

MINTS. A.L.

107-57-1-2/60

AUTHOR: Academician A.I. Berg, Academician B.A. Vvedenskiy, Academician S.A. Vekshinskiy, Academician V.A. Kotel'nikov, Corresponding Member AS USSR A.L. Mints, Corresponding Member AS USSR A.A. Pistol'kors, Corresponding Member AS USSR V.I. Siforov

TITLE: Search, Dare, Create (Ishchite, derzayte, tvorite)

PERIODICAL: Radio, 1957, Nr 1, p 1 (USSR)

ABSTRACT: This is an open letter, an appeal to radio amateurs to experiment boldly, to create new designs, to promote new ideas in application of radio and electronics in industry, farming, transportation, and communication. The role of radio amateurism as a preparatory school for radio specialists in industry is noted. Achievements of radio and electronics are considered as a basis of development of all sciences, production, and even planning. Radio amateurs are urged to search, to dare, and to create.

AVAILABLE: Library of Congress

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MINTS, A. V. Geroy Sotsialisticheskogo Truda.

From the origins of Soviet radio engineering to the most powerful proton synchrotron in the world. Radio no.11:22-24 N '57.

(MIRA 10:10)

1. Chlen-korrespondent AN SSSR,
(Synchrotron)

Mints, A.L.

AUTHORS: Mints, A.L., Basalayev, M.I., Oganov, N.I. and Rudnev, Ye.V. 109-10-3/19

TITLE: A Continuously-evacuated Power Triode Type **PTM-500**
(Generatorsnyy triod s nepreryvnoy otkachkoy **RGM-500**)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.II, No.10,
pp. 1240 - 1252 (USSR)

ABSTRACT: The authors of this article have been engaged during the last few years on the development of a 500 kW triode, whose construction differs substantially from that of the earlier models. Four such triodes, type **PTM-500**, have been employed successfully at one of the Moscow medium-wave broadcasting stations and two triodes have given a satisfactory performance in high-power, short-wave transmitters. Design of the triode was carried out on the basis of the theory given by Kuzunoza (Ref.4) and Zusmanovskiy (Ref.3). Some of the technical data of the triode are as follows: emission current 350 A, cathode efficiency 8.55 mA/W, cathode life 3 000 hours, heater power 40 kW, length of the active portion of the cathode wires 350 mm, diameter of the cathode wires 1.2 mm, number of cathode wires 36 (12 wires per phase), heater voltage 17.2 V, heater current in each phase 780 A, diameter of the cathode "cylinder" 160 mm, diameter of the grid "cylinder" 170 mm,

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A Continuously-evacuated Power Triode Type PFM-500. 109-10-3/19

internal diameter of the anode 210 mm, diameter of the grid wires 0.6 mm and the spacing between the grid wires 5 mm. The tube has a mutual conductance of 250 mA/V, grid-cathode capacitance of 302 pF, anode-cathode capacitance of 12.5 pF and anode-grid capacitance of 216 pF; amplification factor of the tube at the anode current of 100 A is 23, and at the anode voltage of 10 kV the tube can give an output power of 500 kW. The maximum dissipation power of the tube is 500 kW at the anode and 15 kW at the grid, if the tube is cooled at a rate of 550 litres of water per minute. The body of the tube is in the form of a hollow cylinder consisting of six copper flanges having the form of flat rings which are separated from each other by means of hollow cylindrical quartz insulators. (Overall views of the tube are given in Figs. 2 and 3, while constructional details are indicated in Figs. 4-8) The grid of the tube is in the form of a "tread mill" consisting of 9 molybdenum rods fixed on to molybdenum rings (see Fig.7). The grid wires are in the form of tungsten rings mounted around the cage. The anode is in the form of a hollow copper cylinder having a height of 550 mm. The lower end of the anode is terminated with a copper flange (see Fig 8 and 4), while the upper end contains

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A Continuously-evacuated Power Triode Type PFM-500. 109-10-3/19

a spherical copper terminal. The triode can be easily assembled or dismantled (if necessary). While assembling the triode, the flanges and the insulators are made vacuum-proof by means of a special sealing wax. The evacuating system for the tube (see Fig.9) consists primarily of a high-vacuum oil-diffusion pump and two vacuum gauges. The system produces a vacuum of the order of 2×10^{-6} mmHg. The authors thank N.M. Il'vovskaya, who took part in the development work and A.A. Skvortsov and A.V. Demchuk for their help in the preparation of the triodes. Also, the experimental work done by A.V. Ivanov et al. from the USSR Ministry of Communications (Ministerstvo Svyazi SSSR) is acknowledged. There are 11 figures, 2 tables and 3 Slavic references.

SUBMITTED: May 13, 1957.

AVAILABLE: Library of Congress.
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MINTS, A-L.
AUTHOR: None given

109-11-1/8

TITLE: Years 1917 - 1957 (1917 - 1957 gg)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.II, No.11,
pp. 1319-1343 + 2 plates (USSR)

ABSTRACT: The forty years of the Soviet Government in Russia have not only changed the social structure of the country but have also resulted in a great industrial and technological progress. Thus, by 1957, the industrial output increased by thirty times as compared with that of the pre-Revolutionary Russia, the number of universities increased to 800, the number of scientific establishments increased up to 3 000 and the number of scientific workers up to 240 000. Also, the radio and electronic science and industry has progressed greatly since the days of A.S.Popov, who conducted his first radio experiments in 1895. From the very beginning, the Soviet Government has paid attention to the future possibilities to be offered by radio communications and in 1918 a radio laboratory was established at Nizhegorod under M.A. Bonch-Bruyevich, whose main task was to develop powerful transmitting tubes. The laboratory fulfilled its task very satisfactorily and, in 1922, the Central Moscow Radio Station was fitted with a 12 kW transmitter operating at 3.2 km wavelength. The laboratory developed also a shortwave transmitter

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Years 1917 - 1957.

