KUZNETSOV, A.A., starshiy prepodavatel'

Investigationg the dependence between volumetric weight and the heating value of coal. Izv.vys.ucheb.zav.; gor.zhur. no.4:28-35 '58.
(MIRA 11:11)

1. Permskiy gornyy institut.
(Coal—Analysis)   (Calorimetry)

KUZNETSOV, A.A.; TAVRIN, I.F.

Some data on the tectonic structure of a greenstone synclinorium on the eastern slope of the Southern Urals based on the results of gravity and magnetic surveys. Trudy Gor.-geol. inst. UFAN SSSR. no.34:73-81 '58.

(MIRA 14:10)

(Ural Mountains—Greenstone)
(Prospecting—Geophysical methods)
(Geology, Structural)

KUZNETSOV, A.A.

Study of the geology of the Magnitogorsk region based on geophysical
data. Trudy Gor.geol.inst.UFAN SSSR no.6:207-212 '60. (MIRA 14:10)
(Magnitogorsk region—Geology, Economic)

VARENTSOV, M.; KUZNETSOV, A.

Oil in Sahara. Vnesh. torg. 30 no.2:50-51 '60.   (MIRA 13:2)

1.Chlen-korrespondent AN SSSR (for Varentsov).
        (Sahara--Oil fields)

TSATUROV, G.; KUZNETSOV, A.

Session of Oil and Gas Section of the Council of Geological
Testimony of the Main Geological Prospecting Administration
of the R.S.F.S.R. Geol. nefti i gaza 5 no.6:62-64, 3 of cover
Je '61.   (MIRA 14:6)
            (Petroleum geology)
            (Gas, Natural—Geology)

KUZNETSOV, A.; KORNEV, B.

Further development of regional geological and geophysical work in
Central Asia, Kazakhstan, Western Siberia, and the Ukrainian S.S.R.
Geol. nefti i gaza 5 no.11:60-63 N '61.   (MIRA 14:11)
                              (Boring)

KORNEV, B.; KUZNETSOV, A.

Western Siberia is a large new oil- and gas-bearing region.
Geol. nefti i gaza 5 no.12:57-58 D '61.   (MIRA 14:11)
                (Siberia, Western—Petroleum geology)
                (Siberia, Western—Gas, Natural—Geology)

KUZNETSOV, A.A.

Production work of students in the first and second courses and methods for developing and perfecting this work. Izv.vys.ucheb. zav.; neft' i gaz 5 no.12:117-118 '62.   (MIRA 17:4)

KORNEV, B.; KUZNETSOV, A.

Find of the first oil field in Eastern Siberia. Geol. nefti
i gaza 6 no.6:59-60 Je '62.   (MIRA 15:6)
            (Irkutsk Province--Petroleum geology)

FADEYEV, V.A.; KUZNETSOV, A.A.

Difference between the intrusive and effusive facies of trap magma.
Uch. zap. NIIGA Reg.geol. no.3:87-94 '64.

(MIRA 18:10)

KUZNETSOV, A. A.

Magmatic differentiation of trap rocks in the Siberian Platform.
Vest LGU 19 no. 6:145-148 '64.   (MIRA 17:5)

NAZARETOVA, N.B.; GOLOMSHTOK, I.S.; BASHILOV, A.A.; KUZNETSOV, A.A.;
     STEPURO, S.I.

     Certain problems involved in the recovery of solvents.
     Nefteper. i neftekhim. no. 11:18-21 '63.   (MIRA 17:5)

     1. Groznenskiy neftemaslozavod i Groznenskiy neftyanoy institut.

KUZNETSOV, A.A.; SUDAKOV, Yo.N.

     Place for the intermediate cooling of an absorbent. Izv.vys.ucheb.
     zav.; neft' i gaz 7 no.4:63-66 '64.
                                               (MIRA 17:5)

     1. Groznenskiy neftyanoy institut.

L 1935-66   EWT(1)   GW

ACCESSION NR: AT5022651

UR/2874/65/000/003/0003/0015

AUTHOR: Bulashevich, Yu. P.; Khalevin, N. I.; Timofeyev, A. N.; Kuznetsov, A. A.

TITLE: Selection of a site in the Urals for sinking a superdeep borehole

SOURCE: AN SSSR. Ural'skiy filial. Institut geofiziki. Trudy, no. 3, 1965. Geofizicheskiy sbornik, no. 4: Metodicheskiye voprosy rudnoy geofiziki Urala (Geophysical papers, no. 4: Methodological problems of mining geophysics of the Urals), 3-15

TOPIC TAGS: superdeep drilling, Moho discontinuity, Conrad discontinuity, gravity survey, seismic survey, seismic profile, aeromagnetic survey, magnetic survey, earth crust

ABSTRACT: Since 1961, several Soviet scientific organizations have carried out investigations in the Ural Mountains to determine the optimum location for drilling a superdeep borehole. The area covered extended along the range from 51°20' to 58°40' N. Lat. The announced purposes of these studies, both of scientific and industrial import, were as follows: 1) thickness, composition, and stratigraphic sequence of geological formations; 2) nature of the geosynclinal sediment—"granitic" transition zone; 3) thickness and composition of the "granitic" layer; 4) nature of the "gran-

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L 1935-66
ACCESSION NR: AT5022651

3

itic" layer—"basaltic" layer transition zone; 5) physicochemical changes in the
rockes with depth; 6) types of igneous intrusions and ore bodies; 7) physical proper-
ties of the rocks and the nature of discontinuities (Conrad and Moho), and 8) changes
in temperatures with depth and the thermodynamic conditions at great depths. Results
of preliminary studies indicate that the most favorable site for the borehole will
probably be in the Tagil-Magnitogorsk synclinorium in the Verkhotur'ye-Krasnoural'sk
region where a number of industrial boreholes have already been drilled to a depth
of 1.2 km. Final selection of the site, however, will require additional gravity
and magnetic (terrestrial and aerial) surveys as well as deep seismic sounding and
reflected-wave profiles. Orig. art. has: 6 figures.
[ER]

ASSOCIATION: Akademiya nauk SSSR. Ural'skiy filial. Institut geofiziki (Ural
Branch, Academy of Sciences, SSSR. Institute of Geophysics)

SUBMITTED: 00   ENCL: 00   SUB CODE: ES

NO REF SOV: 012   OTHER: 000   ATD PRESS: 4/15

Card 2/2

KUZNETSOV, A.A.

Possible structure of the Magnitogorsk synclinorium and some
characteristics of its tectonic development based on geophysical
data. Trudy Inst.geofiz.UFAN SSSR no.3:17-23 '65.

(MIRA 18:8)

KUZNETSOV, A.A.

Quantity of water contained in the magma of differentiated intrusions
in the northwestern part of the Siberian Platform. Dokl. AN SSSR 162
no.6:1394-1396 Je '65.   (MIRA 18:7)

1. Nauchno-issledovatel'skiy institut geologii Arktiki. Submitted
February 1, 1965.

KUZNETSOV, A.A.; IVANOVA, V.P.; KADATOV, B.K.

Use of thermography for the study of trap rocks in the northwestern part of the Siberian Platform. Dokl. AN SSSR 163 no.2:464-467 Jl '65.

(MIRA 18:7)

1. Nauchno-issledovatel'skiy institut geologii Arktiki i Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut. Submitted February 27, 1965.

STEPANENKO, B.N.; KUZNETSOV, A.A.

