CHEKUNINA, L. I., BOKANOV, A. I., STEPANOV, B. I.

"Electrophilic Nature of Bis(arylethinyl)phosphonous and bis(arylethinyl)phosphinyl Radicals"

Abstract: In a previous study of the alkalinity of dimethylanilines in nitro-
methane [B. A. Korolev, et al., ZhOKh, No 39, 1161, 1969], it was demonstrated
that their pK_a (CH_3NO_2) are correlated by the nucleophilic constants σ^-, how-
ever, the accuracy of the correlation equation was low as a result of an in-
adequate set of substances: 3 compounds, r 0.986, s 0.40. In this paper,
dimethylanilines are used as the standard substances the alkalinity of which
is described by the equation (r 0.990, s 0.23):

$$pK_a(CH_3NO_2) = 10.77 - (3.62 \pm 0.13)\sigma^-$$

The n-dimethylaminophenyl-bis(arylethinyl)phosphines and phosphinoxides were
protonized with respect to nitrogen. The σ^- constants were determined for four
organophosphorus substitutions with arylethinyl radicals on the phosphorus. In
the investigated bis(arylethinyl)phosphines, the unshared phosphorus electrons
1/2
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USSR

CHEKUNINA, L. I., et al., Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 110-112

do not participate in the conjugation transfer. The ultraviolet spectra of the investigated substances are presented.

2/2

UNCLASSIFIED   PROCESSING DATE--19JUN70

TITLE--FIRST SEISMIC INVESTIGATIONS ON THE PRIPYAT SWELL -U-

AUTHOR--CHEKUNOV, A.V., LIVANOVA, L.P., KLUSHIN, V.I.

COUNTRY OF INFO--USSR

SOURCE--GEOFIZICHESKIY SBORNIK, KIEV, 1970, NR 33, PP 32-38

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--SEISMIC WAVE, GEOLOGY, GEOPHYSIC METHOD, CRYSTALLINE ROCK
LAYER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1977/0391   STEP NO--UR/0000/70/000/033/0032/0038

CIRC ACCESSION NO--AT0043963
                    UNCLASSIFIED

Acc. Nr: *A770043963*

Ref. Code: *UR0000*

PRIMARY SOURCE: Geofizicheskiy Sbornik, Kiev, 1970, Nr 33, pp 32-38

FIRST SEISMIC INVESTIGATIONS ON THE PRIPYAT SWELL

A. V. Chekunov, L. P. Livanova, V. I. Klushin

(Institute of Geophysics, Academy of Sciences, Ukrainian SSR)

Summary

The results are given of the first seismic investigations in the southern part of the Pripyat swell. The characteristic of the wave picture is presented. The structural constructions were conducted along the surface of the crystalline basement. The main tectonic dislocations and contacts are distinguished. The correlation with the data of geology and other geophysical methods was made.

//1

REEL/FRAME
19770391

1/2   008   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--STRUCTURE AND DEVELOPMENT OF THE EARTH'S CRUST IN THE UKRAINE AND
ADJACENT REGIONS -U-
AUTHOR-(03)-SOLLOGUB, V.B., CHEKUNOV, A.V., PAVLENKOVA, N.I.

COUNTRY OF INFO--USSR

SOURCE--GEOPHYSICAL INSTITUTE ACADEMY OF SCIENCES UKRSSR; MOSCOW,
SOVETSKAYA GEOLOGIYA, NO 5, 1970, PP 20-30
DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--EARTH CRUST, GEOTECTONICS, MOHOROVICIC DISCONTINUITY,
GEOSYNCLINE, GEOLOGIC FAULT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605017/810 STEP NO--UR/0215/70/000/005/0020/0030

CIRC ACCESSION NO--AP0140719
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0140719

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS HAVE DETERMINED THE FOLLOWING EVOLUTIONARY SERIES OF GEOSTRUCTURES IN THE UKRAINE AND ADJACENT AREAS. ANCIENT (RUSSIAN) CONTINENTAL PLATFORM. AULACOGENS AND OTHER PLATFORM DOWNWARPS (DNEPR DON AND BLACK SEA KUBAN). PARAGEOSYNCLINE (DONBASS). ORGENS WITH FORDEEPS (CAUCASUS, GREATER KRIVOY ROG REGION, AND OTHERS). AGING OROGENS (DONBASS). INTRAGEOSYNCLINAL SUPERPOSED DEPRESSIONS OF THE OROGENY STATE (GREATER HUNGARIAN REGION, BLACK SEA). IT IS SHOWN THAT THE MOST CHARACTERISTIC FEATURES OF GEOSYNCLINAL DEVELOPMENT IS INVERSION OF THE GEOTECTONIC REGIME; THIS IS ACCOMPANIED BY DEEP CHANGES IN THE EARTH'S CRUST LEADING TO THE INVERSION OF ITS BOTTOM RELIEF, THE MOHOROVICIC DISCONTINUITY. THIS EVOLUTIONARY SERIES IS COLLECTIVE BECAUSE CONTINENTAL PLATFORMS CAN BE TRANSFORMED INTO SUBOCEANIC DEPRESSIONS, BYPASSING THE GEOSYNCLINAL STAGE AND THE REGENERATION OF A GEOSYNCLINE IN THE BODY OF THE PLATFORM IS NOT NECESSARILY TERMINATED IN THE APPEARANCE OF SUBOCEANIC DEPRESSIONS. ON THE WHOLE, THE CRUST IN THIS REGION HAS A COMPLEX LAYERED BLOCK STRUCTURE. NUMEROUS DEEP FAULTS BOUND THE PRINCIPAL GEOLOGICAL REGIONS AND SECOND ORDER STRUCTURAL ELEMENTS WITHIN THEM. MINERAL DEPOSITS ARE CONSISTENTLY FOUND TO BE ASSOCIATED WITH FAULT ZONES.

UNCLASSIFIED

USSR   UDC 632.954:635.342

ISAYEVA, L. I., and CHEKUNOVA, Z. I., Moscow Fruit Toxicological Laboratory,
All-Union Institute of Plant Protection, and Scientific Research Institute
of Fruit Growing

"The Use of Herbicides in Growing White Head Cabbage Seedlings"

Abstract: It has been established that the herbicides ramrod and preparation
C-7019 may be used against weeds while growing cabbage seedlings under film
covers. Ramrod could even be used in open planting of the seedlings. Optimal
doses of ramroad are in the range of 5-6 kg/hectare, and that of the preparation
C-7019 -- 2.0 kg/hectare. The herbicide should be applied prior to cabbage
planting or when the seedlings and the weeds appear. The yield of standard
seedlings is improved considerably by this treatment. No detrimental effect
could be noticed on the growth of cabbage in open ground and the harvest of
the heads of cabbage. The cost of the herbicide is fully compensated for by
the gains in the quantity and the quality of the product.

1/1

CHEKURIN, V. P.

Acad. Med. Sci.

GLORIA

D-1

DISCUSSIONS OF PAPERS AT THE MEETING OF ACTIVE PARTY MEMBERS OF SCIENTIFIC
RESEARCH INSTITUTES OF THE USSR ACADEMY OF MEDICAL SCIENCES

The Soviet people and all of progressive mankind followed the proceedings strained attention. The decisions adopted by the Congress mark a new stage in the life of the Party and of the Soviet people. The Congress demonstrated convincingly that in its activities the CPSU is steadfastly governed by Marxism and Leninism, the most progressive revolutionary modern science, and is doing everything to develop it further.

This congress showed that the development of socialism to its present stage elevated to a new level the objectives of communistic education of working people. The Party considers formation of the new man to be one of its chief tasks in the building of communism.

The Congress stressed the fact that the increasing importance of ideological education work at the present time is determined by the scientific-technological, economic, and social transformations in our country, as well as by the higher cultural level and increasing spiritual demands of the nation, by the sharp political and ideological struggle between the socialistic and capitalistic regimes on the world's arena. For this reason, the entire system of communistic education should be substantiated scientifically and should provide for the training of a comprehensively developed personality.

The tasks set forth by the 24th Congress of the CPSU in the area of ideological and ideological education work were assumed with a great feeling of responsibility by all of the scientists of the USSR AMS [Academy of Medical Sciences], both communists and non-Party members, as vividly demonstrated at last April's meeting of active Party members of scientific research institutions of the USSR AMS. This was the second meeting in the history of the USSR AMS of scientists dealing specially with the tasks and problems pertaining to better ideological training and methodological work in the scientific institutions of the USSR AMS.

Like the first meeting of active Party members, which convened in Sverdlovsk, this one was attended by most of the members of the Presidium of the USSR AMS, Institute directors, their scientific assistants, scientific secretaries of institutions, masterminds of Party and Komsomol (young Communist League) organizations, their assistants in ideological work, chairmen of methodological organizations, and Institute offices. Papers were delivered by S.R. Mardashev, vice-president of the USSR AMS, and G.I. Tsaregorodtsev, head of the chair of philosophy, USSR AMS.

Lively discussions were inspired by three papers.

A.V. Snezhnevskiy, who expressed agreement with the description of the main objectives set forth in both papers, also observed that the effectiveness of Marxist-Leninist philosophy is not yet implemented sufficiently by the scientists of the USSR AMS in their immediate scientific research work, in defining the directions of scientific research, in interpreting the results obtained and summing them up. Using extensive factual material, he illustrated the concept that methodological illiteracy, inability to use an adequate methodological approach in their work leads not only to our scientists slipping down to positions that are alien to the dialectical materialistic world outlook, but also to a noncritical attitude toward a number of idealistic and irrationalistic foreign conceptions.

The speaker raised the point that there must be serious methodological control over publications, especially of popular science literature.

A.D. Ado, who observed that issues pertaining to ideological work and activation of scientists with regard to participation in the ideological struggle were given much attention at the Congress, pointed to the achievements made in the last few years in the area of methodological and theoretical problems in medicine. Philosophers, pathologists, and clinicians in different special fields participate actively in this work.

However, the question raised by S.R. Mardashev, with reference to the nature of the links and relations between philosophy and medical science is also timely today in view of the fact that, in the opinion of the speaker, there are efforts being made to promote philosophy as the "science of all sciences," as a modern natural philosophy. In this connection, he criticizes the works of V.P. Petlenko in which, in his opinion, such efforts are made.

Another example of a wrong, in the opinion of the speaker, methodological approach to problems in medicobiological sciences is the extension of biologizing conceptions to pathology, ecological views in medicine. These views are manifested most graphically, in his opinion, in the concept of disease as a form of adaptation.

A.P. Avtsyn called attention to the fact that the 24th Congress of the CPSU stressed the importance of basic research in the area of theoretical natural science. Such research is, first of all, the basis for development of modern dialectical materialism, and in this sense are important with respect to world outlook. The revolution which is occurring in medicobiological sciences

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CHEKURIN, V. P.