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which, in 1925, gave a power of 15 kW at a wavelength of 100 m. A radio laboratory (primarily for the armed forces) was also established at Kazan' under the leadership of A.T. Uglov and A.V. Dikarev. A.L. Mints developed and constructed a number of powerful broadcasting stations: a 100 kW longwave transmitter in 1929, a 500 kW transmitter in 1933 and a medium-wave 1 200 kW transmitter in 1943. Apart from the engineering achievements, a considerable number of engineers and scientists have been engaged in experimental and theoretical research. In the field of radio-broadcasting reception, a number of original, theoretical works and practical designs have been carried out by Ye.G. Momot, V.A. Kotel'nikov, N.N. Krilov, V.I. Siforov and L.B. Slepyan. During 1927-28, the first battery receiver was produced in quantity, while the first mains-fed receiver was put in production in 1934. Since then, a number of new designs have been put into production, so that in 1956, the total output of radio-receivers was over three million, while in 1960 it is planned to produce ten million. Soviet scientists have also investigated the field of vacuum technology cathode electronics and the theory of thermionic devices.

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Years 1917 - 1957

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The works of I.Ye.Tamm and S.I. Shubin, who proposed the theory of external photo effect, are of particular importance. The development and production of electronic tubes (both transmitting and receiving) were originated by M.A. Bonch-Bruyevich in 1916. In 1919, a tube fitted with an aluminium anode was already in production, while the first electron tube factory was established in Petrograd in 1922. M.A. Bonch-Bruyevich and his collaborators developed power rectifiers and water-cooled power tubes in 1919, while oscillator and transmitter tubes of up to 500 kW were developed during the years 1935 - 1956. Soviet scientists have also been successful in the development of magnetrons. The first multi-resonator magnetron for frequencies up to 12 kMc/s was developed by V.P. Ilyasov in 1939. Klystrons were developed in 1940, while travelling-wave tubes and backward-wave tubes were developed a few years later. **Today,** the annual production of electron tubes in the Soviet Union is one hundred million, while that of semi-conductor devices is twenty million.

The first experimental television transmissions were commenced in the Soviet Union in 1931; these were based on the mechanical Nipkow-type scanning. The first Soviet iconoscope was developed by A.V. Moskvina in 1933 and its first production samples

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appeared in 1937. The electronic television system was first tried in 1938 both in Moscow and Leningrad, but the real development of the Soviet television dates from the end of World War II. Since then, 75 television transmission centres have been established and a mass production of television receivers has been commenced. Thus, in 1956, the Soviet industry produced half-a-million television receivers. Soviet scientists have been working also in the field of antennae and antenna feeders. In 1927, I.G. Klyatskin proposed the so-called induced-current method for the investigation of the radiation-resistance of a single conductor; the method was generalised by A.A. Pistol'kors. In 1935, M.S. Neyman introduced the reciprocity principle to the solution of the antenna problems and later investigated the radiation properties of slot antennae. L.A. Vaynshteyn calculated the radiation of an open-ended waveguide, while A.S. Pistol'kors investigated the properties of coupled transmission lines. The radio propagation studies were first commenced by M.V. Shuleykin in 1923, who modified and corrected the Sommerfeld equations. A school, led by L.I. Mandl'shtam and N.D. Papaleksi, determined the velocity of propagation and the structure of radio waves in the vicinity of the Earth's surface (years 1933 to 1941).

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Years 1917 - 1957

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Soviet scientists have also made original contributions to the theory of ionospheric propagation, shortwave propagation, waveguide tropospheric propagation, radio wave diffraction and ultra-shortwave propagation. The problem of combating the noise in radio communications has been studied intensively and, in 1933, V.A. Kotel'nikov published a work entitled "The Transmission Capacity of Ether and a Conductor in Electrical Communications". The same author has also made valuable contributions to the statistical communication theory and the information theory. V.I. Siforov has been investigating similar phenomena since 1929 and has published a number of works dealing with: cross-modulation, theory of amplitude phase and time discrimination, theory of fading, coding, pulse transmission and theory of noisy active quadrupoles. The contribution of the Soviet scientists to the theory of non-linear oscillations is well known. In particular, the contributions of A.A. Andronov and A.A. Vitt, also of S.Ye.Khaykin and N.M. Krylov have been regarded as standards and translated into various languages. Radio-engineering and electronics have entered and, in fact, created various scientific fields such as radio navigation, radar, radio-spectroscopy, geodesy, physics and meteorology. The first

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Soviet range-finders were developed in 1930 and, since then, such complex equipment as radio-telescopes, molecular standard clocks and finally a ten thousand million eV synchro-phasotron have been developed.

The first radio-engineering courses were established in the Soviet Union in 1920, while, in 1930, special radio-engineering faculties were created at several Soviet universities. In 1955, the training system was reorganised and the following specialisations were established: electro-vacuum technology (radio and industrial electronics), radio-engineering (communications, radar, navigation and television), radio-physics (electronics, theory of oscillations, electron optics and the physics of ultra-high-frequency), and electrical instrumentation technology (automation, telemechanics, measurements techniques, navigational equipment). Soviet scientists and pedagogues have published a number of textbooks suitable for engineering students and for research workers. Since 1924, a technical journal "Radio" has been published without interruption and by now its circulation has reached 200 000 copies. At this stage, three scientific-technical journals are being published regularly: "Radiotekhnika" "Elektrosvyaz" and "Radiotekhnika i Elektronika".

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Years 1917 - 1957

109-11-1/8

There are 10 figures and 111 Slavic references.

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24-5-11/25

AUTHOR: Mints, A. L. (Moscow)

TITLE: Scientific and technological principles of construction of proton accelerators at the United Institute of Nuclear Studies. (Nauchno-Tekhnicheskiye osnovy sooruzheniya protonnykh uskoriteley ob"edinennogo Instituta Yadernykh Issledovaniy).

PERIODICAL: "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk" (Bulletin of the Ac. Sc., Technical Sciences Section), 1957, No.5, pp.92-101 (U.S.S.R.)