Chromatographic study of some sugar phosphates [with summary in English]. Biokhimiia 24 no.1:25-32 Ja-F '59.   (MIRA 12:4)

1. Laboratory of Physiological Chemistry, Academy of Sciences of the U.S.S.R., Moscow.
                    (FRUCTOSE PHOSPHATES)
                    (CHROMATOGRAPHIC ANALYSIS)

KUZNETSOV, A.A.; STEPANENKO, B.N.

Fate of fructose-1,6-diphosphate and fructose-6-phosphate introduced into the animal organism. Biokhimiia 25 no.4:705-715 Jl-Ag '60.

(MIRA 13:11)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R., Moscow.

(FRUCTOSE PHOSPHATES)   (PHOSPHORUS METABOLISM)

KUZNETSOV, A.A.; STEPANENKO, B.N.

Acid phosphatase from the roots of some Eremurus species. Dokl.
AN SSSR 155 no. 3:694-697 Mr '64.   (MIRA 17:5)

1. Institut biokhimii im. A.N.Bakha AN SSSR. Predstavleno
akademikom A.I.Oparinym.

AUTHOR: Kuznetsov, A.A. and Stepanyan, L.S.   26-58-4-40/45

TITLE: The Finding of the Pyrrhospiza Punicea in the Tyan'-Shan' Mountains
              (Nakhodki krasnogo v'yurka v Tyan' - Shane)

PERIODICAL: Priroda, 1958, Nr 4, p 117 (USSR)

ABSTRACT: The authors describe the Pyrrhospiza punicea, a bird which is
              very rarely found in the USSR. Its habitat is the country in
              the high mountains of Central Asia. The authors had been work-
              ing in the Tian' Shan' mountains and report their experiences with
              the Pyrrhospiza punicea of which they discovered three specimens.
              There are 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova
              (Moscow State University imeni M.V. Lomonosov)

Card 1/1   1. Pyrrhospiza Punicea-USSR   2. Birds-USSR

KUZNETSOV, A.A.

Material on the geography of birds in the Alay Range.   Trudy
AN Tadzh.SSR   89:241-257 '58.   (MIRA 13:5)

1. Kafedra zoologii Moskovskogo gosudarstvennogo pedagogicheskogo
instituta imeni Lenina.
              (Alay Range--Birds)

KUZNETSOV, A.A.

The red Kashmir finch (Pyrrhospiza punicea humii Sharpe).
Ornitologiia no.3:351-361 '60.   (MIRA 14:6)
                    (Soviet Central Asia--Finches)

KUZNETSOV, A.A.

Winter bird fauna in the alpine central part of the Kirghiz Range.
Izv. AN Kir. SSR. Ser. biol. nauk 3 no.1:55-65 '61.   (MIRA 14:12)
(ALAARCHA VALLEY--BIRDS)

KUZNETSOV, A.A.

Composition, abundance and distribution of the avifauna in the highland
of the Kirghiz Range. Ornitologiia no.4:237-255 '62   (MIRA 16:4)
(Tien Shan--Accentors (Birds))

KUZNETSOV, A.A.

Biology of birds in the Alpine part of the Kirghis Range.
Ornitologiia no.5:215-242 '62.   (MIRA 16:2)
            (Kirghis Range—Birds)

AUTHORS: Kotov, V. I., Kuznetsov, A. B., Rubin, N. B.   53-2-1/5

TITLE: The Physical Foundations of Modern Resonance Accelerators
                (Fizicheskiye osnovy sovremennykh rezonansnykh uskoriteley)

PERIODICAL: Uspekhi Fizicheskikh Nauk, 1958, Vol. 64, Nr 2, pp. 197-272
                (USSR)

ABSTRACT: At present accelerators are projected or under construction,
                which permit the acceleration of particles up to energies
                of 50 BeV. The present survey gives a detailed treatment
                of autophasing and the various aspects of its realization.
                Moreover, the stability of the motion of particles within
                the magnetic fields of the circular accelerators and the
                effects of various disturbing factors on this motion are
                discussed in detail. The first section of the survey discusses
                a number of rules governing the motion of charged particles
                in a magnetic field. At the beginning, the simplest case of
                this motion, that is to say, in a homogenous and with respect
                to time constant field is computed. The following circumstance
                is of prime importance: In circular accelerators it is
Card 1/3   insufficient for the magnetic field only to guarantee a

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circular motion of the particles; this motion must also be
stable. The second section deals with automatic phase
synchronization. The qualitative analysis of the processes
taking place with a constant magnetic field and with constant
frequency of the accelerating field strength furnishes the
following results: 1. A stable equilibrium motion exists,
which corresponds to "exact" resonance. 2. A mean resonance
is realized on certain conditions for particles, which do
not satisfy the resonance condition, that is to say, that
the radii of their instantaneous tracks, the energy and the
angular frequency perform oscillations around the resonance
values of these quantities. The methods of resonance
acceleration of particles corresponding to these con-
siderations proved to be very useful. At first the authors
give a qualitative analysis of these methods: The method
of the variation with time of the frequency of the accelerating
field strength, the simultaneous variation of the magnetic
field and of the frequency of the accelerating field strength.
This is followed by a general investigation of the motion of
particles in cyclic resonance accelerators. This motion

Card 2/3   consists of the following three components:

The Physical Foundations of Modern Resonance Accelerators   53-2-1/5

1. Rotation of the particles on an equilibrium orbit.
2. Slow radial phase oscillations with the frequency of the accelerating electric field.
3. Fast free oscillations around the instantaneous path, the period of which usually is of the same order of magnitude as the period of the rotating particles.

These three types of motion are eliminated from the general equations and then a number of problems connected with it are discussed. The fourth section deals with a few peculiarities of the operation of the different types of circular resonance accelerators (synchrotron, phasotron, synchrophasotron, microtron). The last two sections give a detailed report on linear accelerators and intensely focusing accelerators. There are 17 figures, 2 tables, and 64 references, 54 of which are Slavic.

AVAILABLE: Library of Congress

1. Particle accelerators-Development   2. Particle accelerators-Characteristics

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KUZNETSOV, A.B.

PHASE I BOOK EXPLOITATION   SOV/5335

Pokhlistova, G. M., ed.

Uskoriteli; sbornik statey (Accelerators; Collection of Articles) Moscow, Atomizdat, 1960. 121 p. Errata slip inserted. 5,000 copies printed.

Scientific Ed.: B.M. Isholov; Ed.: O.M. Pchelintseva; Tech. Ed.: E.A. Vlasova.

PURPOSE: This collection of articles is intended for scientists and engineers engaged in the construction and operation of particle accelerators.

COVERAGE: These original articles treat specific problems arising in the operation of present-day accelerators, particularly linear electron accelerators. A new accelerator put into operation at the Ukrainskiy fiziko-tekhnicheskiy institut (Ukrainian Physicotechnical Institute) is described, and problems in the dynamics of particles in linear electron accelerators are discussed. New methods are discussed for the extraction of particles from accelerators. Problems associated with the shaping of permanent magnetic field and the acceleration of multicharge ions are also treated. The changeover of the series cyclotron to the phasotron acceleration mode with a view to increasing the energy of accelerated particles is described, and some problems connected with the bunching of particles are elaborated. No personalities are mentioned. References accompany each article.

TABLE OF CONTENTS:

KUZNETSOV, A.B.; MYZNIKOV, K.P.