So: JPRS 53292
02 JUNE 71

UDC: 616-07:007

DISTINCTIVE FEATURES IN THE STRUCTURE OF CYBERNETIC MODELING OF THE DIAGNOSTIC
PROCESS IN THE LIGHT OF LENIN'S REFLECTION THEORY

[Article by V. P. Chekurin, Moscow, Cybernetics
tsinskikh Nauk SSSR, Russian, No 4, April 1971, pp 55-60]

Cybernetics, which is a relatively young scientific discipline,
expounded, in the course of its appearance and development, a number of impor-
tant philosophical and methodological problems. Many philosophers and natu-
ralists are engaged in finding solutions to them in the last few years.
Their solution is rather complex. However, the work already done indicates
conclusively that the basic philosophical tenets of V.I. Lenin, his classical
analysis of philosophical problems in natural science of the 20th Century,
the teaching on reflection as a universal property of matter, the positions
on the dialectical nature of the process of reflection and the process of
cognition, the conceptions pertaining to the active nature of the latter,
and others played a definite part in the outlook and methodological inter-
pretation of the results and prospects of development of this science.

The dialectical position of V.I. Lenin in gnosiology which considers
cognition as a complex and contradictory process of moving from ignorance to
knowledge, from more superficial to deeper knowledge has decisive signifi-
cance in order to characterize the philosophical essence of such a popular
cognitive procedure in modern science as modeling, and particularly to
understand the latest modification of this old method of cognition which is
related to cybernetics.

Before our eyes, the method of cybernetic models is extending to
more and more branches of learning and practice. Our objective does not
include a detailed description of all of the features of cybernetic models.

We should merely like to call attention on one of its features,
structure, and this as it relates to the diagnostic process.

It must be borne in mind that V.I. Lenin, in his "Philosophical Note-
books," wrote that "movement of cognition toward an object can only proceed
dialectically; to step back in order to hit more accurately, to retreat in

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CHEKURIN, V. P.

MEDICINE

THE INCREASING ROLE OF METHODOLOGY IN MEDICAL SCIENCE AND OBJECTIVES OF METHODOLOGICAL WORK AT SCIENTIFIC INSTITUTIONS OF THE USSR ACADEMY OF MEDICAL SCIENCES IN THE LIGHT OF THE DECISIONS OF THE 24TH CONGRESS OF THE CPSU

We are all very impressed by the 24th Congress of the CPSU which was an event of enormous political and economic significance. It will go down in the history of our Party and nation, in the history of the international communist and workers' movement as an important and memorable landmark. The congress summarized the activities of the Party and of the people for the reported period, it elaborated the political line and scientifically substantiated program for the next period. It demonstrated convincingly the universal historical significance of the building of communism in the USSR, the contribution made by Lenin's Party and by the entire Soviet nation in the world's revolutionary process. The congress also showed very convincingly that the CPSU is consistently guided by Marxist-Leninist science in its activities, the most progressive revolutionary science of modern times, doing everything to develop it further. The theoretical interpretation of phenomena in the life of society and its main trends make it possible to predict the course of social processes and to develop a true political course. The congress indicated that creative development and propaganda of Marxist-Leninist teaching, the struggle against the ideology of anticommunism and various bourgeois and revisionist conceptions must continue to be in the focus of the ideological work of the Party.

In the resolution of the 24th Congress of the CPSU referable to the report of the Central Committee delivered by L.I. Brezhnev, it is indicated that "The main element in the ideological work of the Party is to propagandize the ideas of Marxism and Leninism, to wage a relentless offensive struggle against bourgeois and revisionist ideology." Precisely relentless and offensive! Special emphasis must be made of this since some of our scientists believe that science is their affair, while politics and philosophy are the affair of other specialists, and they are not prepared to pursue discussions, for example, with foreign scientists. This is a fallacious and harmful position which is indicative of some flaws in our methodological ideological education work.

- 1 -

Instruments and Equipment

USSR

INYUSHIN, V., Docent, Candidate of Biological Sciences, and CHEKUROV, P.,
Chief Doctor, Republic Clinical Hospital, Candidate of Medical Sciences

"The Laser in Medicine"

Alma-Ata, Kazakhstanskaya Pravda, 9 Jul 72, p 4

Abstract: Certain zones of skin tissue, "points of influence," have definite
ties with specific internal organs. The biophysical properties of these
zones and methods of stimulating them are being studied. Acupuncture has
therapeutic effect in the treatment of peripheral nervous disorders, aller-
gies, and trophic and secretory disturbances. Therapeutic and diagnostic
applications of the laser on these zones are being studied; instruments to
locate the zones are being developed. Experiments with animals have proven
the safety of laser zone irradiation. The laser has proven effective in
treatment of stomatological illnesses. A laser microscope, capable of
observing cell functions which give information on the condition of the
tissue, has been built.

1/1

USSR

UDC 621.38:61

CHEKUROV, P. P.

"To A Problem Concerning Stimulation Of The Regeneration of Bone Tissue by a Helium-Neon Laser"

V sb. Ispol'z. optich. kvant. generatorov v sovrem. tehkhn. i med. Ch.2-3 (Use of Lasers in Contemporary Technology and Medicine. Parts 2-3: Collection of Works), Leningrad, 1971, p 83 (from RZh: Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A516)

Translation: The possibility of stimulating the process of regeneration of the bone tissue of a dog was studied. The helium-neon laser OKG-12 with a wavelength of 6328 Å was used for this purpose. Study of the data of roentgenographs and histological specimens indicate the stimulating action of laser radiation with a wavelength of 6328 Å.

1/1

1/2   029   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--N,H VALENCE VIBRATION FREQUENCIES OF CARBOXYLIC ACID HYDRAZIDES -U-

AUTHOR-(02)-CHEKUSHIN, S.I., TITOV, YE.V.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(4), 817-18

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL VALENCE, VIBRATION FREQUENCY, CARBOXYLIC ACID, AZIDE,
   IR SPECTRUM, AMINE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0811   STEP NO--UR/0051/70/028/004/0817/0818

CIRC ACCESSION NO--AP0124478
                           UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0124478   PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. IN IR SPECTRA OF CARBOXYLIC ACID
HYDRAZIDES OF THE TYPE RCONHNH SUB2 2 ABSORPTION BANDS ARE OBTAINED AT
3330 AND SIMILAR TO 3450 CM PRIME NEGATIVE1 INSTEAD OF THE EXPECTED 3
BANDS. THIS IS ATTRIBUTED TO THE FACT THAT THE SYM. VALENCE VIBRATION
OF N-H OF THE PRIMARY AMINO GROUP IS VERY PRONOUNCED, WHEREAS ITS
ANTISYM. VIBRATION INTERACTS WITH THE VALENCE VIBRATION OF THE RADICAL
LARGER THAN N-H. THE RESULT OF THIS INTERACTION IS THAT THEY ARE NOT
SEPD. IN THE SPECTRUM. FURTHERMORE, BECAUSE OF THIS INTENSE INTERACTION
THE LAST 2 VIBRATIONS WILL BE AFFECTED BY INTERNAL AND EXTERNAL FACTORS
AND THEIR SEPN. WILL NOT COME ABOUT. AMONG THE INTERNAL FACTORS ARE THE
VARIOUS SUBSTITUENTS AND THE EXTERNAL FACTORS ARE THE VARIOUS SOLVENTS.
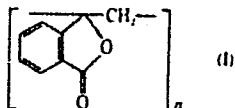
UNCLASSIFIED

Acc. Nr. AP0048827   Abstracting Service: Ref. Code
                     CHEMICAL ABST.   5-76   UR0459

90903k Synthesis and behavior of poly(methylenephthal-
ide). Vinogradova, S. V.; Salazkin, S. N.; Korshak, V. V.; Chel-
idze, G. Sh.; Slonimskii, G. L.; Askadskii, A. A.; Mzhel'skii, A. I.
(Inst. Elementoorg. Soedin., Moscow, USSR). Vysokomol. Soe-
din., Ser. A 1970, 12(1), 205-13 (Russ). The title polymer (I) was
prepd. by bulk, emulsion, and soln. polymn. of methylenephthal-
ide (II) in the presence of peroxides or BF₃HCONMe₂. II was
also thermally polymd. in HCONMe₂ in air at 60° to give I of

(I)

higher mol. wt. than I obtained similarly under argon. Increas-
ing the temp. to 80° had no effect on the I yield and viscosity. I
with reduced viscosity 0.5-0.7 dl/g (0.5% HCONMe₂, 25°) was
obtained by soln. polymn. of II in the presence of Bz₂O₂ or
(NH₄)₂S₂O₈. Soln. polymn. of II was solvent-sensitive. I with

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19800591

AP0048827

max. reduced viscosity (0.85 dl/g) was obtained by polymn. of II in $HCONMe_2$ at 70° in the presence of $BF_3.HCONMe_2$. Increasing the reaction time raised the I yield sharply. II was also bulk copolymd. with other monomers, esp. styrene, acrylonitrile, and Me methacrylate, in the presence of Bz_2O_2 to give high yields of copolymers with high reduced viscosity. All copolymers were solids, sol. in the same solvents (CF_3CO_2H, Me_2SO, etc.) as I. I had softening point 300° and good thermal stability.   DBJR

LD

19800592

1/2   021   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--THERMAL STABILITY OF POLY,3,METHYLENEPHTHALIDE -U-

AUTHOR-(05)-RODE, V.V., ZHURAVLEVA, I.V., GAMZAZADE, A.I., SALAZKIN, S.N.,
   CHELIDZE, T.SH.
COUNTRY OF INFO--USSR   C

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 926-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL STABILITY, ACTIVATION ENERGY, FREE RADICAL, BENZENE
   DERIVATIVE, HETEROCYCLIC OXYGEN COMPOUND, LACTONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1312   STEP NO--UR/0062/70/000/004/0926/0928
CIRC ACCESSION NO--AP0134986
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0134986   UNCLASSIFIED   PROCESSING DATE--20NOV70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE TITLE POLYMER (I) (S. B.
VINOGRADOVA, ET AL., 1970) WAS HEATED IN A VACUO OR AR ATMOSPHERE AT
275-400DEGREES. THE MAIN DECOMPN. PRODUCT IS LESS THAN OR EQUAL TO
375DEGREES WAS 3,METHYLENEPHTHALIDE.   ONLY ABOVE 375DEGREES TRACES OF
CO SUB2, CO, AND H SUB2 WERE DETECTED.   DTA CURVES AND WT. LOSS VS. TIME
CURVES SHOWED THAT THE DECOMPN. OF I WAS A FREE RADICAL INITIATED
DEPOLYMN. ASSOCD. WITH 39.5 KCAL-MOLE ACTIVATION ENERGY.
FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

USSR   UDC   621.311.22:621.3.016.31

CHELIDZE, G. V., LYASHENKO, YU. V., SVANISHVILI, R. N., ZAZIYEV, B. N.