ABSTRACT: This is a general review paper. It begins with an account of the fundamentals of the cyclotron and the linear accelerator and goes on to give a general description of the phasotron and the synchrophasotron at the U.I.N.S. All the factual material given has been published before and is drawn from the 24 references given at the end of the paper. a) The phasotron or synchrocyclotron (9). This 6 m machine gives 680 MeV protons and utilises a magnetic field of 16 600 Oersted. The amplitude of the frequency modulated accelerating voltage is 15 kV (frequency changes between 26.5 and 13.6 megacycles/s). The investigations being carried out using this machine include studies of nucleon and π meson interactions with nuclei. 13 beams of high energy particles are available. This phasotron is stated to give the highest

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Scientific and technological principles of construction of
proton accelerators at the United Institute of Nuclear
Studies. (Cont.) 24-5-11/25

energy protons, the Berkley synchrocyclotron giving only
450 MeV protons.

b) Synchrophasotron or synchrotron. This machine gives
10 Bev protons. This is higher by a factor of 1.6 than the
energy given by the corresponding U.S. machine (11). Here
the magnetic field varies between 150 Oersted and 13000 Oe.
and the protons are given a preliminary linear acceleration
to 8 MeV before being injected. Experiments planned for
this machine include a search for antihyperons, studies on
heavy mesons and antiprotons and other antiparticles. The
energy of 10 Bev was reached in April, 1957. The machine
is now being set up for full use.
A 50-60 Bev machine is now being planned (24).

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SUBMITTED: February 8, 1957.

ASSOCIATION: United Institute of Nuclear Studies. (Institute
Yadernykh Issledovaniy).

AVAILABLE:

108-7-11/13

MINTS, A. L.

AUTHOR:
TITLE:

Not given
Allunion Scientific Session, dedicated to the Day of Radio. "
(Vsesoyuznaya nauchnaya sessiya, posvyashchennaya "Dayu" radio,
Russian)

PERIODICAL:

Radiotekhnika, 1957, Vol 12, Nr 7, pp 75-79 (U.S.S.R.)

ABSTRACT:

About 2000 collaborators as well as representatives from foreign countries, among them also those of the American Society of Radio Engineers, participated in the session taking place from 20. to 25. May 1957.

The following participants spoke at the main session:
A.D.FORTUSHENKO on "Ways of technical development of electro telecommunication".

YE.A.GAYLISH on "Small parts for mass application".

G.D.GLEBOV on "Semiconductor devices".

S.I.KATAYEV on "Electrical Telescopy".

V.K.TKACH on "Use of radio methods in the research of pathological phenomena in organisms.

A short report was delivered by

A.L.MINTS on "Putting into operation of the radiotechnical- and electron part of the synchrophasotron for 10 billion electron-volt.

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Allunion Scientific Session, dedicated to the Day of Radio.

Twelve sections were working during the session, and a total of 175 lectures was held. The lectures are dealt with in short which were held under the supervision of V.A.KOTEL'NIKOV in the section for information theory, under the supervision of G.S.TSYKIN in the section for semiconductor devices, under the supervision of A.N.KAZANTSEV in the section of radiowave propagation, and under the supervision of P.P.MESYATSEV in the section for radiotechnology.

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 2/2

MINTS, A.L.

108-10-1/11

AUTHOR: None given

TITLE: 40 Years of Soviet Radio-Engineering (40 let sovetskoy radio-
tekhniki)

PERIODICAL: Radiotekhnika, 1957, Vol. 12, Nr 10, pp. 2 - 4 (USSR)

ABSTRACT: A short survey of the development of radio-engineering in the USSR is given. In 1918 there was a decree on the centralization of radio engineering. In the end of 1918: the first Soviet scientific radio-center Nizhni-Novgorod was found. In 1922 a 12 kW radio station was built in Moscow, in 1926 one of 40 kW and in 1929 one of 100 kW. On May 1, 1933 the 500 kW station of the Comintern started operation. The individual inventions and modernizations of various Soviet scientists are mentioned. M.V. Shuleykin proved the existence of lateral frequency bands in amplitude modulation. The problems of the theory of generation and modulation were worked out by M.A. Bonch-Bruyevich, A.L. Mints, I.G. Klyatskin a.o. The original system of "power addition in ether" of I.Kh. Nevyazhkiy in 1938 offered the possibility to build a powerful ultra-short-wave transmitter station. In the course of the last years a number of generator-tubes for 250 kW

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108-10-1/11

40 Years of Soviet Radio-Engineering

with ring-shaped power leakage were developed. The Soviet scientists are pioneers of the theory on the influence of disturbance on radio installations. The method of frequency manipulation was already proposed by A.L. Mints a.o. in 1927. The works of A.N. Shchukin led to the creation of the system of two-channel-frequency telegraphy without power loss and was first introduced by I.F. Agaponov in the USSR in 1947. In 1925 the system of color-T.V. was worked out by N.A. Adamiyan. Powerful multi-chamber magnetrons were invented. Shuleykin deduced the formula for the calculation of the propagation of waves over a plane surface of the earth. He also invented the basic formulae for the passage of radio waves through the ionized stratum. In 1928 B.A. Vvedenskiy gave the quadratic formula for the propagation of ultra-short waves within the range of visibility and in 1933-37 also the first diffraction formulae for ultra-short waves. Finally the artificial satellite was equipped with transmitters which transmitted regular signals.

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MINTS, A.L.

The greatest installation for nuclear research.
27 no.6:25-32 Je '57.

Vest. AN SSSR
(MLRA 10:7)

1. Chien-korrespondent Akademii nauk SSSR.
(Atomic energy research)

MINTS, A L. 57-6-28/36
AUTHOR: MINTS, A.L., KAMINSKIY, N.K.
TITLE: Cascade Phasotron. (Kaskadnyy fazotron, Russian)
PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 6, pp 1337 - 1346
(U.S.S.R.)