[Characteristics of a beam of protons accelerated in a proton-
synchrotron up to an energy of 10Bev.] Issledovanie kharakteristik
puchka protonov, uskorennykh v sinkhrofazotrone na 10 Bev. Dubna,
Ob"edinennyi in-t iadernykh issledovanii, 1961. 13 p.
(MIRA 14:10)

(Synchrotron)   (Protons)

36770
S/089/62/012/005/001/014
B102/B104

24.6730

AUTHORS: Kuznetsov, A. B., Myznikov, K. P.

TITLE: Investigation of the beam characteristics in a 10-Bev pro-
             ton synchrotron

PERIODICAL: Atomnaya energiya, v. 12, no. 5, 1962, 373-377

TEXT: Methods of investigating synchrotron beam characteristics are
described and the results are discussed in brief. 1) Filling of the
stability phase region at the end of the acceleration, and the energy
spread: The method is based on the relation between relative spread of the
phase oscillations and the amplitude of the radial phase oscillations.
The spread of the phases is determined from the duration of the signal
from induction electrodes (F. A. Vodop'yanov et al. Proceedings CERN,
1959, p. 470). The phase spread of a proton cluster at the end of

accelerations was $\varepsilon = 0.41$; $\varepsilon = \dfrac{\varphi_2 - \varphi_1}{2\pi}$. φ_1 and φ_2 are the extreme phases.

The maximum amplitude of radial phase oscillations was 2.1 cm. The radial

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Investigation of the beam ...

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width of the stability region was 2.8 cm and the degree of filling of the separatrix at the end of acceleration was 0.75. The maximum energy spread was determined from the maximum amplitude of the radial-phase oscillations and was ± 2.8 Mev. 2) Particle distribution with respect to the amplitudes of the free radial oscillations Φ (a): This characteristic was determined from an analysis of the pulse from the inner target hit by the accelerated beam deviated by an increasing magnetic field after switching off the accelerating voltage, Φ (a) determined from the current pulse oscillogram, is shown in Fig. 6; it is little affected by the particle distribution with respect to the instantaneous orbits. 3) Particle distribution with respect to the amplitudes of the free vertical oscilla- tions Φ (z): This characteristic was measured with a rotating target described by I. B. Issinskiy and K. P. Myznikov (Preprint OIYaI, R-484, Dubna 1960). Φ (z), shown in Fig. 8, was determined when taking account for the dependence of the number of accelerated particles of a given energy on the position of the target. There are 8 figures.

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45137
S/089/63/014/002/003/013
B102/B186

24.6730

AUTHORS: Kazanskiy, G. S., Kuznetsov, A. B., Mikhaylov, A. I.,
             Rubin, N. B., Tsarenkov, A. P.

TITLE: Investigation of the beam formation of accelerated particles
             in the proton-synchrotron by means of induction electrodes

PERIODICAL: Atomnaya energiya, v. 14, no. 2, 1963, 153 - 158

TEXT: The beam formation process in the first stage of acceleration at the
proton-synchrotron of the Ob"yedinennyy institut yadernykh issledovaniy
(Joint Institute of Nuclear Research) in Dubna was studied with the help
of electrostatic signal electrodes (Vodop'yanov, Kuzmin, et al., Proc.
Intern. Conf. High-Energy Accelerators and Instrumentation, CERN, Geneva,
1959, p. 470, 477; Kazanskiy et al., Preprint OIYaI, B-50-819, Dubna, 1961).
These electrodes are broad copper plates arranged to form two systems on
either side of the beam. The plates of one system are arranged symmetri-
cally to the mid-plane of the magnet (vertical electrodes), and those of
the other perpendicular thereto (radial electrodes). The signal $V(\varphi)$ in-
duced in the vertical electrodes is proportional to the change in the

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Investigation of the beam...

azimuthal charge density in the flying bunch: $V(\varphi) \simeq \frac{q(\varphi)}{C} \frac{1}{\pi} 2\pi$, where l is the electric length of the electrodes, C the capacitance of the plates relative to the earth, and π the perimeter of the equilibrium orbit. $V(\varphi)$ is led to an integrator which yields $V_{mean} = 1q/\pi C$, Q being the charge of the accelerated bunch. For the proton-synchrotron of the OIYaI the sensitivity of the vertical electrodes, $\alpha = C/el$, was $1 \cdot 10^{12}$ protons/v; $\pi = 208$ m, $1 = 0.5$ m, $C = 400 \mu\mu f$. If the output voltage V_{out} (cf. Fig. 1) is measured and the amplification factor K is known, the number of protons in the bunch, $N = V_{out} \alpha/K$, is determined. The signal $U(\varphi)$ of the radial electrodes records the horizontal deviation of the beam from the equilibrium radius; the radial sensitivity is 2v/cm. The electrode installation has a pass band of 0.1 - 3 Mc which allows a distortion-free recording of $V(\varphi)$ and $U(\varphi)$ and their amplitude modulation. A consideration of the motion of the particles along the phase trajectories taking account of the free oscillations shows that the amplitude structure of the beam must be observed during 100 - 150 μsec after the switching-on of the accelerating voltage; the beam formation takes place during the first 1 - 1.5 msec. The

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Investigation. of the beam...

S/089/63/014/002/003/019
B102/B186

radial phase oscillations of the beam are accompanied by the oscillations of the azimuthal density with the frequencies Ω and 2Ω, where Ω is the angular frequency of the phase oscillations. The amplitudes of these oscillations depend on $\Delta M/b$, ΔM being the initial energy spread and b the radial separatrix half-dimension. If $\Delta M/b = 1$, the oscillation with the frequency 2Ω vanishes; if $\Delta M/b \ll 1$, the damping of these oscillations takes place in 30 - 50 periods of the phase oscillations. The greater $\Delta M/b$, the more rapid is the damping. The same is true for the oscillations of the charge center. To the signal modulation with 40 - 50% depth observed at the synchrotron there corresponds a total initial energy spread of $\sim 1.5\%$. There are 10 figures.
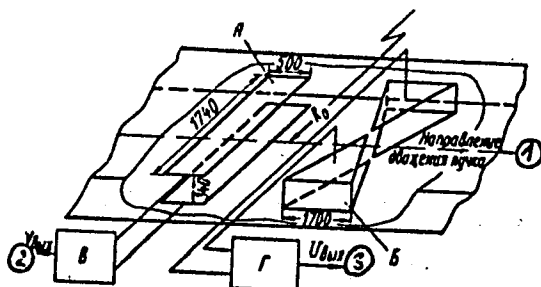
SUBMITTED: April 4, 1962

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Investigation. of the beam...

S/089/63/014/002/003/019
B102/B186

Fig. 1. System of induction electrodes.

Legend: A - vertical electrodes, Б - radial electrodes, B - amplifier for the measuring system of the beam intensity, Г - transmitter of the radial beam position; (1) beam direction, (2) V_{out}, (3) U_{out}.

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KOLOMENSKIY, A.A., glav. red.; KUZNETSOV, A.B., red.; LEBEDEV,
     A.N., red.; ALYAB'YEV, A.F., red.; MURADOVA, A.A., red.;
     SMIRNOV, I.P., red.