"Problem of Optimizing Electric Load Distribution of a Thermal Electric
Power Plant"

Translation: The problem of economical distribution of the electric load
between the turbo units of thermal electric power plants can be solved by
means of the analog computer based on an algorithm developed utilizing the
method of relative increments of heat consumption. The data on the thermal
loads of the units and the total electric load of the electric power plant
are input to the analog computer, and the characteristics of the expenditure
and relative increments of heat consumption are simulated. The distribution
of the electric load of the condensation section of the turbo units is calcu-
lated by comparing the relative heat increments in the condensation flow of
steam after which the values of the optimal electric loads of the units are
determined. There is 1 illustration and a 2-entry bibliography.
1/1
- 103 -

1/2   021
UNCLASSIFIED
TITLE--NITROGEN CASE HARDENING OF, STEEL, GEARS FOR THE TRACTION MOTOR OF
    AN ELECTRIC LOCOMOTIVE VL10 -U-   PROCESSING DATE--04DEC70
AUTHOR-(02)-CHELIDZE, N.S., VOLOSHINA, A.V.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (4), 75-7

DATE PUBLISHED-------70

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

TOPIC TAGS--LOW ALLOY STEEL, ALLOY DESIGNATION, METAL HEAT TREATMENT,
    TRANSMISSION GEAR, CASE HARDENING, NITRIDATION/(U)VL10 LOCOMOTIVE,
    (U)20KHN3A LOW ALLOY STEEL, (U)37KHN3A LOW ALLOY STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0923
                            STEP NO--UR/0129/70/000/004/0075/0077
CIRC ACCESSION NO--AP0133012
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0133012

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STEEL 20KHNZA HAS SELECTED FOR GEARS FOR THE TRACTION MOTOR OF AN ELEC. LOCOMOTIVE VL10. WITH THE PURPOSE OF INCREASING THE STRENGTH, ALL SURFACES OF THE GEARS WERE SUBJECTED TO MECH. TREATMENT, NITROCEMENTATION, AND SUBSEQUENT THERMAL TREATMENT (1ST QUENCHING, HIGH TEMPERING, 2ND QUENCHING, AND LOW TEMPERING). NITROCEMENTATION OF GEARS INCREASED THEIR STABILITY 2.5 TIMES AS COMPARED TO THE GEARS FABRICATED FROM STEEL 37KHNZA BY HARDENING SURFACE QUENCHING WITH ACETYLENE-O FLAME. THE AV. YEARLY SAVINGS IN THE ECONOMY BY IMPLEMENTATION OF THE NEW TECHNOL. AT THIS ONE PLANT ARE ESTD.   FACILITY: TBILIS. ELEKTROVOZOSTROIT. ZAVOD IM. LENINA, TBILISI, USSR.

UNCLASSIFIED

1/2   010
TITLE—EXPERIMENTAL STUDY OF DIELECTRIC DISPERSION OF MOISTENED COARSE
— DISPERSED QUARTZ -U-

UNCLASSIFIED

PROCESSING DATE—30OCT70

AUTHOR—CHELIDZE, T.L.

COUNTRY OF INFO—USSR

SOURCE—KCLLGIDNYY ZHURNAL, 1970, VCL 32, NR 3, PP 444-447

DATE PUBLISHED———————70

SUBJECT AREAS—EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS—DIELECTRIC PROPERTY, WATER, QUARTZ

CCNTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—2000/2150

STEP NO—UR/0069/70/032/003/0444/0447

CIRC ACCESSICN NO—AP0125733

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125733

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ORDER TO INVESTIGATE THE MECHANISM OF AN ANOMALOUS EFFECT OF WATER ON THE DIELECTRIC PROPERTIES OF DISPERSED SYSTEMS A STUDY HAS BEEN MADE ON THE PERMITTIVITY AND CONDUCTIVITY OF A SIMPLEST QUARTZ WATER MIXTURE WITH THE VOLUME FRACTION OF WATER 0-1 IN THE FREQUENCY RANGE 0.2-200 KCPS. THE PERMITTIVITY IS WATER CONTENT CURVE SHOWS A MAXIMUM IN THE RANGE OF LOW ENOUGH FREQUENCIES, THE EXISTENCE OF WHICH IS NOT ENVISAGED IN THE GENERAL THEORY OF NONHOMOGENEOUS DIELECTRICS.   FACILITY: INSTITUT GEOFIZIKI AN GRUZSSR, TBILISI.

UNCLASSIFIED

USSR   UDC 512.83

CHELIDZE, V. G., Corresponding Member of the Academy of Sciences Georgian SSR, Tbilisi State University

"Matrices of the Class $T^C_{\phi,\psi}$"

Tbilisi, Soobshcheniya Akademii nauk Gruzinskoy SSR, Vol 57, No 1, 1970, pp 13-16

Abstract: The result of C. N. Moore (American Mathematical Society Colloquim Publications, XXII, 1938) is generalized to the case of a certain class of unlimited binary sequences. A matrix A(x, y) is called a matrix of class $T^C_{\phi,\psi}$ if for any converging sequence $(s_{ik})_{i,k \geq 0}$ of class $K_{\phi,\psi}$ the series

$$F(x, y) = \sum_{i, k=0}^{\infty} s_{ik} a_{ik}(x, y)$$

converges on the set E and a finite limit

$$\lim_{(x, y)_e \to \infty} F(x, y)$$

1/2

USSR

CHELIDZE, V. G., Soobshcheniya Akademii nauk Gruzinskoy SSR, Vol 57, No 1, 1970, pp 13-16

exists, where the symbol $(x, y)_e$ indicates that the point (x, y) tends to the point $(+\infty, +\infty)$ for the set $e \cap E$. A theorem is proved stating necessary and sufficient conditions that the matrix $A(x, y)$ be a matrix of class $T^c \phi, \psi$. It is shown how Moore's result can be obtained as a special case of the theorem proved here.

2/2

1/2   019   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--THERMODYNAMICS OF ION EXCHANGE EQUILIBRIUM IN THE VARIABLE
   COMPOSITION MINERAL SOLUTION (VAPOR) SYSTEMS -U-
AUTHOR--CHELISHCHEV, N.F.

COUNTRY OF INFO--USSR

SOURCE--GEOKHIMIYA 1970, (3) 309-18

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--ION EXCHANGE, MINERAL, THERMODYNAMICS, ISOTHERM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0214   STEP NO--UR/0007/70/000/003/0309/0318

CIRC ACCESSION NO--AP0106870
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0106870

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME GENERAL REGULARITIES OF ION
EXCHANGE EQUIL. WITH MINERALS OF VARIABLE COMPN. ARE CONSIDERED ON THE
BASIS OF THE THEORY OF THE THERMODYNAMICS OF HETEROGENEOUS BINARY
SYSTEMS. THREE FUNDAMENTAL TYPES OF EXCHANGE ISOTHERMS ON THE X,Y
DIAGRAMS ARE INDICATED. THE EFFECT OF NONIDEAL MIXT. IN SOLID PHASE ON
THE CHARACTER OF ION EXCHANGE EQUIL. AND, IN SOME CASES, ON THE FORM OF
THE EXCHANGE ISOTHERM IS CONSIDERED. SOME EXPTL. EXAMPLES OF ION
EXCHANGE EQUIL. WITH MINERALS OF VARIABLE COMPN. ARE GIVEN.

UNCLASSIFIED

CHURKIN, V.I., CHELISHCHEV, N.N., IZOTOV, V.A.

"An Experimental Study Of The Interaction Of A Nonlinear Ferrite Resonator With The Field Of A Short-Circuited Waveguide"

Abstract: The results are presented of a study of the amplitude and phase characteristics of the interaction of a nonlinear ferrite resonator with the microwave field of a short-circuited waveguide. The case is considered where coupling of the resonator with the transmission line in a linear regime is most critical. The experiment was conducted at a frequency of 5000 MHz at room temperature when the maximum of absorption for a monocrystalline spherical specimen of yttrium iron garnet coincides with the ferromagnetic resonance. 2 fig. 4 ref. Received by editors, 28 April 1971.

1/1

TITLE--DEFLUORINATION OF PHOSPHATES IN A LOW TEMPERATURE PLASMA JET -U-

AUTHOR-(05)-PECHKOVSKIY, V.V., MOSSE, A.L., TETEREVKOV, A.I., YERSHOV,
   V.A., CHELNOKOV, A.A.
COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 114-18

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOSPHATE, PHASE ANALYSIS, LOW TEMPERATURE PLASMA, PLASMA JET,
   DEHALOGENATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0971   STEP NO--UR/0456/70/004/002/0114/0118

CIRC ACCESSION NO--AP0131556
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0131556
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE POSSIBILITY OF THE PREPN. OF
DEFLUORINATED PHOSPHATES BY MEANS OF A STREAM OF LOW TEMP. PLASMA IS
STUDIED. A DEFLUORINATED PHOSPHATE CONTG. PRACTICALLY ALL OF THE P SUB2
O SUB5 IN ASSIMILABLE FORM IS OBTAINED. THE PHASE COMPN. OF THE PRODUCT
IS STUDIED.   FACILITY: INST. TEPLO-MASSOOBMENA, MINSK, USSR.

UNCLASSIFIED

1/3   015
TITLE--THERMODYNAMICS OF THE PREPARATION OF POTASSIUM THERMOPHOSPHATE,.
    CAKPO SUB4 -U-

UNCLASSIFIED   PROCESSING DATE--16OCT70

AUTHOR-(02)-CHELNOKOV, A.A., TETEREVKOV, A.I.

COUNTRY OF INFO--USSR

SOURCE--AKAD. NAVUK BELARUS. SSR, SER. KHIM. NAVUK 1970, (1), 54-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMODYNAMICS, POTASSIUM COMPOUND, PHOSPHATE, SILICATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0950

STEP NO--UR/0419/70/000/001/0054/0057

CIRC ACCESSION NO--AP0118116

UNCLASSIFIED

2/3   015
CIRC ACCESSION NO--AP0118116   UNCLASSIFIED   PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A THERMODYNAMIC STUDY OF C SUB4KPO
SUB4 (I) PRODUCTION BASED ON AVAILABLE DATA CLAIRFIED THE STEPS IN THE
PROCESS OF FUSION OF CERTAIN P CONTG. ORES WITH SEVERAL DIFFERENT K
COMPDS. THE GIBBS ENERGY DELTA G SUBT, CALCD. BY USING THE
GIBBS-HELMHOLTZ EQUATION, EXPLAINS THE PROBABILITY OF THE MANY POSSIBLE
REACTIONS LEADING TO I. WHEN USING CA SUB3(PO SUB4) SUB2 (II) AS
STARTING MATERIAL, DELTA G SUBT IS LESS THAN 0 WITH THE FOLLOWING
REAGENTS IN DECLINING ORDER OF REACTIVITY: K SUB2 O, K SUB2S, K SUB2 CO
SUB3, K SUB2 SIO SUB3, AND K SUB2 SO SUB3. BEST RESULTS WERE ACHIEVED
WITH K SUB2 CO SUB3 AT 1000DEGREES WHEREBY K SUB3 PO SUB4 IS FORMED
PRIMARILY AND IS CONVERTED BY AN EXCESS OF II AT A HIGH REACTION RATE TO
I. CA SUB10 F SUB2 (PO SUB4) SUB6 REACTS WITH K COMPDS. PRIMARILY WITH
FORMATION OF II AND KF AND THEN I IS FORMED. WITH K SUB2 S AND K SUB2
SIO SUB3, DELTA G SUBT GREATER THAN 0, A REACTION IS IMPROBABLE.
THERMODYNAMICS SHOW THAT ONLY THE REACTION BETWEEN II AND K SUB2 O IS
POSSIBLE. AT 1373DEGREES, II REACTS WITH K SUB2 CO SUB3 BECAUSE THE
ESCAPE OF CO SUB2 SHIFTS THE EQUIL. OF THE REACTION AND MIXING OF SIO
SUB2 ENHANCES THE PROCESS BY BINDING CAO. H SUB2 O VAPOR IMPEDES THE
REACTION. THE FORMATION OF CA SUB4 P SUB2 O SUB9 IS POSSIBLE
THERMODYNAMICALLY BUT IT DECOMPS. RAPIDLY WITH K SUB2 CO SUB3. IN THE
SYSTEM CAO-P SUB2 O SUB5-SIO SUB2, SEVERAL VARIATIONS OF SOLID SOLNS.
ARE COEXISTENT. AS THE FINAL RESULT OF FUSION, I AND ITS SOLID SOLNS.
WITH ALPHA II OR WITH K SUB2 SIO SUB3 OR THE SOLID SOLNS. OF ALPHA II IN
CA SILICATES ARE FORMED ALL OF WHICH ARE SOL. IN CITRIC ACID.