ABSTRACT: First, the principle of a system with a multiple-electrode-acceleration system of charged particles is described. The characteristic feature of this system is that the highest operation frequencies correspond to the geometrically smallest electrode and that the acceleration system can be constructed without a frequency variator. A mode of operation with multiple control is obtained by means of the excitation of the band amplifiers of a series of single independent generators. The operation of such a system is shown which takes place in two cycles. Five groups of particles, which are in different acceleration stages, are accelerated at the same time in the accelerator in consequence of its being subdivided into five ring-zones. Thus the intensity of the bundle of accelerated particles can be essentially increased. The following problems were investigated: 1) The influence of edge effect on the configuration of the lines of force of the electric field at the front planes of the electrodes. 2) The influence of the motion of the "sagging" particles of the electric

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57-6-28/36

Cascade Phasotron.

field in the inner space of the electrodes in the case of open inner- and outer surfaces of the electrodes. 3) The influence of the radial and vertical components of the electric field in the space between the neighbouring semicircular electrodes on the stability of the bundle. 4) The influence of the transition of the particles from the zone of effect of the previous electrode to that of the following electrode on the intensity of the bundle. 5) The influence of the phaseshift under the high-frequency voltages of the neighbouring electrodes in the assumed area of the transition of particles on the acceleration process. The experimental checking of the new system showed the possibility to realize this system. It was possible to find an answer to some of these questions and to find out some interesting phenomena of the cascade accelerator. (With 10 illustrations, 2 tables, and 2 Slavic references)

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED: 13.12.1956.
AVAILABLE: Library of Congress

Card 2/2

MINTS, A.L., akademik

Collective experience and inventor's work (interviewing the
academician A.L. Mints). Izobr. i rats. no.9:11-12 S '58.
(Inventions) (MIRA 11:10)

SOV/107-59-3-9/52

21 (1)

AUTHOR: Mints, A.L., Academician*

TITLE: Into the Interior of the Atom, Into Cosmic Space
(V glubiny atoma, v prostory kosmosa)

PERIODICAL: Radio, 1959, Nr 3, pp 11 - 12 (USSR)

ABSTRACT: On the 100th anniversary of the birthday of A.S. Popov, the author reviews briefly the great achievements of Soviet scientists and engineers in nuclear research and radioastronomy obtained with the help of radio electronics. In this connection, he mentions the synchrophasotron of 10 billion electronvolt and the phasotron of 680 million electronvolt at the Ob'-yedinennyy institut yadernykh issledovaniy (United Institute for Nuclear Research), linear accelerators. In the concluding part of the article the author points to the great advance made by radio electronics in obtaining data from satellites and space rockets. Modern radio astronomy together with classical astronomy obtained highly valuable scientific material required

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21 (1)

Into the Interior of the Atom, Into Cosmic Space

for the development of modern cosmogonic theories.
There is one photograph of A.L. Mints.

* Hero of Socialist Labor, Laureate of the Gold Medal imeni A.S. Popov.

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SOV/107-59-7-4/42

AUTHOR: Mints, A.L., Academician, Laureate of the Lenin Award, Hero of Socialist Labor

TITLE: Strengthening the Ties Between Scientists and Radio Amateurs

PERIODICAL: Radio, 1959, Nr 7, p 5 (USSR)

ABSTRACT: The author reviews the role of the Soviet radio amateurs in the development of radio engineering. The activities of the radio amateurs were important for the development of VHF long-distance communication. Radio amateurs participated actively in observations of the Soviet earth satellites and space rockets. Finally, the author states that scientific research institutes must recruit their staffs from the ranks of the radio amateur designers. There is 1 photograph.

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MINTS, A.L., akademik, glavnyy red.; BURDUN, G.D., red.; VOL'PERT, A.R.,
red.; GORON, I.Ye., red.; GUTENMAKHER, L.I., prof., red.;
GRODNEV, I.I., red.; DEVIATKOV, N.D., red.; ZHEKULIN, L.A.,
red.; KATAYEV, S.I., red.; MEYMAN, M.S., red.; SIPOROV, V.I.,
red.; CHISTYAKOV, N.I., red.; GESSEN, L.V., red.izd-va;
MARKOVICH, S.G., tekhn.red.

[One hundredth anniversary of the birth of A.S.Popov; jubilee
session] 100 let so dnia rozhdeniia A.S.Popova; iubileinaiia
sessiia. Moskva, Izd-vo Akad.nauk SSSR, 1960. 312 p.

(MIRA 14:1)

1. Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi.
(Information theory)

SIFOROV, V.; BERG, A.I., akademik; MINTS, A.L., akademik; KUGUSHEV, A.M.,
doktor tekhn.nauk, prof.

Supporting the appeal of chemists. NTO 2 no.5:38 My :60.
(MIRA 14:5)

1. Chlen-korrespondent Akademii nauk SSSR, predsedatel' Tsentral'nogo
pravleniya nauchno-tekhnicheskogo obshchestva radiotekhniki i elektro-
svyazi im. A.S.Popova (for Siforov). 2. Chleny Tsentral'nogo pravleniya
nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi im.
A.S.Popova (for Berg, Mints). 3. Predsedatel' Moskovskogo oblastnogo
pravleniya nauchno-tekhnicheskogo obshchestva radiotekhniki i
elektrosvyazi im. A.S.Popova (for Kugushev).
(Technical societies) (Radio research)

PO SPELOV, P.N., akademik; MINTS, A.L., akademik; ALEKSANDROV, A.P.,
akademik; FEDOSEYEV, P.N., akademik; LAVRENT'YEV, M.A., akademik;
BERG, A.I., akademik; PESTROVSKIY, I.G., akademik; SIDORSHKO, A.V.;
SKRYABIN, G.K., kand.biolog.nauk; KONSTANTINOV, B.P., akademik;
GOLUNSKIY, S.A.; SHUBNIKOV, A.V., akademik; BLOKHINTSEV, D.I.;
DORODNITSYN, A.A., akademik; KEDROV, B.M.; SISAKYAN, N.M., akademik

Discussing the reports. Vest. AN SSSR 31 no.12:49-66 D '61.
(MIRA 14:12)

1. Chleny-korrespondenty AN SSSR (for Sidorenko, Golunskiy,
~~Blokhintsev, Kedrov~~). (Research)

BURSHEYN, E.L.; VASIL'YEV, A.A.; MINTS, A.L., akademik; PETUKHOV, V.A.;
RUBCHINSKIY, S.M.

High-energy cyclic accelerators with a self-tuning magnetic
field. Dokl. AN SSSR 141 no.3:590-592 N '61. (MIRA 14:11)
(Particle accelerators)
(Magnetic fields)

VLADIMIRSKIY, V.V.; KOMAR, Ye.O.; MINTS, A.L.; GOL'DIN, L.L.;
MOROSOV, N.A.; KUCHINSKIY, S.M.; TARASOV, Ye.K.; VASIL'YEV, A.A.;
VODOP'YANOV, F.A.; KUSHNAREV, D.G.; KUKYSHEV, V.S.; MALYSHEV, I.F.;
STOLOV, A.M.; STREL'TSOY, N.S.; YAKOVLEV, B.M.