Transactions   of the International Conference on High
Energy Accelerators. Trudy Mezhdunarodnoi konferentsii
po uskoriteliam. Pod red. A.A.Kolomenskogo, A.B.Kuznetsova,
A.N.Lebedeva. Moskva, Atomizdat, 1964. 1091 p. [In Rus-
sian and English] ___ List of participants of the International
Conference on High Energy Accelerators. Spisok uchastnikov Mezh-
dunarodnoi konferentsii po uskoriteliam (Dubna, 21-27 avgust
1963 g.). Moskva, Atomizdat, 1964. 13 p.   (MIRA 17:9)

1. International Conference on High Energy Accelerators. Dubna,
1963. 2. Fizicheskiy institut im. P.N.Lebedeva AN SSSR, Moskva
(for Kolomenskiy, Lebedev).

L 3774-66   EWT(m)   DIAAP   GS

ACCESSION NR: AT5007949   S/0000/64/000/000/0788/0790

AUTHOR: Vagin, V. A.; Veksler, V. I.; Zubarev, V. N.; Kuznetsov, A. B.; Mukhin, S. Y.; Petukhov, V. A.; Popov, V. A.; Rubin, N. B.; Stepanyuk, V. L.; Chekhlov, K. V.; Semenyushkin, I. N.

TITLE: Electrodynamic separator of antiprotons with 5 Gev/c momentum

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963, Trudy. Moscow, Atomizdat, 1964, 788-790

TOPIC TAGS: high energy particle, antiproton, pion, particle interaction

ABSTRACT: The study of processes initiated by such particles as high-energy K-mesons and antiprotons is often determined by the possibility of separating these particles from an accompanying pi-meson background. The tremendous technical difficulties arising in the use of the electrostatic method of separation for obtaining pure beams of relativistic particles urgently dictate the necessity of seeking new means of separating particles. In 1956, V. I. Veksler and V. A. Petukhov proposed an electrodynamic method of separating particles according to masses. At the present time the high-energy laboratory of the Joint Institute of Nuclear Research is perfecting the application of an electrodynamic separator, creat-

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ed on the basis of this method, of antiprotons with momentum up to 5 Gev/c. The
present report discusses the principle governing the operation of the electrodynamic
separator. At the end of the acceleration cycle in the synchrophasotron the pro-
tons are recaptured into the acceleration regime at a frequency of high multiplici-
ty and are subsequently directed against a target. The beam of secondary particles
which then occurs possesses a corresponding high-frequency structure. The negative-
ly charged particles that interest us are extracted by the magnetic field of the
accelerator to the outside. Further, as a result of magnetic analysis the parti-
cles are resolved in a narrow interval of momenta, or pulses. A longitudinal dis-
tribution of the resolved particles begins to take place over a certain distance
of their flight. The antiprotons being heavier particles retire from the pi-mesons.
If the total length L of flight, counted from the target (for the case of relati-
vistic particles) is equal to

$$L \approx \frac{\lambda}{2\,(\beta_1 - \beta_2)}$$

where g is the operating wavelength of a multiple-acceleration system and β_1, β_2 are
respectively the velocities of the pi-mesons and antiprotons in units of the speed
of light, then the lag of the antiprotons is exactly equal to the half wavelength
$\lambda/2$. On the path of the particles at this place there is created a high-frequency
transverse electric field with the same wavelength λ which is rigidly bound in

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ACCESSION NR: AT5007949

phase with the voltage that is accelerating the beam at multiple frequency. In case of a suitable choice of the phase of the electric field the antiprotons and the pi-mesons will obtain angular deflections different in sign and can be spatially resolved further. The report discusses the composition of the electrodynamic separator of antiprotons at the high-energy laboratory, which consists of a multiply-acceleration system, deflecting device, and an ion-optical system. Also discussed are the separator's characteristics. The device can also be employed to resolve pi-mesons and antiprotons with smaller values of momenta and to separate K-mesons, if certain necessary conditions are fulfilled for the separation of antiprotons and K-mesons respectively:

$$(pc)_{\bar{p}} \approx m_p c^2 \left[\frac{L}{(2n+1)\lambda} \right]^{1/2}; \qquad (pc)_k \approx m_p c^2 \left[\frac{L}{(2n+2)\lambda} \right]^{1/2},$$

where the momenta of the antiprotons and K-mesons are respectively $(pc)_p$, $(pc)_k$, and the rest-energy of an antiproton is $m_p c^2$, and $n = 0, 1, 2, \ldots$. Orig. art. has 3 figures.

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L 3774-66
ACCESSION NR: AT5007949

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy, Dubna (Joint Institute
of Nuclear Research)

SUBMITTED: 26May64   ENCL: 00   SUB CODE: NP

NO REF SOV: 003   OTHER: 000

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L 4232-66   EWT(m)/EPA(w)-2/EWA(m)-2   IJP(c)   GS

ACCESSION NR: AT5007970   S/0000/64/000/000/0970/0975

AUTHOR: Kazanskiy, G. S.; Kuznetsov, A. B.; Mikhaylov, A. I.; Tsarenkov, A. P.;
Chekilov, K. V.; Rubin, N. B.

TITLE: Certain special features governing the adjustment of the acceleration re-
gime on the OIYaI 10-Gev synchrophasotron

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963.
Trudy. Moscow, Atomizdat, 1964, 970-975

TOPIC TAGS: high energy accelerator, proton accelerator, linear accelerator

ABSTRACT: The oscillogram form of the signals recorded by inductive electrodes in
the quasi-betatron regime is due to the subsequent entrapment of the particles into
acceleration. The signals are proportional to the variation in the density (e. g.
of the order of $2.5 \cdot 10^{10}$ to $5.2 \cdot 10^{10}$ protons per pulse) of the particles in the
quasi-betatron state in the case of multi-rotation injection at the azimuth of the
"vertical" induction electrodes (Kazanskiy, G. S., et al. *Atomnaya energiya* 14,
153 (1963)). The oscillograms also indicate the state corresponding to particle
storage in the accelerator chamber. Measurements show that a small group of par-
ticles, comprising about 0.5% ($5 \cdot 10^9$ protons per pulse) of the total number of par-

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L 4232-66

ACCESSION NR: AT5007970   O

ticles injected, takes part in the formation of the signal. The frequencies in
the central part of the signal correspond to the frequency of revolution or are mul-
tiples of it. The appearance of such frequencies can explain the presence of the
charge front during input of the particles into the accelerator chamber (or the
formation of the drop in density at the moment of intensive losses at the beginning
of injection), and also the amplitudinal nonequilibrium of the injection current
from the linear accelerator, if there occur here azimuthal inhomogeneities whose
extent is less than the perimeter of the equilibrium orbit. The connection between
the form of the high-frequency signal under consideration and the subsequent en-
trapment of the particles into the synchrotron state is characteristic. If the
oscillations close to the "rear" signal front formed by the particles with ampli-
tudes of betatron radial oscillations are damped, then the effectiveness of entrap-
ment decreases, and in the absence of such damping the effectiveness is greater,
as shown by the oscillograms. In the case of the "differential" method of signal
recording with induction electrodes, signals are observed whose form can be modi-
fied from sinusoidal to a series of discrete pulse-formed signals. In most cases
(excluding those where the values n are resonant) the general picture represents
the result of superposition of this and another group of signals, as seen on os-

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ACCESSION NR: AT5007970

cillograms. The present report discusses the following pertinent topics: quasi-betatron state; synchrotron state; system of high-frequency accelerator supply; programming and adjustment of regimes suitable for physical experiments. The authors show that, by combining the various methods of beam output against a target and applying one or another method of selection, one can utilize intelligently the intensity in the accelerator cycle, thus ensuring a combination of different physical experiments. Orig. art. has: 6 figures, 6 formulas.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy, Dubna (Joint Institute of Nuclear Research)

SUBMITTED: 26May64   ENCL: 00   SUB CODE: NP,

NO REF SOV: 004   OTHER: 000

Card 3/3

ACCESSION NR: AP4013419

AUTHOR: Kuznetsov, A. B.