UNCLASSIFIED

3/3   015
CIRC ACCESSION NO--AP0118116   UNCLASSIFIED   PROCESSING DATE--16OCT70
ABSTRACT/EXTRACT--FACILITY: BELORUSS. TEKHNOL. INST. IM. KIROVA, USSR.

UNCLASSIFIED

USSR   UDC: 621.391.8:519.27

CHELNOKOV, B. A., NAYDENOV, A. I.

"Linear Conversion of a Spectrum of Amplitude-Modulated Waveforms"

Translation: Spectral diagrams are used to examine transformation of the time scale of AM signals with retention of their shape in linear circuits with variable parameters. Some types of distortions of the converted signal are considered. Resumé.

1/1

AT 0008329   NUCLEAR SCI. ABST. 16/69   0 0 0 0

41042   (EUR–4289, pp 259–61) MULTIPARAMETER ANAL-
YSIS AND RECORDING SYSTEM (MARS) FOR ISOTOPES IDEN-
TIFICATION OF TRANSURANIUM ELEMENTS. Fefilov, B. V.;
Shelnokov, L. P. (Joint Inst. for Nuclear Research, Dubna
(USSR)).

   Multiparameter analyzer for experiments on search and identifi-
cation of alpha-radioactive isotopes of far transuranium elements
produced by bombarding targets with heavy ion-beams on the 310-
cm cyclotron of JINR is described. The analyzer was intended for
data acquisition and accumulation by five parameters: an energy
and a half-life of the original nucleus, an energy and a half-life
of a daughter nucleus and the number of a detector. Moreover,
the analyzer has special control units for performing an experi-
ment. There are four alpha-spectrometers with semiconductor
detectors, stabilization system and a common ADC on 2000 chan-
nels. (auth)

19540383

AP9019823   CA 5/69   0000

92385a   Nucleon and nucleon-group transfer reactions induced in the bombardment of gold-197 and thorium-232 by carbon-12, nitrogen-14, and nitrogen-15.   Volkov, V. V.; Gridnev, G. F.; Zorin, G. N.; Chelnokov, L. P.   (Joint Inst. Nucl. Res., Dubna, USSR).   Nucl. Phys. A 1969, 126(1), 1–14 (Eng).   Targets of ^{197}Au and ^{232}Th were bombarded by ^{12}C, ^{14}N, and ^{15}N projectiles at 82, 110, and 98.5 Mev., resp.   Differential cross sections and energy spectra were measured for the transfer of one p, one n, a d, ^{3}He, and ^{4}He.   The angular distributions of all transfer reactions have a peak at the angle corresponding to the Rutherford scattering of 2 nuclei by grazing collision.   The cross section of the few-N transfer differs only slightly from that of the single-N transfer.   The energy spectra of the ^{3}He transfer were narrower than those of the p transfer.   These results indicate the possibility of cluster level excitation by the few-N transfer. The ^{4}He pick-up cross section was smaller than a few μb.; it is possible that the α-particle enters the unbound levels of the projectiles.   RCNF

1/1

1933 1043

USSR

UDC: 621.373.52:621.373.42

VOKHMYAKOV, Yu. S., CHELNOKOV, O. A.

"On Asynchronous Excitation of a Transistorized High-Frequency Self-Excited Oscillator"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Technical Electrical Communications--collection of works), Moscow, "Svyaz'", 1970, pp 82-92 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D332)

Translation: The authors analyze processes in a high-frequency transistorized self-excited oscillator in the case. of a sinusoidal voltage between base and emitter which is asynchronous with respect to the natural oscillations. It is shown that the phase of the mean transconductance of the transistor depends on the amplitude of the asynchronous voltage. In this regard, actuation of the asynchronous voltage may cause self-excited oscillations even when the rest point of the free oscillator lies in the active region of the transistor. Nine illustrations, bibliography of ten titles. Resumé.

1/1

USSR

VULIS, M.L., ZAGORSKIY, A.YE., FURMAN, V.B., CHELNCKOV, R.S., GUSCVSKIY, V.V.
[Vses. n.-i. i proyektno-tekhnol. in-t kran i tyag elektrooborud. -- All-Union
Scientific-Research Design And Planning Technological Institute Cf Crane And
Haulage Electrical Equipment]

"Static Frequency Converter With Direct Coupling"

Translation: The invention pertains to a frequency converter with direct coupling,
accomplished by a bridge circuit using thyristors. With the object of eliminating
the third and multiples of three harmonics in the output voltage of the converter,
it is proposed to provide the converter with a choke coil with a ferromagnetic
core, three identical windings of which are connected series--cumulatively [-soglasno]
at each of the output phases of the converter. 1 ill. I.R.

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1/2   024

UNCLASSIFIED

TITLE--AMPLITUDE DEPENDENT INTERNAL FRICTION IN ALUMINUM ALLOYS -U-

PROCESSING DATE--11SEP70

AUTHOR--CHELNOKOV, V.A., STEPANOV, V.A., KUZMIN, N.L.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 841-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ALUMINUM ALLOY, METAL INTERNAL FRICTION, ZINC ALLOY, COPPER ALLOY, MAGNESIUM CONTAINING ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/0647

STEP NO--UR/0181/70/012/003/0841/0847

CIRC ACCESSION NO--AP0105626

UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AMPLITUDE DEPENDENT INTERNAL
FRICTION WAS INVESTIGATED IN ALLOYS OF AL WITH MG, CU, AND ZN.
MEASUREMENTS OF THE DECREMENT WERE CARRIED OUT AT 300 AND 500DEGREESK ON
THE VIBRATIONAL FREQUENCY OF 400 HZ. INCREASE IN THE CONCN. OF THE
DOPING ELEMENTS AFFECTS MORE STRONGLY, THE DECREMENT MEASURED AT
INCREASING AMPLITUDE OF THE VIBRATIONS THAN ON THE DECREMENT MEASURED AT
DECREASING AMPLITUDE. THIS LEADS TO THE APPEARANCE OF HYSTERESIS OF THE
DECREMENT WHICH INCREASES WITH INCREASING DEGREE OF DOPING AND DECREASES
WITH INCREASING TEMP. OF TESTING. A MODEL IS PROPOSED FOR EXPLAINING
THE EXPTL. DATA IN WHICH IT IS ASSUMED THAT DISLOCATIONS IN ANNEALED AL
ALLOYS ARE FIXED BY STRONG ATMS. OF IMPURITIES AND FOR SMALL STRESSES
ARE IMMOBILE. AMPLITUDE DEPENDENT INTERNAL FRICTION APPEARS WHEN THE
DISLOCATIONS ARE PICKED OUT OF THE ATMS. AFTER THIS PROCESS THE ATM. IS
DESTROYED AND THEN THE AMPLITUDE DEPENDENT INTERNAL FRICTION IS DETD.
ONLY BY THE INTERACTION OF VIBRATING DISLOCATION SEGMENTS WITH UNIFORMLY
DISTRIBUTED IMPURITY ATOMS OF THE SOLID SOLN. THE MODEL PROPOSED MAKES
IT POSSIBLE TO CALC., FROM THE AMPLITUDE DEPENDENCE OF THE INTERNAL
FRICTION, THE CRIT. SLIDING STRESS. THE DATA OBTAINED BY MEANS OF THE
CALCN. COINCIDE WITH THE EXPTL. RESULTS FOR AL-ZN AND AL-CU ALLOYS.

USSR

UDC 621.382.23.022.002

PECHNIKOV, N.V., CHELNOKOV, V. Ye.

"Increase Of The Technical Level Of Production Of Power Semiconductor Devices"

Preobrazobatel'n. tekhnika. Inform. nauchno-tekhn. sb. (Converter Technology. Information Scientific-Technical Collection), 1970, No 2, pp 22-25 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8B427)

Translation: The necessity is justified for increasing the technical level of industrial and manufacturing processes in connection with farther development of semiconductor technics. 5 ref. Summary.

1/1

USSR C UDC 621.382.333.34

DUMANEVICH, A. N., SMOLYANSKIY, R. Ye., CHELNOKOV, V. Ye.

"Some Characteristics of the Temperature Change of the Static Switching Current
of Thyristors"

V sb. Fiz. elektronno-dyrochn. perekhodov i poluprovodn. priborov (Zh. fiz. i
tekhn. poluprovodnikov) (Physics of Electron-Hole Junctions and Semiconductor
Devices — Collection of Works [Journal of Physics and Technology of Semicon-
ductors]), Leningrad, "Nauka," pp 120-124 (from RZh--Elektronika i yeye
primeneniye, No 3, Mar 70, Abstract No 3B258)

Translation: The operation of a thyristor with shunted emitter p-n junctions
is considered when switching takes place at the minimum temperature in the
interval investigated, with voltage values equal or close to voltage breakdown
of the collector p-n junction. It is shown that the dependencies of the
effective transfer constant of the current and the switching current, on
temperature characteristic extremes. The results obtained, as a counter-
balance to known literature data, indicate the existence of a correlation
between the switching current and temperature and clear up several experi-
mental facts. 2 ill. 6 ref. V. S.
1/1

USSR

UDC 621.314.63:621.382

CHELNOKOV, V.YE.