The 7 bev. proton synchrotron. Prib. i tekh. eksp. 7 no.4:5-9
Jl-Ag '62. (MIRA 16:4)

1. Institut teoreticheskoy i eksperimental'noy fiziki Gosu-
darstvennogo komiteta po ispol'sovaniyu atomnoy energii SSSR,
Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury
Gosudarstvennogo komiteta po ispol'sovaniyu atomnoy energii
SSSR i Radiotekhnicheskij institut Gosudarstvennogo komiteta
po ispol'sovaniyu atomnoy energii SSSR.
(Synchrotron)

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S/089/62/012/002/002/013

B102/B138

24.6730
AUTHORS: Burshteyn, E. L., Vasil'yev, A. A., Mints, A. L., Petukhov,
V. A., Rubchinskiy, S. M.

TITLE: Application of the principle of magnetic field self-correction
in superhigh-energy cyclic accelerators

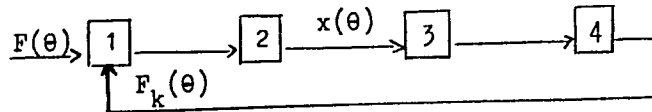
PERIODICAL: Atomnaya energiya, v. 12, no. 2, 1962, 111 - 115

TEXT: The authors discuss the possibility of automatically controlling local magnetic field characteristics by using accelerated particle beam data. By this means the chamber cross section could be reduced, the beam energy increased and the accelerator structure simplified. As betatron and synchrotron oscillations are closely related to the chamber parameters, the self-correction of these oscillations is very important. Two main problems arise with betatron oscillations: Control of the equilibrium orbit, and stabilization of the number of oscillations. They are considered in the following. (A). A "smoothened" motion under the action of a constant focusing field is described in linear approximation by the equation $x'' + Q^2x = F_t(\theta)$ without automatic control; x denotes the Card (1/4)

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 B102/B138

Application of the principle...

deviation from the chamber axis, Q the number of betatron oscillations per revolution, $F_t(\theta)$ is the perturbation, a periodic function of θ (period 2π) which is slightly time-dependent. A correction function $F_k(\theta) = -L_t(x'' + Q^2x)$ is introduced, so that with automatic control the equation reads $x'' + Q^2x = F_t(\theta) - L_t(x'' + Q^2x)$ or $(1 + L_t)(x'' + Q^2x) = F_t(\theta)$. A possible block diagram (Fig. 1) is proposed: The initial perturbation $F_t(\theta)$ and the correction signal $F_k(\theta)$ act on the controlled object (1), measuring unit (2) measures the $x(\theta)$ deviations, computing unit (3) determines $x'' + Q^2x$ and (4) is the amplifying transducer with the characteristic operator L_t and a time delay T_1 of ~ 1 msec: $L_t = k/(1 + pT_1)$.



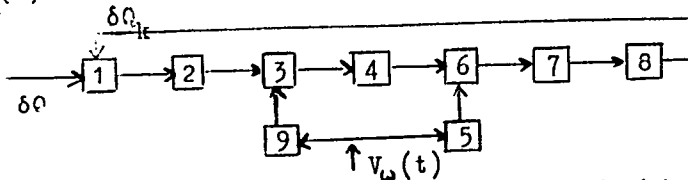
Card 2/4

33231

S/089/62/012/002/002/013
B102/B138

Application of the principle...

(B) The block diagram proposed for the stabilization of Q is the following:



The particle beam, i. e., the controlled object, (1), is excited by a pulsed field betatron oscillations $x(\theta)$ with frequency $Q = Q_0 \pm 0.25 + \Delta Q$, Q_0 is an integral number and $\Delta Q = \delta Q + \delta Q_k$, the perturbation plus the correcting signal. (2) is a signal electrode mixer, (3) is supplied with voltage from (9), (4) is an l-f filter, (6) - mixer with filter, acting as voltage divider. (7) is a frequency detector and (8) the executive component. The parameters of self-corrected proton accelerators with 300 and 1000 Bev were calculated for small and large radii of curvature. There are 2 figures, 1 table, and 6 references: 2 Soviet and 4 non-Soviet. The four references to English-language publications read as follows: E. Courant

Card 3/4

Application of the principle...

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S/089/62/012/002/002/013
B102/B138

et al. Phys. Rev. 88, 1190, 1952; K. Johnsen, C. Schmelzer. Symposium CERN, v. 1, 1956, p. 395; A. Schoch, Theory of linear and non-linear perturbations of betatron oscillations in alternating gradient synchrotrons. CERN, Geneva, 1958; M. Barton, Rev. Sci. Instrum. 31, 1290 (1960). ✓

SUBMITTED: December 6, 1961

Card 4/4

38440

S/089/62/012/006/003/019
B102/B104

24 6730

AUTHORS:

Vladimirskiy, V. V., Komar, Ye. G., Mints, A. L.,
Gol'din, L. L., Monoszon, N. A., Rubchinskiy, S. M.,
Tarasov, Ye. K., Vasil'yev, A. A., Vodop'yanov, F. A.,
Koshkarev, D. G., Kuryshv, V. S., Malyshev, I. F., Stolov,
A. M., Strel'tsov, N. S., Yakovlev, B. M.

TITLE:

The design of the 7-Bev proton synchrotron

PERIODICAL:

Atomnaya energiya, v. 12, no. 6, 1962, 472-474

TEXT: The history of the first Soviet cyclic accelerator with rigid focusing is briefly described, and the most important data on its planning and operation are presented. Planning was started in 1953. The parameters of this proton accelerator, the energy of which exceeds the antinucleon production threshold, were so chosen that the dependence of the orbital circumference on the particle momenta was completely compensated. This was achieved by employing 14 quadrupole magnets with orbits of negative curvature. Technical data: output current, 10^{10} protons/pulse; maximum field strength, 8475 oe; length of equilibrium orbit, 251.2 m; radius of

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The design of the 7-Bev ...