TITLE: On the energy spectrum of protons in a linear accelerator

SOURCE: Zhurnal tekhn.fiz., v.34, no.2, 1964, 311-312

TOPIC TAGS: accelerator, linear accelerator, proton accelerator, energy spectrum, energy distribution, proton energy distribution

ABSTRACT: An equation is derived for the energy of a proton leaving a linear accelerator as a function of its energy, distance from the axis, and direction of motion on entering the accelerator. This result is valid for accelerators built and operated in accordance with a certain design equation. A correction term is given which may be employed in case this design criterion is only approximately met. These results are obtained with the aid of an equation for the proton phase motion which is given elsewhere (A.B.Kuznetsov,Energeticheskiy spektr uskorennykh protonov v lineynom uskoritele". Priprint, OIYaI,1243,Dubna,1963), and in the derivation of which the effect of radial motion was treated as an external perturbation. Orig. art.has: 7 formulas.

Card 1/2   Sub: 5 Apr 63

KUZNETSOV, A.D.; TRIFSIK, G.B., red.; NEKRASOVA, G.N., mlad. red.;
GERASIMOVA, Ye.S., tekhn. red.

[Development of productive and nonproductive spheres in
the U.S.S.R.; regularities of labor distribution in the
society] Razvitie proizvodstvennoi i neproizvodstvennoi
sfer v SSSR; zakonomernosti raspredeleniia truda vnutri
obshchestva. Moskva, Ekonomika, 1964.   227 p.
                                    (MIRA 17:3)

STREL'TSOV, V.A.; GUREYEV, F.N.; SUKHOVA, A.M.; KUZNETSOV, A.D.

Jaw crusher. Gor. zhur. no.9:76 S '64.   (MIRA 17:12)

KUZNETSOV, A. D.

"The Question of the Use of Hydrolyzed Gelatin in the Publication of Maps." Min Higher Education USSR, Moscow Inst of Engineers of Geodesy, Aerophotographic Surveys, and Cartography, Moscow, 1955
(Dissertation for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya Letopis', No. 32, 6 Aug 55

D'YAKONOV, Vasiliy Fomich; KUZNETSOV, A.D., red.; DROZHZHINA, L.P., tekhn. red.

[Determining a ship's position by the sun with a check for accuracy]
Opredelenie mesta sudna po solntsu s issledovaniem tochnosti.
Leningrad, Izd-vo "Morskoi transport," 1958. 238 p.   (MIRA 11:7)
                        (Navigation)   (Nautical astronomy)

KUZNETSOV, A.D.

Performance of log-receiving systems located in the stern.
Trudy TSNIIMF no.23:3-8 '59.   (MIRA 12:8)
        (Radio in navigation)

NECHAYEV, P.A., inzh.; YAKUSHENKOV, A.A., kand.tekhn.nauk; KUDREVICH,
N.B., inzh. Prinimali uchastiye: KUZNETSOV, A.P., inzh.;
KHODYREV, V.Ya., inzh. IKONNIKOV, D.N., dotsent, spetsred.;
DENISOV, K.N., red.izd-va; DROZHZHINA, L.P., tekhn.red.

[Electric navigation instruments] Elektronavigatsionnye
pribory. Leningrad, Izd-vo "Morskoi transport," 1960. 496 p.
                                                      (MIRA 14:3)

  (Nautical instruments).   (Electricity on ships)

KUZNETSOV, A.D.

Using the projection enlargement method for the automatic recording
of a ship's course on navigation charts. Inform. sbor. TSNIIMF
no.79 Sudovozh.i avias'. no.20:49-56 '62.   (MIRA 16:7)
(Dead reckoning (Navigation)) (Optical instruments)

KUZNETSOV, A.D., inzh.

Improving the technical and economic indices of ships with the help of propulsion bulbs on rudders. Sudostroenie 29 no.11:7 N '63.

(MIRA 16:12)

KUZNETSOV, A.D.

Each enterprise should have a concrete plan of industrial
chemicalization. Sudostroenie 30 no.5:68-69 My '64.
(MIRA 17:6)

ACC NR: AP7002235

SOURCE CODE: UR/0280/66/000/006/0013/0016

AUTHOR: Karvovskiy, G. S.; Kuznetsov, A. D. (Moscow)

ORG: none

TITLE: The maximum principle in the theory of differential N-person games

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 6, 1966, 13-16

TOPIC TAGS: maximum principle, game theory, algorithm, linear differential equation, economic organization

ABSTRACT: The necessary conditions of the optimality of strategies in a differential N-person fixed-time game are formulated on the basis of the maximum principle of Pontryagin et al. (Pontryagin, L. S., et al. Matematicheskaya teoriya optimal'nykh protsessov. Fizmatgiz, 1961). The existence of a unique solution satisfying the maximum principle is proved for a N-person linear differential game. It is shown that the pertinent algorithm for finding optimal strategies solves simultaneously also the problem of synthesis, i.e. makes it possible to determine the optimal strategies as a function of the initial conditions of the differential N-person game. A game of this kind may be interpreted as the production process of N econo-

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ACC NR: AP7002235

mic associations functioning within the framework of a certain system. The ultimate goal of each association is the maximization of some indicator of performance (e.g. profits) as determined with respect to a finite set of states of the overall system, in the presence of disjoint regions of permissible economic stratgies of the associations. If all the associations but one adhere to their optimal economic strategies, only the indicator of performance of the association deviating from the optimum may decrease. Orig. art. has: 21 formulas.

SUB CODE: 12,05/   SUBM DATE: 15Jul65/ ORIG REF: 001

Card   2/2

KUZNETSOV, A.D.

Automatic lubrication of "basket" mill (disintegrators).
Ogneupory 19 no.1:28-29 '54.   (MIRA 11:8)
        (Crushing machinery--Lubrication)

KUZNETSOV, Aleksandr Dmitriyevich; BUDARINA, V., red.; MOSKVINA, R.,
    tekhn.red.

[Labor supply of the U.S.S.R. and its utilization; on the
problem of the economic capacity of the country] Trudovye
resursy SSSR i ikh ispol'zovanie; k voprosu ob ekonomicheskoi
moshchi strany. Moskva, Izd-vo sotsial'no-ekon.lit-ry, 1960.
175 p.
                                                    (MIRA 13:5)
                    (Manpower)

SOV/137-58-9-18587

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 59 (USSR)

AUTHORS: Kazantsev, I.G., Kuznetsov, A.F.