"Status And Prospects For Electronic Power Semiconductor Devices"

V sb. Poluprovodnikovyye pribory i ikh primeneniye (Semiconductor Devices And Their Application--Collection Of Works), Moscow, Izd-vo "Sovetskoye Radio," No 25, 1971, pp 246-266

Abstract: A summary is presented of the development and status in the USSR of power semiconductor devices. The basic types, the construction (including one photograph) and parameters of power semiconductor devices manufactured in the USSR are considered--altogether 40 types. The technological processes used for production of power semiconductor devices are described in basic terms. The branches of industry are enumerated where use of power semiconductor converters is promising. A detailed description is given of the ten principal directions of theoretical and experimental scientific investigations on which problems with respect to farther long-term growth of power semiconductor electronics are based. A forecast is presented with respect to an increase of the parameters and the improvement of power semiconductor devices. 6 fig. 5 ref.
1/1

- 67 -

USSR   UDC 541.64:678.746:541.12

RAFIKOV, S. R., DZHILKIBAYEVA, G. M., CHELNOKOVA, G. N., SHALTUPER,
G. B., Institute of Organo Elemental Compounds, Moscow, Academy of
Sciences USSR, and Kazakh State University imeni S. M. Kirov, Alma
Ata, Ministry of Higher and Secondary Specialized Education Kazakk
SSR

"Kinetics of the Reaction of Triethyl Phosphite with Linear Halo-
methylated Polystyrene"

Abstract: The kinetics of the Arbuzov reaction of triethyl phos-
phate (TEP) with linear iodomethylated polystyrene was studied in
carefully purified dioxane over the temperature range 58-97°C. It
was found that at temperatures exceeding 70°, isomerization of TEP
accompanies the Arbuzov rearrangement. It was shown that the
reaction rate constants in the interaction of TEP with iodomethyl-
ated styrene decreases as the reaction proceeds and the apparent
activation energy depends on the temperature; it is 17.1 kcal/mole

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USSR

RAFIKOV, S. R., et al, Vysokomolekulyarnyye Soyedineniya 12, No 7,
1970, pp 1608-1613

at $\sim$ 80°C, and 25.5 kcal/mole at higher temperatures. This is
interpreted as an indication of diffusion processes becoming more
prominent at higher temperatures. Data are presented on the
degree of conversion of the iodomethylated groups of the poly-
styrene as a function of the reaction period, as well as on the
degree of completion of the reaction as calculated from an analysis
of the P and I contents of the reaction mixture.

2/2

Acc. Nr: AP0034403

LEVELS OF ASCORBIC ACID IN BLOOD PLASMA AND URINE AND RESISTANCE
OF SKIN CAPILLARIES IN PERSONS OCCUPIED IN STREPTOMYCIN PRODUCTION

V. M. Selivanova, N. P. Dobronravova, L. M. Chelnokova

National Institute for Vitaminology, Moscow

Examination of more than 100 persons (mainly women) at the age of 18 to 40
occupied in streptomycin production showed relatively low levels of ascorbic acid in blood
plasma and resistance of their skin cappillaries. Additional vitaminization of the workers for
2.7 and 10.5 months with vitamin complexes, containing 70 or 150 mg of vitamin C,
1.5 mg of vitamin A, 1.7 mg of vitamin B₁, 2.2 mg of vitamin B₂, 18 mg of vitamin PP
and 2 mg of vitamin B₆ did not increase the ascorbic acid levels in blood plasma, while
the acid excretion with morning urine significantly increased. The tonic effect on the
cappilaries was observed only with a complex containing 150 mg of vitamin C. Addition
of tea catechins in an amount of 90 mg a day did not increase the effect. Vitamin
complexes containing 70 and 150 mg of vitamin C had no tonic effect on the capillaries
of workers occupied in streptomycin production. It is concluded that additional vitami-
nization of workers occupied in streptomycin production with the above vitamin complex
containing 150 mg of vitamin C is necessary.

1/1

REEL/FRAME

19711063

D. H.

6

CHELNOKOVA, N.A.

space physiology

So-JPRS 54703

22 DEC 71

IN-FLIGHT ACCELERATION SENSATIONS AND METHODS FOR CONTENDING WITH THEM

UDC 616.282.3-008.1-02:656.7-092.6

[Article by Yu. F. Udalov, V. F. Zhernavkov, O. P. Khafatov and N. A. Chelnokova, Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol. 5, No 5, 1971, submitted for publication 3 February 1971, pp 57-62]

Abstract: Post-flight examinations revealed a decrease in the amino acid level (mainly involved in transamination), an increase in the intensity of protein metabolism, and a change in pyridoxine metabolism which suggested that its use increased during flight. After flight vestibular tolerance decreased and the state of the vestibular analyzer changed. It is suggested that the mentioned variations are related to metabolic conditions. This was verified experimentally by inducing pyridoxine deficiency in the body (cyclosurine administration). The latter disturbed acceleration sensations and caused inadequate (illusionary) feelings. The changes were eliminated by administering pyridoxal combined with ATP. This drug combination was effective in treating metabolic changes induced by flight effects. Accordingly, a combination of pyridoxal and ATP can be regarded as a drug which can be used in improving metabolism and in preventing its in-flight disturbances.

In the course of medical support for flights it is common to note an absence of a rigorous correlation between the predictions based on ground examinations and in-flight vestibular tolerance (K. L. Khilov). In-flight vestibular impairments have been observed in individuals who have undergone special selection and who have had adequate flight experience; sensory impairments have been registered more frequently than autonomic impairments (Ye. A. Drevyanko and V. G. Kuznetsov, 1966, 1967; I. A. Sidel'nikov and I. I. Troyanov; K. L. Khilov).

Special laboratory investigations have revealed that stato-kinetic tolerance can be reduced by simulating some metabolic shifts characteristic for stressed flight activity. It has been noted that the administration of

Physiology

USSR   UDC 523:612.015.3:611.85

LAPAYEV, E. V., PAVLOV, G. I., SIDEL'NIKOV, I. A., UDALOV, Yu. F., YUGANOV, Ye.
M., and CHELNOKOVA, N. A.

"The Effect of Linear and Angular Accelerations on Some Metabolic Indices"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 4, 1970,
pp 515-520

Abstract: Exposure of human subjects to linear and angular accelerations pro-
duced definite shifts in protein and vitamin metabolism. Some of the shifts
were quite specific to vestibular stimulation -- decrease in transaminase activ-
ity, increased excretion of amino acids with decreased excretion of total nitro-
gen, and relative increase in content of the replaceable acids and amino acids
involved in transamination reactions in the blood (aspartic and glutamic acids,
glutamine, alanine). The shifts were more pronounced after Coriolis accelera-
tions than after linear accelerations.

1/1

Polymers and Polymerization

USSR   UDC 542.955:546.27'161:547.1'118:678.643'42'5:678.043

SADYKOVA, E. M., CHELNOKOVA, Z. B., KOLLI, I. D., RODIONOV, R. A., and
SPITSYN, VIKT. I., Moscow State University Imeni M. V. Lomonosov

"Addition Products of Boron Trifluoride With Phosphines as Reinforcement
Agents for Epoxy Resins"

Abstract: Addition complexes of boron trifluoride and phosphines: P-tri-n-
-butyl-B-trifluorophosphineboron (BPB), and P-triphenyl-B-trifluorophosphine-
boron (PPB) were used as reinforcing agents for the epoxy resin ED-5. Optimal
conditions for their use were as follows: 25 parts by weight of the complex
per 100 of the resin, temperature -- 150°C. duration of the process -- 12 hrs.
The products obtained showed excellent durability even at elevated tempera-
tures, improved fire-retardant properties, and excellent light transmission.
Infrared spectra of the products were studied and on their basis it was shown
that the reactions involved in above processes go in two directions: reaction
of the complex with the oxygen of the epoxide group leading to the formation
of a phosphino ion which then acts as a stabilizer towards oxidative degrada-

1/2

USSR

SADYKOVA, E. M., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya,
No 4, Apr 72, pp 786-790

tion, and a reaction of the complex with the hydroxyl group oxygen in presence
of air; this leads to a reduction of the number of hydroxyl groups in the re-
inforced product and binding of the air oxygen, so that the degradation is
slowed down and the transparency of the product is improved.

2/2

USSR

UDC 631.291.27

AVERBUKH, G. YU., ROZOV, YU. L., CHELPANOV, I. B., Leningrad

"Error in Measuring the Maximum Values of a Stationary Random Process by Discrete Methods"

Novosibirsk, Avtometriya, No 2, 1973, pp 35-42

Abstract: A study was made of the problem of estimating the error in determining the maximum values of a continuous random process by digital data. The analytical expressions were obtained for determining the amplitude and phase errors by means of which the maximum possible recording interval can be found with respect to the given admissible error in recording the extremal values. Only one simplest algorithm is considered: The values of the process which are greater than two adjacent ones are taken as the estimate of the magnitude and position of the local extremum. The amplitude error in determining the maximum values of the investigated signals is also considered. The results of the analysis indicates the possibility of using digital recording techniques to determine the maximum values of the investigated processes. The formulas which are derived permit determination of the admissible digitalization interval by the given admissible error in reproducing the maximum values.

1/1

Abstract: Phosphorus pentachloride reacts with dichloroformoxime or
dichloroformimine dichlorophosphate to produce dichloroformoximetetrach-
lorophosphoran. The resultant phosphoran is a mobile liquid which distills
under vacuum. The structure of the compound was identified by its IR-,
nmr- and mass-spectra as well as by chemical conversions. Dichloroformoxi-
metetrachlorophosphoran is the first representative of oximetetrachloro-
phosphorans -- intermediate products of the Beckmann rearrangement of
ketoximes.

1/1

USSR

GIL'BO, Ye. P., CHELPANOV, I. B.

"Conversion of Random Signals by Circuits Containing Majority Elements"

Translation: The probabilistic properties of processes at the output of a majority element are defined. An expression is produced for the correlation function of the output signal through the correlation functions of three stable input signals. The dispersion of errors in circuits consisting of a majority element and linear filters is calculated.

1/1

USSR

GIL'BO, Ye. P., CHELPANOV, I. B.

"Use of Median Algorithm to Increase the Accuracy and Reliability of Data Processing"

Kibernet. i Vychisl. Tekhn. Resp. Mezhved. Sb. [Cybernetics and Computer Technology. Republic Interdpartmental Collection], 1972, No 15, pp 138-143 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V187, by the authors).

Translation: The problem of processing of the results of parallel measurement of a signal is studied. It is assumed that the measurements are not equally accurate, but that the variation in accuracy is uncheckable, i.e., the parameters of errors in the individual measurements channels are unknown. Under these conditions, the estimate of the useful signal used is the median formed of the results of measurement. An analysis is presented of the accuracy of estimates both from the standpoint of the dispersion of error and on the basis of probability that the error will exceed a fixed level. The properties of distributions of the median are studied. It is shown that with essential difference in accuracy of initial data, the median allows sufficiently good estimates of the measured signal to be produced.
1/1

USSR

CHELPANOV, I. B., Leningrad

UDC: 531.1

"The Effect of the Random Tossing of a Moving Ship on Gyroscopic Instruments"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 4, Jul-Aug 73, pp 71-79

Abstract: The author studies the dependence of the properties of the disturbing effects during tossing on the characteristics of the vessel, the actual conditions, roughness parameters, speed of the vessel, and vessel course. A simple model is studied for regular two-dimensional swells. It is assumed that the profile of the disturbed surface is sinusoidal and that the the wave crests are parallel, propagating in one direction at a constant velocity. In the case of a vessel which is not under power, the basic power of the influences is concentrated near the fundamental disturbance frequency. The motion of a vessel results in transposition and in a significant change of the spectrum of influences. As the results of this the errors of gyroscopic instruments can increase significantly under adverse conditions.