S/089/62/012/006/003/019
B102/B104

curvature of the trajectories in the bending magnets (C), 31 m, and in the compensation magnets (X), ∞ ; number of magnetic sectors, 98C + 14X; gap length between the C-magnets, 304.0 mm; gap length around the X-magnets, 417.5 mm; index of the decrease in field strength, 460; internal height and width of the chamber, 80 and 110 mm, respectively; number of betatron oscillations per revolution, 12.75, and per periodic element, 0.91; number of magnets per periodic element, 8; total critical energy, 19.2 Bev; maximum deviation of the periodic orbit with 100% deviation of the momentum from the equilibrium momentum, 1.47 m; rate of energy increase per revolution, 4.3 kev; duration of one cycle, 1.55 sec; 10-12 cycles/min; particle revolution frequency at the beginning of the cycle, 0.11 Mc/sec, and at the end, 1.19 Mc/sec; frequency of synchrocyclotron oscillations, 3600 and 130 cps; weight of the electromagnet steel, 2500 tons; maximum power of the supply system, 25 Mw; Van de Graaff injector (particle energy, 3.8 Mev; field strength 90 oe); admissible deviations from field strength and field gradients, $\sim 10^{-3}$; deviations at the chamber edge due to nonlinearities, $\sim 10^{-2}$; admissible frequency deviation of the accelerating field at the beginning of the cycle, 10^{-3} , and at the end, $5 \cdot 10^{-5}$. There are 1 figure and 1 table. X

SUBMITTED: March 12, 1962
Card 2/2

MINTS, Aleksandr L'vovich, akademik; GESSEN, L.V., red. izd-va; GOLUB',
S.L., tekhn. red.

[Radio electronics]Radioelektronika; kratkaia istoria i do-
stizhenia. Moskva, Izd-vo Akad. nauk SSSR, 1963. 84 p.

(MIRA 16:2)

(Radio) (Electronics)

L 43084-65 EWT(m)/EPA(w)-2/EWA(m)-2 Pab-10/Pt-7 IJP(c) GS
ACCESSION NR: AT5007914 S/0000/64/063/005/0067/0074

AUTHOR: Burshteyn, E. L.; Vasil'yev, A. A.; Mints, A. L.

45
43
B+1

TITLE: A cybernetic 1000-Gev accelerator

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 67-74

TOPIC TAGS: high energy accelerator, particle beam, control system

ABSTRACT: The limiting energy of resonance accelerators, which has been enhanced as high as possible by application of the two principles of autophasing (developed by V. I. Veksler and E. McMillan) and strong focusing (developed by E. Courant and others), can be raised further only by still stricter tolerances on the various design elements of the accelerator. In super-high energy accelerators the acceleration betatron oscillations are produced by

the position of the accelerated beam. The discussion is in

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ACCESSION NR: AT5007914

parameters of three versions of a 1000-GeV accelerator. Concrete data are presented on a projected automatically-controlled accelerator of maximum energy of 200 GeV, with injection energy of 200 MeV and total chamber aperture of 5.4×3.6 cm. At the

111, 1962). It is noted that not all the harmonics in the field exert identical action on the orbit displacement; the authors correct for 20 harmonics, ten below and ten above Q (the number of oscillations per revolution), properly weighted. The accuracy necessary for pick-up electrode measurements is determined by the accuracy required to fix the particle orbit and is dependent upon the method of processing the input data from measuring devices. The important problem is recognized to be the stability of the automatic regulation system, because of time lag between sensing of wrong values and their correction. The general equation describing the betatron oscillations and its control is

$$(1+L)[\ddot{\theta} + n(\theta)] = F(\theta) \quad (1)$$

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ACCESSION NR: AT5007914

where $F(\theta)$ is the external disturbances, L is an operator characterizing feedback loop and acting upon the output $x'' + n(\theta)x$, and $n(\theta)$ is the focusing force. If $F(\theta)$ is represented by the Fourier series

$$F(\theta) = \sum a_n \cos(n\theta + \delta_n) \tag{2}$$

equation (1) is resolved into a system of equations for the amplitudes of the various harmonics x_n . Orig. has 2 figures, 2 tables, 4 formulas

ASSOCIATION: Radiotekhnicheskiy institut AN SSSR (Radio Engineering Institute, Academy of Sciences SSSR)

SUBMITTED: 26May64

ENCL: 00

SUB CODE: NP

NO REF SOV: 011

OTHER: 004

Card 3/3

6157-65 EWT(d)/EWT(m)/EWP(v)/EPA(w)-2/EWP(k)/EWP(h)/EWA(m)-2/EWP(l) Pt-7/Pf-4/

5-10 IJP(c) GS

ACCESSION NR: AT5007920

S/0000/64/000/000/0217/0221

AUTHOR: Batskikh, G. I.; Vasil'yev, A. A.; Dzergach, A. I.; Mints, A. L.;
Sosenskiy, N. L.

76
58
B+1

TITLE: Design for an automatically controlled 1-GeV accelerator 19

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy.
Moscow, Atomizdat, 1964, 217-221

TOPIC TAGS: high energy accelerator, injector, automatic control system, cybernetic system 14

ABSTRACT: ~~The present report describes a design of an automatically controlled~~
("cybernetic") 1-GeV accelerator representing a model of a 1000-GeV accelerator
(E. L. Burshteyn et al., *DAN SSSR*, 141, 590 [1961]; present collection, p. 67). It
proposes methods for the solution of two problems: (1) the experimental investiga-
tion of the system for automatically controlling the parameters determining the
betatron motion of the accelerated particles; and (2) the construction of an accel-
erator that has (a) comparatively free tolerances on the accuracy governing the

~~Magnet weight for large beam intensity (about $5 \cdot 10^{10}$ protons per impulse). In t-~~

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L 46157-65

ACCESSION NR: AT5007920

determination of the parameters governing the automatically controlled accelerator a necessary condition was that the free betatron and synchrotron oscillations should be sufficiently small. Decreasing the shift of the equilibrium orbit from the chamber axis by means of a system for automatically controlling the first revolution and the equilibrium orbit permits a considerable decrease in the aperture of the vacuum chamber. The authors discuss in some detail such control and the vacuum system. For this reason the stiffness of focusing should be increased as much as possible; i.e., the number Q of betatron oscillations per revolution should be increased, but such increase is limited by design conditions such as actually realizable magnetic field gradients and minimum acceptable distances between the magnets. After calculation of several variants for focusing structures, the authors decided on a system of parameters characterized by the values $Q = 6.25$, mean radius $r_m = 8.5$ meters, and radius of curvature of the particle trajectory in the magnets $r_0 = 0.7$, $r_m = 5.95$ meters. The diameter of the beam in the accelerator chamber for an injection energy of 1 Mev from a Van de Graaf accelerator (practical emittance 30 mrad·mm) is about 8 mm. The maximum amplitude of the synchrotron oscillations which corresponds to an energy increment of 2 kev is 2 mm. The first revolution is treated for a constant magnetic field at injection equal to $B_i = 250$ gauss. For a