TITLE: Open-hearth Furnaces of the "Azovstal'" Plant Operate on a
             Coke Oven-gas Mixture With Refined Gases or Gases Contam-
             inated With Sulfur (Rabota martenovskikh pechey zavoda
             "Azovstal'" na koksodomennoy smesi s neochishchennym i
             ochishchennym ot sery koksovym gazom)

PERIODICAL: Sb. nauchn. tr. Zhdanovsk. metallurg. in-t, 1957, Nr 4,
             pp 11-29

ABSTRACT: The authors examine the effect of S contained in cast iron
             and in the fuel material on the S content in the metal during
             smelting, as well as on the duration of the melting period.
             Graphs are shown which illustrate this relationship. It is
             pointed out that the S is introduced into the fuel by the coke gas
             (CG) which contains up to 20 g of S per cubic meter. Calcula-
             tions are presented which take into account the fact that 50% of
             the S from the fuel are deposited in the checker work, a cer-
             tain amount of the S from the fuel being oxidized to SO_2, and

Card 1/2   demonstrate that the gaseous phase of the open-hearth furnace

SOV/137-58-9-18587

Open-hearth Furnaces of the "Azovstal'" Plant (cont.)

contains 0.25% of SO_2 by volume if the furnace operates on sulfur-bearing coke-oven gas, and 0.12% if the furnace operates on a refined and preheated gas mixture. The refining of the CG is accomplished by the arsenic-soda method in special sulfur-collecting devices capable of reducing the S content of the CG from 20 to 3.5 g/m^3. A sulfur balance for smelting of steel in open-hearth furnaces of the "Azovstal'" plant is shown. It reveals that the S passes from slag into the gas at a rate of 0.12 kg/m^2 hr in the case of unrefined CG and 0.24 $kg/m^2 hr$ in the case of refined gas. The employment of the method of desulfurization of CG makes it possible to utilize slags with lower alkalinity for processing of cast iron containing up to 0.1% of S in open-hearth furnaces without impairing the quality of the process.

1. Open hearth furnaces--Operation   2. Fuels--Performance   3. Sulfur--Effectiveness
4. Coal gas--Properties

M.Kh.

Card 2/2

AUTHOR: Kuznetsov, A.F.

TITLE: On the Influence of Vibrations in a Steel Ingot Undergoing
            Crystallization (K voprosu o vibrirovanii kristallizuyushche-
            gosya stal'nogo slitka)

PERIODICAL: Sb. nauchn. tr. Zhdanovsk. metallurg. in-t, 1957, Nr 4,
            pp 51-60

ABSTRACT: A study of the quality of metal in ingots weighing 65 kg and
            9.2 t crystallized under the influence of vibrations (1500 cycles/
            minute at an amplitude of 1.0-1.5 mm). The following facts
            were revealed during investigation of the metal from "vibrat-
            ing" ingots (VI) and standard ingots (SI). Compared with metal
            from the bottom of SI, the metal from the bottom of VI contains
            3.5 times as much O, 1.9 times as much N, and 0.588 times as
            much H. The top of a VI contains 3.2 times as much O, 0.578
            times as much N, and slightly more H. It is assumed that the
            contamination of the lower levels of the VI by refractory
            oxides and nitrides is attributable to the precipitation of iso-
Card 1/2   lated crystals which utilize these inclusions as crystallization

SOV/137-38-8-16555

On the Influence of Vibrations in a Steel Ingot Undergoing Crystallization

nuclei. Metallographic studies of metal from VI revealed that it contained oxide-type inclusions which were larger than those produced under normal crystallization conditions (3.2 units at the base and 1.25 units at the top of a VI, as against 2.0 and 1.0 units, respectively, in an SI). The distribution of sulfides was more uniform in the VI. It is noted that the oxide inclusions in the metal of VI are arranged in chain-like patterns, whereas those in SI are isolated. During quantitative evaluation of the oxide inclusions it was established that 0.195% of them are concentrated at the base and 0.057% at the top of a VI. In an SI the distribution of oxide inclusions between the base and the top was 0.068% and 0.121%, respectively. Smaller hardness and greater susceptibility to corrosion of metal from VI (266 H_B as compared with 285 H_B of metal from SI) is explained by larger amounts of inclusions and by the porosity of lower levels of the VI. Under optimal conditions the acceleration of the vibration must not exceed 981 cm/sec^2. Calculations indicate that under experimental conditions the amplitude of vibrations must not exceed 0.4 mm.

A.R.

1. Steel--Crystallization   2. Steel--Vibration   3. Vibration--Metallurgical effects

Card 2/2

KUZNETSOV, A. F., Cand. Tech. Sci. (diss) "Method of Determining Technical-Economic Indicators of Manufacture of Construction Elements from Low-carbon and Low-alloy Steels," Moscow, 1961, 19 pp. (Moscow Civil Engr. Inst.) 200 copies (KL Supp 12-61, 269).

KUZNETSOV, A.F.; KHARITONOV, A.S.; MOLONOV, G.D.

Effect of the method of deoxidation and conditions of casting on
the quality of pipe steel. Izv. vys. ucheb. zav.; chern. met. 4
no.8:43-47 '61.   (MIRA 14:9)

1. Zhdanovskiy metallurgicheskiy institut.
                            (Steel--Metallurgy)

S/137/62/000/003/148/191
A052/A101

AUTHORS: Kazantsev, I. G., Kuznetsov, A. F., Privezentsev, I. Ya.

TITLE: Investigation of the corrosion resistance of high-alloy steels under conditions of the coke chemical industry

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 81, abstract 3I520 ("Sb. nauchn. tr. Zhdanovsk. metallurg. in-t, no. 7, 1961, 92-95)·

TEXT: The corrosion resistance of four most important grades of stainless steel [Cr-steel X 18 (Kh18), Cr-Ni-steel of X 18H8 (Kh18N8) type, Cr-Mn-steel X18Γ13 (Kh18G13) and chrome-mangano-nitrous steel of X18Γ13 (Kh18G13) type but containing 0.5% N] was investigated in application to the service conditions of the coke chemical equipment. The steels were tested under laboratory conditions in a chamber with moist air containing H_2S and under industrial conditions in vapors of the coke slaking tower utilizing impure water of the coke chemical industry. The composition of the environment in the corrosion chamber (in %): air - 89.8, steam - 10, H_2S - 0.2; the temperature of the chamber = 80°C, the duration of the tests = 450 hours. The conventional carbon steel MCT3 (MSt3) has the rate of corrosion in the moist air containing 2 vol.% H_2S amounting to

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Investigation of the corrosion resistance ...

S/137/62/000/003/148/191
A052/A101

4.3 mm/year and in the vapor flow of the coke slaking tower - to 1.7 mm/year. The high-alloyed steels X18 (Kh18), X18H8 (Kh18N8), X18Γ13 (Kh18G13 and Kh18G13 with 0.5% N under service conditions of the coke chemical equipment exposed to the moist and sulfurous coke oven gas for all practical purposes do not corrode.

V. Tarisova

[Abstracter's note: Complete translation]

Card 2/2

KUZNETSOV, A.F.

Modernizing the roughing stand of a 2150 sheet mill. Metallurg
7 no.6:27-28 Je '62.
(MIRA 15:7)

1. Nachal'nik listoprokatnogo tsekha Kuznetskogo metallurgicheskogo
kombinata.
(Rolling mills)

KUZNETSOV, A.F., inzh.

Work required to manufacture structural elements from low-alloy steel. Mat. po met. konstr. no.6:177-187 '62.

(MIRA 15:12)

(Steel, Structural)

KAZANTSEV, I.G.; KUZNETSOV, A.E.; PRESNYAKOV, V.M.; MOLONOV, G.D.;
    KUZEMA, I.D.; CHERNYSHEV, I.S.; OLESHKEVICH, T.I.; KISSEL', N.N.;
    ANTOKHIN, N.T.; ROYANOV, V.V.