1/1

USSR   UDC 531.768.068.9

KURZNER, A. B., SINEL'NIKOV, A. YE., CHELPANOV, I. B., Leningrad

"Systematic Errors of Pendulum Accelerometers for Random Vibration of the Base"

Novosibirsk, Avtometriya, No 3, 1971, pp 22-26

Abstract: During operation of a pendulum on a vibrating base its angle of de-flection from the vertical contains along with the variable component, a con-stant component (drift) defined both by the nature and the parameters of the vibrations and the characteristics of the pendulum itself. The appearance of drift implies additional errors estimated here in the example of a pendulum compensation accelerometer. An approximate method of considering the dynamic properties of the pendulum is described, and the general expression for the drift angle is obtained. A number of limiting and specific cases are considered The error expressions for two standard autocorrelation functions are presented as an example. The results obtained can be used to estimate the errors and efficiently select the accelerometer parameters for operation under defined vibration conditions.

1/1

Gyroscopic

USSR

BURDAKOV, S. V., TYUMENEVA, G. V., CHELPANOV, I. B., Leningrad

"Optimal Dynamic Characteristics of a Gyrocompass With Random Perturbations Considering Intercardinal Deviation"

Moscow, Mekhanika Tverdogo Tela, No 5, 1970, pp 5-10

Abstract: The problem of construction of a correcting device which is optimal for the stable mode is formulated and solved for a single-rotor gyrocompass with electromagnetic correction with no stabilization of the sensing element relative to the north-south axis. Random deviating moments acting about the two axes of the gyrocompass, random movement of the ship and random rolling, resulting intercardinal deviation, are considered.

1/1

USSR

UDC 546.65'173'185

ROZANOV, I. A., BERNIKOV, V. R., TANANAYEV, I. V., and CHEL'TSOV, P. A., Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy of Sciences USSR Moscow

"Trimetaphosphimates of Multivalent Metals. I. Investigation of the Inter-action in the System $LaCl_3-Na_3(PO_2NH)_3-H_2O$"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 4, Dec 71, pp 872-874

Abstract: Sodium trimetaphosphimate -- $Na_3(PO_2NH)_3 \cdot 4H_2O$ -- was obtained by hydrolysis of the phosphonitrile chloride trimer -- $(PNCl_2)_3$. $LaCl_3$ was then reacted with $Na_3(PO_2NH)_3^{3-}$ changing the initial ratio $\underline{n}$ of $(PO_2NH)_3^{3-}$ to La^{3+} from 0.25 to 6. The mixture was then stirred for 24 hrs to reach an equili-brium state, and the solid separated from solution by filtration. The results of the analysis of the solution and solid showed that during the reaction of $Na_3(PO_2NH)_3$ with $LaCl_3$ in the 0.25-1 range of $\underline{n}$ continuous decrease of the final concentration of La^{3+} takes place, equivalent to the quantity of tri-metaphosphimate added. The residual concentrations of $(PO_2NH)_3^{3-}$ are all in 1/2

- 10 -

USSR

ROZANOV, I. A., et al., Doklady Akademii Nauk SSSR, Vol 201, No 4, Dec 71, pp 872-874

the range of $2 \cdot 10^{-4}$ g-ion/l -- corresponding to the solubility of the pre-cipitate. In this range one solid phase is formed with $\underline{n} = 1$, the composition of the product being $La(PO_2NH)_3 \cdot 5.5 H_2O$. This product persists up to $\underline{n} = 2$, after which the ratio begins to change, until at $\underline{n} = 5$ it reaches the level of 2. The product isolated at $\underline{n} = 5$ has the composition $Na_3La[(PO_2NH)_3]$ $2 \cdot 8 H_2O$. The first product is crystalline, the octahydrate is amorphous. Both materials are colorless, insoluble in water, alcohol, acetone, and ether; they dissolve with decomposition in concentrated HCl.

2/2

USSR   UDC 624.07:534.1

BELINSKIY, B. P., KOUZOV, D. P., and ChEL'TsOVA, V. D. Leningrad

"On the Diffraction of Acoustic Waves on Plates Joined at a Right Angle"

Abstract: This article examines 2-dimensional stable acoustical processes within
an infinite space filled with fluid and bounded by sides at a right angle. The
desired solution is the pressure at which the Helmholtz equation will hold within
the area while some conditions with high-order derivatives will hold at the
boundaries. The expressions for the boundary operators are not made specific.
An exact representation is found for the pressure in the case in which the sound
field is stimulated by a point source located within the fluid. A number of
specific problems in the diffraction of hydroacoustic waves by two mutually
perpendicular sheets are examined.

1/1

1/2   015

UNCLASSIFIED

TITLE--KINETICS OF CARBON OXIDATION DURING THE BLOWING OF A METAL IN AN OPEN HEARTH FURNACE BATH -U-

PROCESSING DATE--23OCT70

AUTHOR-(03)-SEMIKIN, I.D., CHELYADIN, M.M., MISYURA, I.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(2), 43-6

DATE PUBLISHED-------70

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

TOPIC TAGS--OPEN HEARTH FURNACE, STEEL MANUFACTURING PROCESS, SLAG, OXIDATION, CARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1394

STEP NO--UR/0148/70/013/002/0043/0046

CIRC ACCESSION NO--AT0120187

UNCLASSIFIED

CIRC ACCESSION NO--AT0120187   UNCLASSIFIED   PROCESSING DATE--23OCT7C

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE KINETICS ARE DISCUSSED
BY ASSUMING THAT THE METAL AND SLAG REPRESENT BODIES OF "IDEAL MASS
TRANSFER" (OWING TO THE INTENSIVE INTERMIXING BY THE BLAST). EQUATIONS
ARE DERIVED FOR: (1) THE RATE OF C OXIDN., (2) THE AMT. OF C REMOVED
DURING THE TIME OF BLASTING, AND (3) THE RATE OF O TRANSFER FROM THE
SLAG INTO THE METAL. THESE EQUATIONS CAN BE USED UP TO A C CONCN. OF
0.2PERCENT IN THE METAL. . FACILITY: DNEPROPETROVSK. MET. INST.,
DNPROPETROVSK, USSR.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--KINETICS OF CARBON OXIDATION DURING THE BLOWING OF METAL IN AN OPEN
HEARTH FURNACE BATH. 2 -U-

AUTHOR-(03)-SEMIKIN, I.D., CHELYADIN, M.M., MISYURA, I.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(4), 65-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--OXIDATION KINETICS, LOW CARBON STEEL, OPEN HEARTH FURNACE, GAS
JET, OXYGEN, CHEMICAL EQUILIBRIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0817

STEP NO--UR/0148/70/013/004/0065/0067

CIRC ACCESSION NO--AT0132908

UNCLASSIFIED

2/2   031
CIRC ACCESSION NO--AT0132908   UNCLASSIFIED   PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   PREVIOUSLY (S., ET AL., 1970) THE
DEPENDENCES WERE OBTAINED DESCRIBING THE KINETICS OF OXIDN. OF C DURING
BLOWING OF THE METAL WITH A FINAL C CONTENT GREATER THAN OR EQUAL TO
0.2PERCENT.   IN CASE OF BLOWING OF LOW C (LESS THAN 0.2PERCENT C)
STEELS, THERE TAKES PLACE A SLOWING DOWN IN THE OXIDN. RATE OF C AS A
RESULT OF AN INCREASE IN THE EQUIL. CONCN. OF O IN THE METAL.   UPON A
FURTHER DECREASE IN THE TOTAL C CONTENT ITS OXIDN. DECREASES.   IN THE
INITIAL PERIOD THE O LED INTO THE BATH IS PARTIALLY USED FOR THE OXIDN.
OF C, AND PARTIALLY IT IS TAKEN UP BY THE SLAG IN THE FORM OF FEO, WHICH
IS WHY V SUBC BECOMES MAS. ONLY AFTER ATTAINING A CERTAIN MAX. FEO
CONCN.   THIS PERIOD CAN PARTIALLY OR TOTALLY BE ABSENT, IF AT THE
BEGINNING OF THE BLOWING THE FEO CONCN. IN THE SLAG CORRESPONDS TO THE
REGULAR CONDITIONS.   UNDER REGULAR CONDITIONS THE O IN THE SLAG DOES NOT
INCREASE AND THE RATE OF OXIDN. OF C IS DETD. FOR ALL PRACTICAL PURPOSES
BY THE INTENSITY OF THE BLOWING.   THE LATTER (ERD) PEIOD IS
DISTINGUISHED FROM THE PREVIOUS TWO BY A SHARP DECREASE IN V SUBC, WHICH
IS CAUSED BY INTENSE OF THE O IN THE METAL AND THE SLAG.   THE DECREASE
IN V SUBC BECOMES VERY SIGNIFICANT AT C CONCN. LESS THAN 0.2-0.3PERCENT,
WHICH IS WHY HTE 3RD PERIOD IS POSSIBLE ONLY IN THE CASE OF BLOWING OF
LOW C STEELS.   THE EQUATIONS OBTAINED HEREIN FOR THE DETN. OF V SUBC AND
THE RATE OF INCREASE OF FEO IN THE SLAG ARE APPLICABLE FOR OPEN HEARTH
AND FOR CONVERTER PROCESSES.   FACILITY: DNEPROPETROVSK. MET.
INST., DNEPROPETROVSK, USSR.

UNCLASSIFIED

1/2   010   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--CONCURRENT NOSOAREAL OF BRUCELLOSIS, REPORT II, DISTRIBUTION OF
   BRUCELLOSIS IN THE COUNTRIES OF AFRICA, ASIA AND OCEANIA -U-
AUTHOR-(02)-ASLANYAN, R.G., CHELYADINOVA, YE.B.

COUNTRY OF INFO--ASIA, AFRICA, IRAN

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5,
   PP 72-77
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BRUCELLOSIS, DISEASE INCIDENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0093   STEP NO--UR/0016/70/000/005/0072/0077
CIRC ACCESSION NO--AP0114489
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0114489
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MAJORITY OF THE COUNTRIES OF
  AFRICA, ASIA AND OCEANIA ARE AGRICULTURAL COUNTRIES WITH A SUFFICIENTLY
  HIGH LEVEL OF CATTLE BREEDING. CONDITIONS OF LIVING OF THE POPULATION,
  FORMS OF CATTLE REARING AND CERTAIN NATIONAL FOOD STUFFS AND HABITS OF
  THE POPULATION PROMOTE THE SPREAD OF BRUCELLA INFECTION AMONG THE
  POPULATION. A TOTAL OF 1,375 CASES OF BRUCELLOSIS WERE RECORDED IN
  1961, 66 IN 18 COUNTRIES OF AFRICA. MOST OF THE CASES OCCURRED IN
  TANSANIA (476), KENYA (432) AND SUDAN (97). WITHIN THE SAME PERIOD
  15,675 CASES OF INFECTION WERE RECORDED IN THE COUNTRIES OF ASIA AND
  OCEANIA. 90PERCENT OF ALL CASES OF BRUCELLOSIS ON THE CONTINENT FELL ON
  IRAN. IN THE COUNTRIES OF OCEANIA 96.2PERCENT OF THE CASES WERE
  REGISTERED IN AUSTRALIA AND NEW ZEALAND.   FACILITY: INSTITUT
  EPIDEMIOLOGII I MIKROBIOLOGII IM. GAMALEI, MOSCOW.