Created for a constant magnetic field at injection equal to $B_0 = 250$ gauss. For a mean-square shift of the magnets of 0.25 mm and standard error in the field of 1%, the tolerated mean-square deflection of the beam equal to 3 mm results at 1/8 of a Card 2/4

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ACCESSION NR: AT5007920

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revolution. Therefore passage of the beam through the entire vacuum chamber necessitates an automatic system for controlling the first revolution, which the authors discuss in some detail. The automatic control of the frequency of betatron oscillations of the center of gravity of the bunch of particles is also discussed together with the generation of the accelerating potential, the injector and input system, the electromagnet and its power supply, and the vacuum system. "Participants in the planning of the accelerator were V. A. Karpov, Yu. A. Vasina, V. V. Vladimirov, N. I. Kuz'mina, G. N. Tsameryan, N. I. Andryushchenko-Lutsenko, N. Ya. Basalayeva, V. V. Kurasov, and V. L. Davydov. The author expresses his thanks also to his co-workers at the Radio Engineering Institute, Academy of Sciences, USSR: E. L. Burshteyn, S. M. Rubchinskiy, F. A. Vodop'yanov, V. F. Semenov, A. A. Kuz'min, Yu. M. Lebedev-Krasin, A. A. Zhdanko, and M. I. Basalayev, namely for their participation in the discussion of the problems touched upon in this report." Orig. art. has 5 figures.

ASSOCIATION: Radiotekhnicheskiy institut AN SSSR (Radio Engineering Institute, AN SSSR)

SUBMITTED: 26May64

ENCL: 00

SUB CODE: NP

Card 3/4

L 46157-65

ACCESSION NR: AT5007920

NO REF SOV: 008

OTHER: 001

Card 4/4

KOTOV, V.I., kand.fiz.-matem.nauk (Dubna); VEKSLER, V.I., akademik; VLADIMIRSKIY, V.V.; SETVAK, M., doktor (Chekhoslovakiya); MINTS, A.L., akademik; DZHELEPOV, V.P., prof.; VAL'TER, A.K., prof.; KOLOMENSKIY, A.A., prof.

Accelerators of the future; articles and speeches of the participants in the international conference in Dubno. Priroda 53 no.1:44-56 '64. (MIRA 17:2)

1. Chlen-korrespondent AN SSSR (for Vladimirskiy).

L 43088-65 EWT(m)/ EPA(w)-2/EWA(m)-2 Pab-10/Pt-7 IJP(c) JT/GS

ACCESSION NR: AT5007918

S/0000/64/000/000/0197/0201

AUTHOR: Vladimirciy, V. V.; Gol'din, L. L.; Koshkarov, D. G.; Tarasov, Ye. K.;
Yakovlev, B. M.; Gustov, G. K.; Komar, Ye. G.; Kulikov, V. V.; Malyshev, I. F.;
Monoszon, N. A.; Popkovich, A. V.; Stolov, A. M.; Strel'tsov, M. S.; Titov, V. A.;
Vodop'yanov, F. A.; Kuz'min, A. A.; Kuz'min, V. F.; Mints, A. L.; Rubchinskiy,
S. M.; Uvarov, V. A.; Zhadanov, V. H.; Filaretov, S. G.; Shirvayev, F. Z.

TITLE: 60-70 Gev Proton Synchrotron

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy.
Moscow, Atomizdat, 1964, 197-201

TOPIC TAGS: high energy accelerator, synchrotron

ABSTRACT: A 60-70 Gev proton synchrotron with strong focusing is being constructed not far from Serpukhov, as has been reported earlier (e.g. "Research Institute for Electro-Physical Equipment, Leningrad," in Proceedings of the International Conference on High Energy Accelerators and Instrumentation (CERN, 1959), p. 373). The present report describes parameter changes and improvements in precision structural characteristics of the accelerator, and the present state of construction in mid-1963. The parameters of the magnet are presented in a table. A small change in the original plans permitted an increase in the length of a part of the free
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ACCESSION NR: AT5007918

sections, some of which are utilized for input and exit of beams. The super-period design is described. The lengthened sections were obtained as a consequence of shortening the focusing and defocusing blocks by 112 cm. The focusing properties of the magnetic channel were diminished consequently, but very little; and the limiting energy was lowered by 2-3 Gev. The construction of the magnet is described. Each of the magnetic blocks is divided lengthwise into 5 sub-blocks which are enveloped by the common winding. These sub-blocks consist of laminar two-millimeter silicon steel. These steel sheets were stamped out without subsequent mechanical working, and were subjected to sorting and intermixing in order to smooth out their magnetic characteristics. The sub-blocks are constricted by lateral welded plates without adhesion. Provision was made for windings on the poles in order to correct for pole nonlinearity and for variations in the drop reading. These windings make it possible to introduce artificial quadratic (square) nonlinearity that changes the dependence of the frequency of transverse oscillations during a pulse. In order to correct for straying of the residual field, provision has been made for windings on the yoke in series with the main winding. The sub-blocks must undergo calibration on a magnet stand in order to make correcting systems more precise and to determine the most convenient disposition of the sub-blocks along the ring. The winding of the electromagnet is made of aluminum busbars with hollow cores for cooling water. The length of the busbar is so selected that there would be no

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ACCESSION NR: AT5007918

2

welded joints inside the coils. The winding consists of 4 sections, two of which are disposed on the upper pole and two on the lower. The most important characteristics of the electromagnet and power supply system are described in a table. Also described are the vacuum chamber and accelerating field (obtained by 53 paired resonators with ferrite rings, which operate at the 30-th harmonic of revolution and give accelerating potential of 350 kilovolts). The ring tunnel and the general arrangement of the accelerator are shown in figures and described. The building for the injector and portions of the ring tunnel from the injector to the experimental room have been completed in the main and are ready for installation of equipment. This room, in the form of a single-aisle building without internal supports, permits one to work on beams brought into the inner and outer sides. A 90-meter arch covers this room, whose overall length is 150 meters. Provisions have been made for a second experimental room at the southwest part of the ring. Orig. has 4 figures, 2 tables.