    Manufacture of very thick plate from capped steel. Izv. vys. ucheb.
    zav.; chern. met. 6 no.6:49-50 '63.   (MIRA 16:8)

    1. Zhdanovskiy metallurgicheskiy institut i zavod im. Il'icha.
                (Steel ingots) (Rolling (Metalwork)--Quality control)

ACCESSION NR: AP4013549   S/0133/64/000/001/0050/0052

AUTHORS: Kobyltzev, V. K.; Yershov, V. N.; Kuznetsov, A. F.; Mazurik, P. N.;
Ryazanov, D. G.; Fiskos, E. Ya.

TITLE: Rolling two-layer sheets with the basic layer made of low-alloy steel

SOURCE: Stal', no. 1, 1964, 50-52

TOPIC TAGS: rolling, plating, low alloy steel, steel, 16GS low alloy steel,
carbon steel, OKh13 stainless steel, Kh18N10T stainless steel, St.3 steel, stain-
less steel, corrosion, steel corrosion, steel mechanical properties, 3K steel,
15K steel, 20K steel, regenerative furance, continuous furnace

ABSTRACT: This work was carried out in order to study the surface quality and the
mechanical properties of two-layer steel sheets. The samples were a basic sheet
made of low-alloy steel (16GS) plated with stainless steels OKh13 or Kh18N10T.
The procedure followed was developed by the KMK (Kuznetsk Metallurgical Combine).
One part of the samples was held at 1260C for 1.25 hours, at 1320C for 0.75 hours,
and at 1310C for 1.5 hours. Temperature at the end of rolling was 1170-1180C, and
rolling was completed either with or without edging. In the former case the plate

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ACCESSION NR: AP4013549

metal was ruptured in some cases; in the latter case the quality of the metal
surface was much higher, and no peeling of the plate layer was observed. The
remaining samples were heated in a continuous furnace to 1310-1330C for 4.5 hours.
Temperature at the end of rolling was 1000-1010C. All the samples plated with
steel Kh13N10T underwent thermal treatment at 900-930C after rolling, while samples
plated with steel OKh13 were held at 660C for 14-18 hours. The results obtained
were satisfactory. They are presented graphically in Figs. 1 and 2 on the Enclo-
sures. "I. L. Vaynshteyn, M. M. Bazhenov, A. V. Yakubson, and G. S. Bublik
participated in this work." Orig. art. has: 4 figures and 1 formula.

ASSOCIATION: Kuznetskiy metallurgicheskiy kombinat (Kuznetsk Metallurgical Com-
bine)

SUBMITTED: 00   DATE ACQ: 03Feb63   ENCL: 02

SUB CODE: ML   NO REF SOV: 003   OTHER: 000

Card 2/2

KUZNETSOV, A.F.; BOGOMOLOV, A.M.; NERONOVA, G.P.

Experimental study of the functional nodes of a processing
device of the automatic hydrologic telemetering station.
Trudy GGI no.115:14-62 '64.   (MIRA 18:9)

MOLONOV, G.D.; KUZNETSOV, A.F.; PRESNYAKOV, V.M.

Nonmetallic inclusions in capped steel. Izv. vys. ucheb.
zav.; chern. met. 7 no.2:56-57 '64.   (MIRA 17:3)

1. Zhdanovskiy metallurgicheskiy institut.

ZAYKOV, M.A.; TSELUYKOV, V.S.; KAMINSKIY, D.M.; KUZNETSOV, A.F.;
      BELINSKIY, Ye.D.; SHAMETS, Ya.V.; FEDOROV, N.A.; BARITSKIY,
      S.I.; ZAKHAROV, A.I.; ZHURAVLEV, M.A.; KOBYZEV, V.K.

Investigating energy and power parameters in plate rolling
on reversing mills. Izv. vys. ucheb. zav.; chern. met. 7
no.2:100-107 '64.   (MIRA 17:3)

L 25677-66   EWT(1)/EWT(m)/EWA(h)   JD/JG

ACC NR: AM6013861   Monograph   UR/

Goryunov, Nikolay Nikolayevich; Kuznetsov, Anatoliy Filippovich;
Eksler, Aleksey Andreyevich

Tunnel diode circuits (Skhemy na tunnel'nykh diodakh) Moscow, Izd-vo
"Energiya", 1965. 78 p. illus. 60,000 copies printed. Series note:
Massovaya radiobiblioteka, vyp, 586

TOPIC TAGS: tunnel diode, gallium arsenide tunnel diode, germanium
tunnel diode, circuit design

PURPOSE AND COVERAGE: This booklet, intended for advanced radio ama-
teurs, may also be used by technicians and engineers engaged in the
design of circuits using semiconductor devices. Principles of
tunnel-diode circuit designing are described. Basic parameters and
characteristics of tunnel diodes are listed and practical circuit
diagrams using these devices are given.

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UDC 621.382.233.014.2

L 25677-66
ACC NR: AM6013861

SUB CODE: 09/ SUBM DATE: 15Jul65/

Card 2/2

KUZNETSOV, A.F., kand.tekhn.nauk

Oxygen cutting of heat-treated structural steel. Svar.proizv.
no.12:24-26 D '65.   (MIRA 18:12)

1. Chelyabinskiy politekhnicheskiy institut.

KUZNETSOV, A.P.; MAZURIK, P.N.

Redesigning the screwdown mechanism of two-high reversing stands on medium-thickness sheet mills. Metallurg 10 no.9:32-33 S '65.
(MIRA 18:9)

1. Nachal'nik listoprokatnogo tsekha Kuznetskogo metallurgicheskogo kombinata (for Kuznetsov). 2. Zamestitel' nachal'nika listoprokatnogo tsekha Kuznetskogo metallurgicheskogo kombinata (for Mazurik).

SALOV, Yu.M.; ZAYKOV, M.A.; TSELUYKOV, V.S.; KUZNETSOV, A.F.; KAMINSKIY,D.M.;
MAZURIK, P.N.

Improving the production technology in the sheet-rolling plant
of the Kuznetsk Metallurgical Works. Biul. tekh.-ekon. inform.
Gos. nauch.-issl. inst. nauch. i tekh. inform. 18 no.10:5-6
O '65.   (MIRA 18:12)

KUZNETSOV, A. G.

USSR/Geology   Jul 47
    Tetrology

"New Data on the Devonian Deposits of the Southeastern Part of the Russian Platform,"
K. R. Chepikov, V. N. Krestovnikov, A. G. Kuznetsov, 3½ pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVII, No 2

Results of studies conducted on core samplings at BuguruslanNeft Trust, taken by Volga-
Bashkir Expedition of Academy of Sciences, USSR. Reports that devonian deposits in
Buguruslan region vary greatly from devonian deposits in other regions. Submitted by
Academician D. S. Belyankin, 29 Jan 1947.

PA 60T25

BELOTSERKOVETS, Yu.I.; KUZNETSOV, A.G.

Interpretation of gamma-gamma logging anomalies over
Donetsk Basin coal seams. Geofiz. razved. no.12:100-110
'63.   (MIRA 16:11)

KUZNETSOV, A. G.

Oxygen Pressure Breathing at High Altitudes

a paper presented before the 1st Congress of Aviation Surgeons, Warsaw, Nov 1956.

KUZNETSOV, A.G., polkovnik med. sluzhby, kand. med. nauk

Oxygen respiration under pressure at high altitude. Voen. med. zhur.
no.2:70-75 F '57   (MIRA 12:7)
                (RESPIRATORS,
                    for high altitude (Rus))
                (ALTITUDE,
                    respirators for high altitude (Rus))

KUZNETSOV, A.G.