UNCLASSIFIED

TITLE--NOZOAREAL OF BRUCELLOSIS TODAY, DISTRIBUTION OF BRUCELLOSIS IN THE
   COUNTRIES OF AMERICA -U-

AUTHOR-(02)-ASLANYAN, R.G., CHELYADINOVA, YE.B.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6,
   PP 40-43

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BRUCELLOSIS, MORBIDITY, GEOGRAPHIC LOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0192   STEP NO--UR/0016/70/000/006/0040/0043

CIRC ACCESSION NO--AP0130951
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0130951
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING THE PERIOD FROM 1961 TO
  1966 A TOTAL OF 21,033 CASES OF HUMAN BRUCELLOSIS WERE REGISTERED ON THE
  AMERICAN CONTINENT (19PERCENT OF THE CASES OF INFECTION REPORTED BY
  WHO). THE GREATEST BRUCELLOSIS INCIDENCE DURING THAT PERIOD WAS SEEN
  (AS BEFORE) IN ARGENTINE, MEXICO, PERU AND THE USA (95PERCENT OF ALL
  CASES REGISTERED ON THE CONTINENT).   FACILITY: INSTITUT
  EPIDEMIOLOGII I MIKROBIOLOGII IM. GAMALEI, MOSKVA.

UNCLASSIFIED

TITLE--POLYURETHANES -U-

AUTHOR-(04)-MARCHENKO, G.N., GOLDOBIN, S.F., GORBUNOVA, N.N., CHELYSHEV,
   A.A.
CCUNTRY OF INFO--USSR

SOURCE--USSR 264,688
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--03MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYURETHANE RESIN, CHEMICAL PATENT, ORGANOMERCURY COMPOUND,
   CATALYST, ORGANIC SYNTHESIS, ORGANIC ISOCYANATE

CCNTRCL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1467   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128866
                           UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AA0128866
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYURETHANES ARE PREPD. BY
  REACTING HYDROXY CONTG. COMPDS. AND POLYISOCYANATES IN THE PRESENCE OF
  ORGANOMETALLIC CATALYSTS. CATALYSTS USED ARE ALKYL OR ARYL MERCURY
  DERIVS. OF INORG. OR CARBOXYLIC ACIDS, RHGX OR RHGO SUB2 CR PRIME1,
  WHERE R IS A HYDROCARBON GROUP, X IS HALOGEN, AND R PRIME1 IS A
  CARBOXYLIC ACID RESIDUE CONTG. 1-18 C ATOMS.

UNCLASSIFIED

USSR

UDC: 621.7.073

SEVERDENKO, V. P., SUKHODREV, E. Sh., CHELYSHEV, A. P., TYURIN, L. N., and ORLOV, A. R.

"Stability of Gear Matrices Obtained by Plastic Deformation Methods"

Minsk, Izvestiya Akademii nauk BSSR—Seriya fiziko-tekhnicheskikh nauk, No 4, 1973, pp 5-7

Abstract: Results are given of research on the stability of gear matrices under production conditions in the Borisovskiy Plant for Auto-Tractor Electrical Equipment, in the process of stamping out ST-8 starter gears by the method of hot combination stamping. This method, discussed in an earlier paper (V. P. Severdenko, et al, Promyshlennost' Belorusii, No 4, 1969), was investigated in the present paper at a stamping tempo of 25 sec with the specimens heated to 750-800° C. The stability of matrices made of fast-cutting steels R12 and R18, obtained by closed broaching, was investigated. Matrices made by gear-shaping and by broaching were compared. Three causes of matrix failure were found: the appearance of thermal cracks; abrasive wear of the pattern; warping of the matrix pattern. Methods for improving the stability of the matrices are recommended.
1/1

UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--DETERMINATION OF DEFORMATION VELOCITIES IN ROLLING USING A COMPUTER
-U-
AUTHOR-(03)-CHELYSHEV, N.A., ALYUSHIN, YU.A., BEREZOVSKY, B.N.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. V.U.Z., CHERNAYA MET., 1970 (2), 80-86

DATE PUBLISHED-------70

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

TOPIC TAGS--METAL ROLLING, COMPUTER APPLICATION, METAL DEFORMATION,
   DEFORMATION RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0554   STEP NO--UR/0148/70/000/002/0080/0086

CIRC ACCESSION NO--AP0124249
                          UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0124249
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD OF DETERMINING THE FLOW
  AND DEFORMATION VELOCITIES IN THE STEADY STATE PLANE ROLLING OF METALS
  BY REF. TO THE EXPERIMENTALLY OBSERVED FLOW PICTURE IS DESCRIBED, AND AN
  ALGORITHM FOR THE NUMERICAL SOLUTION OF THIS PROBLEM ON A COMPUTER IS
  PROPOSED. SOME TYPICAL CASES OF ROLLING ARE ANALYSED ON THIS BASIS; ONE
  RESULT OF THE ANALYSIS IS A CLEAR REPRESENTATION OF 'DANGER' POINTS AT
  WHICH THE CONTINUITY OF THE METAL BEING ROLLED MAY BE DISRUPTED BY THE
  ROLLING FORCES.

UNCLASSIFIED

USSR   UDC:621.793

FILATOV, V. I., YAGUBETS, A. N., CHELYSHEV, A. A., KOVALEV, A. V.,
Kishinev

"Programming of Certain Conditions of Electrodeposition of Composite
Coatings Hardened by Dispersed Particles"

Abstract: The purpose of this article was the development of a mathe-
matical model of the formation of composite electrochemical coatings
with various contents of inclusions through the thickness of the coating
and experimental testing of the model. The mathematical model of the
mechanism of coating formation produced, including hardening of the
coatings by dispersed hard particles, demonstrates the possibility of
production of wear-resistant coatings with predetermined physical and
mechanical properties.

1/1

- 7 -

1/3   036   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--INVESTIGATION OF THE HYDRAULIC EROSION RESISTANCE OF HIGH STRENGTH
  CHROME MANGANISE SILICON STEELS -U-
AUTHOR-(05)-CHELYSHEVA, A.A., PROKOSHKIN, D.A., RAKHSHTADT, A.G.,
  GUREVICH, YA.B., FOMIN, V.V.
CCUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY, MASHINOSTROYENIYE,
  NO. 1, 1970, PP 117-122
DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHROMIUM MANGANESE STEEL, SILICON STEEL, STEEL HEAT TREATMENT,
  STEEL HARDENING, CAVITATION/(U)50KH3G6S HIGH ALLOY STEEL, (U)40KH3G6S
  STEEL, (U)25KH1468T STEEL

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0028   STEP NO--UR/0145/70/000/001/0117/0122

CIRC ACCESSICN NO--AT0123820
                       UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE---30OCT70
CIRC ACCESSICN NO--AT0123820

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF HEAT TREATMENT AND
   THERMOMECHANICAL WORKING OF HIGH ALLOY CHROME MANGANESE SILICON STEELS
   (40KH3G6S AND 50KH3G6S) ON THE HYDRAULIC EROSION RESISTANCE OF THE
   STEELS IS EXAMINED, USING TWO TEST MELTS CONTAINING 0.38PERCENT C,
   1.5PERCENT SI, 6.3PERCENT MN, 3.0PERCENT CR, 0.015PERCENT S, AND
   0.001PERCENT P IN ONE MELT AND 0.50PERCENT C, 1.5PERCENT SI, 6.3PERCENT
   MN, 3.0PERCENT CR, 0.013PERCENT S, AND 0.004PERCENT P IN THE OTHER.
   CLEANED 40 KG INGOTS WERE FORGED AND HOT ROLLED INTO 20 TIMES 14 MM
   SHEET BILLETS, 7 MM THICK. HIGH TEMPERATURE THERMOMECHANICAL WORKING
   WAS PERFORMED AT 900DEGREESC WITH A 50PERCENT REDUCTION IN ONE ROLL PASS
   AND SUBSEQUENT HARDENING IN OIL AND AUSTENIZING IN 30 MINUTES. LOW
   TEMPERATURE THERMOMECHANICAL WORKING WAS PERFORMED AFTER A 30 MINUTE
   HOLD AT 900DEGREESC FOLLOWED BY FURNACE COOLING TO 500DEGREESC AND 2, 4
   ROLL PASSES FOR A TOTAL REDUCTION OF 70-75PERCENT. FOLLOWING HARDENING
   AND WORKING, A NUMBER OF THE BLANKS WERE COLD WORKED AT MINUS
   20DEGREESC, MINUS 35DEGREESC, AND MINUS 196DEGREESC TO OBTAIN A
   DIFFERENT AMOUNT OF MARTENSITE AND RESIDUAL AUSTENITE. SAMPLES OF THE
   ABOVE WERE SUBJECTED TO A 100 M-SEC WATER JET FROM A 5 MM NOZZLE. IT IS
   CONCLUDED THAT COLD WORKING, CAUSING TRANSFORMATION OF RESIDUAL
   AUSTENITE INTO MARTENSITE INCREASES THE YIELD POINT OF 40KH3G6S STEEL
   FROM 67 KG-MM PRIME2 TO 140 KG-MM PRIME2 AFTER HARDENING, WITH A SLIGHT
   INCREASE IN ULTIMATE STRENGTH. HYDRAULIC EROSION TESTS WITH THE TWO
   STEELS SHOWED THAT THEY HAVE GREATER RESISTANCE TO JET IMPINGEMENT
   EROSION THAN 25KH14G8T CAVITATION RESISTANT STEEL.

                        UNCLASSIFIED

UNCLASSIFIED

ABSTRACT/EXTRACT--A NUMBER OF OTHER CONCLUSIONS REGARDING THESE STEELS ARE GIVEN, AND THE HIGH AND LOW TEMPERATURE WORKING PROCEDURES DESCRIBED IN THE ARTICLE ARE RECOMMENDED FOR PRODUCING STEELS FOR OPERATION UNDER SEVERE CAVITATION CONDITIONS WHERE THE CORROSION FACTOR IS OF LESSER IMPORTANCE.   FACILITY: MOSCOW HIGHER TECHNICAL SCHOOL IMENI N. E. BAUMAN.

UNCLASSIFIED

USSR   UDC 669.140

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"Study of Hydroerosion Resistance of High Strength Chromium-Manganese-Silicon Steels"

Abstract: The article presents the study of properties of steels 40Kh3G6S and 50Kh3G6S after heat and heat-mechanical treatment. It is shown that the steels, after ordinary hardening, high-temperature heat-mechanical treatment (VTMO) and low-temperature heat-mechanical treatment (NTMO) plus low-temperature tempering possess a reduced value of yield point at high value of tensile strength. The low yield point is explained by the presence of a considerable quantity of residual austenite. In the process of deformation during determination of the tensile strength the residual austenite apparently is transformed into martensite and therefore the tensile strength reaches high values. The use of sub-zero treatment, which induces the transformation

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of residual austenite into martensite, considerably increases the yield point from 67 kg/mm^2 to 140 kg/mm^2 after hardening in steel 40Kh3G6S with a small increase in the tensile strength. The comparison of mechanical properties of studied steels after hardening, VTMO, NTMO and low temperature tempering at equal quantity of residual austenite shows that heat-mechanical treatment, particularly NTMO, increases the strength properties of steels. Hydroerosion tests show that steels 40Kh3G6S and 50Kh3G6S possess a considerably high resistivity to jet-impact erosion. At that, the difference between resistance after hardening and low temperature tempering and hardening, sub-zero treatment and low temperature tempering is insignificant regardless of the fact that in the latter case the quantity of martensite is much higher. It is shown that the deformation of steels 40Kh3G6S and 50Kh3G6S under VTMO and particularly under NTMO increases the quantity of residual austenite as compared to ordinary hardening. This is due to lowered transformability of supercooled and deformed austenite into martensite. Likewise, the resistance to jet-impact erosion of these steels significantly increased after VTMO but particularly after NTMO, as compared to ordinary hardening and tempering. This increase in the resistance to hydroerosion due to VTMO and NTMO is traced to high degree of work hardening of austenite obtained as a result of deformation during VTMO and NTMO and to its partial transformation into martensite.
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USSR   UDC: 620.10

CHELYUBEYEV, A. A.

"Impact Interaction of Soft Envelope with Hard Barrier"

Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, No 3, 1973,
pp 17-22.

Abstract: The problem is solved of the movement of a soft axissymmetrical
envelope under the influence of forces of inertia and contact forces produced
by rigid surfaces. The problem of impact of a rubber ball against a hard
wall is reduced to this statement. The author also studies the impact of an
envelope carrying a weight, for which the envelope serves as a damper. The
material of the envelope is assumed to be similar to rubber. For this type
of problem, the classical method of solution, consisting in composition of
equations of motion and integration of these equations in analytic form,
leads to insurmountable difficulties. This article uses the variational
principle of Hamilton, replacing the soft shell with a discrete analog. Euler
equations are written for the Hamiltonian functional, then integrated numer-
ically by digital computer.

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FROM: FBIS Daily Report, Soviet Union, 14 Jan 1970, Vol III, Nr 9, pp D2-D3

USSR   ORBITAL STATION LOGICAL ANSWER TO MANY PROBLEMS

Moscow SOVIET RUSSIA 10 Jan 70 p 4 L

[Dr of Technical Sciences O. Chembrovskiy article: "Space Stations"]

[Text] At the beginning of this century, Konstantin Eduard Ovich Tsiolkovskiy wrote in "The Study of Terrestrial Space": "movement around the earth of a series of projectiles adapted for the existence of reasoning creatures could serve as the basis for the further spread of mankind."

The necessity for creation of orbital space stations equipped with varied research apparatus in evoked by the rapid development of cosmonautics. It has confronted scientists with a multitude of problems--man's presence in space ships, the study of circumlunar space, performance under weightless conditions of scientific, technical and medico-biological experiments, and also preparation for flights to other planets. Just one scientific space laboratory could give more information about the phenomena which occur in the upper layers of the atmosphere and in space than a dozen earth-based observatories and a multitude of weather stations. Measurements performed in space are considerably more accurate, and in some cases even cheaper that those obtained by ground-based methods.

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Space triangulation of the earth's surface permits determination with great accuracy—down to 10-12 meters—of the distance between widely separated points, while the accuracy of conventional measurement is to about 100 meters. Prolonged weightlessness; profound vacuum, which is technically difficult to reproduce on earth, great drop in temperature; the magnetic field of the earth and sun—these all create excellent conditions for physics experiments.

So far no one has succeeded on any elementary particle accelerator in achieving a particle speed on the order of 100 billion electron volts. The speed of particles passing through space reaches 1 billion billion electron volts.

Questions connected with the phenomenon of superconductivity or the thermo-electric effect, experiments in the sphere of gas dynamics and heat exchange, testing of various materials under conditions of cosmic radiation are of great significance for research.

Despite the precipitous development of missile technology, the flight of a spaceship with a crew to other planets directly from the surface of the earth is difficult. Evidently such launches should be made from orbital stations. Why? One can obtain an answer to this question by analyzing for example, the ratios between the starting (launch) weight of the carrier rocket to the weight of the vehicle on return to earth. This ratio on circumterrestrial orbit is 100 to 1, for flights to the moon it rises to 1,000 to 1, and for flights to other planets it will increase to 10,000 to 1.

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It is well known that a spaceship with one or two cosmonauts on board is put into circumterrestrial orbit by a carrier rocket weighing several hundred tons. The carrier rocket Saturn-5 which sent the American astronauts to the moon had a starting weight of about 3,000 tons. It is not difficult to imagine what sort of rocket it would be necessary to create in order to set off for the closest planets. According to the crudest calculations, the launch weight of such a rocket must equal 600,000 tons. To convey such a quantity of freight on earth, 10,000 freight cars would be needed.

The creation of super-heavy rockets for interplanetary flights will cause a sharp increase in the cost of space-rocket systems, and in several cases it will make their technical embodiment unrealistic.

But if one proceeds to assemble orbital space stations, the elements of which can be carried into space by several rockets, then at least two problems will be solved: creation of technically feasible and evidently cheaper systems. Small carrier rockets can be used for the solution of a whole series of problems in near and distant space, which is economically more profitable. Thus, launching spaceships from orbit could turn out to be the only method of effecting future interplanetary communications.

Work on the Soyuz program provides for study of circumterrestrial space, scientific and technical research, and also creation of manned orbital stations. In accordance

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with this program, the space stations Soyuz-4 and Soyuz-5 were put into orbit around
the earth on 14 and 15 January 1969. After their approach to within 100 meters of
each other on 16 January, pilot-cosmonaut Vladimir Shatalov went over to manual
control. Maneuvering Soyuz-4, he docked with Soyuz-5. After docking, the mutual
mechanical link-up of the ships took place and also their rigid drawing together and
connection of electrical circuits. Thus an orbital station was created for the first
time.

The new scientific and technical experiment on the Soyuz-6, Soyuz-7, and Soyuz-8
Spaceships that was successfully fulfilled quite recently enabled cosmonauts to
perform much work the results of which are particularly valuable for creation of
prefabricated orbital space stations.

The orbital space station (OSS) of the near future could be rigid construction, made,
for example in the form of a torus or dumbells, or it could be made of several separate
Sections joined by flexible links. In both cases rotation of the system is envisaged
to create artificial gravity. Creation of an OSS with flexible links does not require
rigid linkup in orbit.

Space welding will be of greater importance for creation of rigid orbital space
stations. Such welding was performed successfully by the crew of the Soyuz-6 space
ship.

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KAMINER, A. A., KAVITSKIY, B. M., CHEMERIS, A. N.

"Experimental Study of Vibrations of Rod Systems in a Water Flow"

V sb. Rasseyaniye energii pri kolebaniyakh mekh. sistem (Energy Scattering in the Oscillations of Mechanical Systems -- Collection of Works), Kiev, "Nauk. dumka", 1972, pp 310-316 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V405)

Translation: A device is described for studying the hydrodynamic damping and excitation of rod systems (blades, supports) in a water flow that was developed at the Institute of Strength Problems of the Academy of Sciences UkrSSR. A closed wind tunnel with a closed working chamber of cross section 300 × 155 mm and a transparent wall for observing the model was used in producing the flow. The flow rate is regulated within limits up to 20 m/sec by a smooth change in the number of revolutions of the drive. Systems for the excitation and recording of plane-parallel oscillations of the model in the flow are described. The model is put into motion with a given frequency with the aid of electromagnets placed under the working area of the tunnel.

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KAMINER, A. A., et al, Rasseyaniye energii pri kolebaniyakh mekh. sistem, Kiev, "Nauk. dumka", 1972, pp 310-316

The design of the fastening elements of the model makes it possible to obtain the desired angles of attack. The change in natural frequencies and decrements with a change in the flow velocity is investigated in modes of resonance and damping of the oscillations. The results of the study are not given in the paper. K. G. Kravtsov.

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USSR   UDC 621.32.032.75

RODICHEV, Yu. M., CHEMERIS, A. N., PEREVORUKHOV, G. I., AMEL'YANOVICH, K. K.,
PODGORNYY, L. N., KRAYNOVA, E. A., (Kiev)

"Supporting Power of Spherical Ceramic Shells Under External Pressure"

Kiev, Problemy Prochnosti, No 8, 1972, pp 26-29.

Abstract: Results are presented from tests of spheres of an aluminum ceramic
under external pressure conditions. It is established that the initial
geometric imperfections of the shells, characteristic for ceramic technology,
have just as great an influence on the stability of ceramic spheres as on
metallic spheres. The high strength of the aluminum ceramic in the shells,
evidenced both with single-cycle and repeated-cycle applications of external
pressure, is noted. It is remarked that an earlier work [Stachiw, I. D.,
"Design Parameters for Glass and Ceramic Underwater Structures," Ceramic Age.,
Vol 81, No 6, 1965] recommends that k be taken as 0.7 in the Zolli formula
for critical pressure. The results of this study show that the value of k
for spheres with deviations typical for ceramic technology may be lower. The
following formula is recommended for aluminum ceramic spheres with R/h ratios
of 40:
$$P_{cr} = \frac{0.35\text{-}0.40}{\sqrt{1 - \mu^2}}\, E\, (h/R)^2. \tag{6}$$

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The ceramic spheres are found to be capable of withstanding compressive
stresses of up to 70% of the ultimate strength without residual changes in
shape or dimensions, as long as the walls of the spheres do not have signi-
ficant thickness variations.

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KAMINER, A. A., NASTENKO, N. Ya., CHEMERIS, A. S.

"Experimental Study of the Effect of the Distance Between the Axes of the Centers of Gravity and Rigidity of the Profile on the Occurrence of Flexible Oscillations Applicable to Turbine Blades"

Translation: An experimental study of the effect of the distance between the axes of the center of gravity and the rigidity on the occurrence of flexing oscillations of profiles in an air flow were conducted. Both an isolated profile and a profile of a plane lattice were investigated. Special samples were made for this purpose, in each of the cross sections of which the axes of the foci, the centers of gravity, and the rigidity were combined at one point or shifted by a distance of the order of 0.25 of the chord length of the profile. In the course of the experiment the flexing rigidity of the oscillatory system (profile) and the frequency of its natural oscillations varied. The flexing (translational) oscillations of the profiles were excited

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KAMINER, A. A., et al, Rasseyaniye energii pri kolebaniyakh mekh. sistem, Kiev, "Nauk. dumka", 1972, pp 317-320

with an electromagnet. The effect of the indicated interaxial distance on the aerodynamic damping and excitation of oscillations was investigated as a function of the dynamic characteristics of the flow, Strouhal number, geometric characteristics of the profile and lattice, and the angle of attack. Limits for the change in these parameters and a method for establishing them are given. It is shown that the change in the interaxial distance between the centers of gravity and rigidity of the profiles has an inconsiderable effect on the course of flexing oscillations, which can be neglected. V. P. Vakhomchik.

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