Phenomena of boiling and vaporization in the organism at high
altitudes. Izv.AN SSSR. Ser.biol.no.3:293-304 My-Je '57.
(MIRA 10:6)

1. Nauchno-issledovatel'skiy institut aviatsionnoy meditsiny
Voyenno-vozdushnykh sil
(ALTITUDE, INFLUENCE OF)

ISAKOV, P.K., polkovnik med. sluzhby; KUZNETSOV, A.G., polkovnik med. sluzhby

Conference of aviators physicians in Warsaw. Voen. med. zhur. no.4:
56-59 Ap '57   (MIRA 12:7)
          (WARSAW--AVIATION MEDICINE--CONGRESSES)

KUZNETSOV, Andrey   G. (Dr. (Col.)

"Some Results of Biological Experiments on Rockets and Sputnik II."

paper presented at 3rd European Congress of Aviation Medicine, Louvain, Belgium 26 Sep 1958. 3pp.

Chief Physiology Dept, Sci. Exptl. Res. Inst. of Aviation Medicine (NIIIAM)

TRANSLATION B-8,800,987
Comments. B, 3,800,997

GAZENKO, O.G. (Doctor) and KUZNETZOV, A.G. (Prof.)

"Further Biological Investigations on Rockets."

report presented at the 4th European Congress of Aviation and Space Medicine, Rome, Italy, 22 October - 5 November, 1959.

KUZNETSOV, A. G. (Dr.)

"Humanity must be sure before putting Man into Space."

report presented at the Federation Aeronautique Internationale (FAI) Moscow, 25-31 May 1959.

Dir., Inst. of Aviation Medicine, Moscow.

IVANOV, P.N.; KUZNETSOV, A.G.; MALKIN, V.B.; POPOVA, Ye.O.

Decompression phenomena in the human body at extremely low
atmospheric pressures. Biofizika 5 no. 6:704-709 '60.

(MIRA 13:10)

(DECOMPRESSION SICKNESS)

YEMEL'YANOV, M. D., kand. med. nauk; KUZNETSOV, A. G., doktor med. nauk (Moskva)

Role of the interactions of the vestibular, visual and proprioceptive analysors in the formation of some illusory perceptions in fliers. Vest. otorin. no.3:63-69 '62.   (MIRA 15:6)

(VESTIBULAR APPARATUS)   (VISION)   (OPTICAL ILLUSIONS)
(AERONAUTICS—PSYCHOLOGY)

ACCESSION NR: AT4042675   S/0000/63/000/000/0162/0165

AUTHOR: Dianov, A. G.; Kuznetsov, A. G.

TITLE: The possiblility of substituting helium for nitrogen in spaceship cabins

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963.
Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy*
konferentsii. Moscow, 1963, 162-165

TOPIC TAGS: helium oxygen atmosphere, man, closed environment, helium oxygen
effect, central nervous system, respiratory system, cardiovascular system, gas
exchange, thermal exchange, speech, hearing

ABSTRACT: Experiments have been performed to test the effects on human subjects
of a prolonged stay in a helium-oxygen atmosphere. Two subjects were kept in a
sealed cabin for 10 and 25 days, respectively, after which time studies were made
on the functions of the central nervous system, the respiratory system, and
the cardiovascular system and on gas exchange, thermal exchange, speech, and hear-
ing. The experiments indicated that a helium atmosphere affects the thermal
regime of man. Temperatures of 18 to 24°C, which are comfortable in normal atmos-

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pheres, produced in a helium atmosphere a sensation of chilliness and a lowering
of the skin temperature. The comfortable temperature ranges in a helium-oxygen
atmosphere were 24.5--27.5oC during the day and 26--29°C at night, when the
subjects were sleeping. Investigation of the functions of the central nervous
system, conducted in the comfortable temperature range for helium atmospheres,
indicated a gradually growing inhibitory process in the cortex of the brain, which
manifested itself by the appearance of low-frequency oscillations on the encepha-
logram and by an increase in the duration of the latent period of conditioned
motor reflexes. Analysis of the experimental data indicated that these changes
were due to prolonged hypodynamia and not to substitution of helium for nitro-
gen in the atmosphere. General well-being and work capacity of the subjects were
not affected by the helium-oxygen atmosphere. The helium atmosphere also had no
effect on external respiration, the cardiovascular system, gas exchange, or
energy consumption. Minute changes observed at the end of the experiment were
due to hypodynamia rather than to the changed atmosphere. On the other hand, it
was found that a helium-oxygen affects human speech, raising the frequency of
speech sounds by 0.7 of an octave. Clarity of speech is lessened somewhat but
not to the point of unintelligibility. The auditory function of the subjects
in a helium-oxygen atmosphere apparently was not affected. These experiments

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establish clearly that it is possible for man to live in an oxygen-helium atmosphere for 25 days.

ASSOCIATION: none

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AUTHOR: Kuznetsov, A. G.; Tsivilashvili, A. S.; Mansurov, A. R.

TITLE: Changes of some physiological functions of the organism during explosive decompression

SOURCE: Konferentisya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy'. konferentsii. Moscow, 1963, 314-318

TOPIC TAGS: explosive decompression effect, physiological function, dog, rabbit, bradycardia

ABSTRACT: Experiments were performed under laboratory conditions in a special pressure chamber for the purpose of determining the nature of changes in basic physiological functions during great and fast pressure drops. Dogs and rabbits were subjected to sudden pressure drops which ranged from 0.3 to 0.004 sec in duration. In all experiments, during the first seconds after the drop in pressure all animals evidenced apnosis. Initial apnosis lasted from 2 to 15 sec, and after a single intake of breath apnosis resumed for an additional 3 to 4 sec. After

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this respiration resumed, but its rhythm and depth were disrupted. Fluoroscopic
examination, which took place 0.02 sec after the pressure drop, showed changes
in the lungs, diaphragm, and heart. A significant increase in the volume of gas
bubbles in the gastrointestinal tract and development of a process of steam forma-
tion in organs and tissues were also observed. Special bioelectric investigations
indicated that during apnosis a constant stream of impulses proceeded from the
diaphragm. Similar constant streams of impulses were observed coming from inter-
costal muscles. The amplitude and duration of these impulses changed depending
on the magnitude and the rate of explosive decompression. In cases of severe
and very rapid decompressions, the amplitude reached 300 to 400 mv and lasted for
as long as 3 to 4 sec. It was found that the increase in biopotentials during
explosive decompression can be observed not only from the respiratory muscles,
but also from muscles not having any direct relationship to the act of respiration.
This makes it possible to assume that a generalized process of excitation takes
place in the motor area of the brain which induces a large flux of impulses from
the periphery. Bradycardia was noted in the majority of the experiments during
the first seconds after explosive decompression. Bradycardia was most marked
in animals during the second and third seconds after the pressure drop. Bradycardia,

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like apnosis, is the result of reflex activity stimulated by the effect of negative pressure on the lungs and the gastrointestinal tract. At the same time changes were noted in blood pressure. In all experiments, immediately after decompression, blood pressure in the carotid artery rose by 50 to 70 mm Hg. This increase lasted only 1 or 2 sec, after which blood pressure dropped by as much as 70 to 90 mm of Hg below the initial level. The initial rise in blood pressure is apparently due to mechanical action, but the subsequent drop appears to be based on reflex activity. An analysis of the data obtained indicates that explosive decompression causes, in the microintervals of time which follow it, serious changes in basic physiological functions of the organism. Most of these changes are reflex in nature and depend on the characteristics of the decompression.

ASSOCIATION: none

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