ASSOCIATION: Institute teoreticheskoy i eksperimental'noy fiziki GKAE SSSR (Institute of Theoretical and Experimental Physics, GKAE SSSR), (2) Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury imeni D. V. Yefremova GKAE SSSR (Scientific Research Institute of Electrophysical Apparatus, GKAE SSSR).

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ACCESSION NR: AT5007918

(3) Radiotekhnicheskiy Institute AN SSSR (Radio Engineering Institute, Academy of Sciences SSSR). (4) Gosudarstvennyy proyektnyy institut GKAE SSSR (State Planning Institute, GKAE SSSR).

SUBMITTED: 26May84

ENCL: 00

SUB CODE: EE, NP

NO REF SOV: 002

OTHER: 001

am
Card 4/4

ACC NR: AP6036721

SOURCE CODE: UR/0030/66/000/011/0009/0013

AUTHOR: Mints, A. L. (Academician)

ORG: none

TITLE: High energy particle accelerators

SOURCE: AN SSSR. Vestnik, no. 11, 1966, 9-13

TOPIC TAGS: Gev accelerator, focusing accelerator, proton accelerator, cybernetics, computer application

ABSTRACT: A general report on work performed at the Radiotechnical Institute in Moscow is given. The report describes in broad terms an operational principle for strong focusing, high (or ultra-high) energy accelerators. The authors named it the "cybernetic principle". It consists of the automatic correction and regulation of the beam trajectory in such a way that no new instabilities appear. The operational scheme is the following. A booster accelerator brings the proton beam to 18 Gev. Then, 18 Gev protons are injected into a strong focusing accelerator with a 20 km orbital length. With the help of a special, automatically controlled system, the magnetic field of the accelerator is corrected at the injection time for the maximum acceptance of the beam in a chamber which has a diameter of 5-7 cm. The protons are now accelerated and the magnetic field is accordingly altered. The deviation of the accelerated

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UDC: 539.107.6

ACC NR: AP6036721

beam from its equilibrium orbit is detected, "computerized" (this is where the cybernetics enters), and the beam orbit is corrected by specially designed magnetic systems. This is, of course, a problem of high speed electronics. It is important that the number of betatron oscillations remain constant during the operation of such an accelerator. A table gives the main design features of the three proposed ultra-high energy accelerators: 1000 Gev (USSR), 300 Gev (CERN) and 200 Gev (USA). A model accelerator for 1 Gev is being built in order to study the automatic regulation of beam parameters. The beam intensity is 10^{10} protons/pulse, and $v = 6.5$. The ultra-high energy accelerator project includes the design of a 800 Mev injector, a 15 Gev booster and the principal 1000 Gev accelerator. Orig. art. has: 1 table.

SUB CODE: 20, 09/ SUBM DATE: none

Card 2/2

MINTS, A. YA.

57/49T80

USSR/Medicine - Neuritis, Multiple Nov/Dec 48
Medicine - Drugs, Toxicity

"Toxic Polyneuritis From Medication (Sulfonamides),"
N. A. Govseyev, A. Ya. Mints, First Neurol Clinic,
Kiev Sci. Res Inst of Psychoneurol, 2 2/3 pp

"Terap Arkhiv" Vol XX, No 6

Use of sulfonamide preparations is so strictly controlled by USSR doctors that cases of poisoning from them are rarely found. Toxic polyneuritis does not occur during initial stage of treatment, but in later stage or after treatment, and is difficult to diagnose. Symptoms include motor disturbances in the foot and wrist, extending to adjacent parts in serious cases.

57/49T80

MINTS, A. Ya

32801. Varianty pripiskov dizntsefal'noy zpileysii. Trudy Kiyevsk. Nauch. - issled psikhovevrol. In-ta, T. XII, 1949, s. 141-49

SO: Letopis' Zhurnal'nykh Statey, Vol. 44, Moskva, 1949

MINTS, A.Ya.

Experimental and clinical observations of the convulsive components of diencephalic attacks [with summary in English]. *Fiziol.zhur.* [Ukr.] 3 no.6:54-63 D '57. (MIRA 11:2)

1. Akademiya medichnykh nauk SRSR, grupa, yakoyu keruye diysniy chlen ANU SRSR B.N.Man'kova'kiy, Kiy) (EPILEPSY)

MINTS, A.Ya., kand.med.nauk; KIRICHINSKAYA, I.A., kand.med.nauk

Clinical aspects of arsenic polyneuritis. Vrach.delo no.2:139-142
r '58. (MIRA 11:3)

1. Akademiya meditsinskikh nauk SSSR i kafedra nervnykh bolezney
Kiyevskogo meditsinskogo instituta (rukovoditel' gruppy AMN i zav.
kafedroy-akad. AMN SSSR B.N.Man'kovskiy)

(NERVOUS SYSTEM--DISEASES) (ARSENIC--PHYSIOLOGICAL EFFECT)

MINTS, A.Ya., kand.med.nauk

Vegetative and visceral manifestations of the diencephalic
epileptic syndrome. Vop. klin. nevr. i psikh. no.2:177-190
'58. (MIRA 14:10)

(EPILEPSY) (ENCEPHALITIS)

MINTS, A.Ya., kand.med.nauk; KUCHEROVA, L.L.

Carbohydrate metabolism in inflammations of the diencephalon.
Vop. klin. nevr. i psikh. no.2:216-224 '58. (MIRA 14:10)
(CARBOHYDRATE METABOLISM) (DIENCEPHALON)

MINTS, A.

ZAVILYANSKIY, I., kand.med.nauk, MINTS, A. (Kiyev)

Republic plenary session of the Society of Neuropathologists and
Psychiatrists, devoted to the 40th anniversary of the Great
October Revolution. Vrach.delo no.3:325 Mr'58 (MIRA 11:5)
(UKRAINE--NEUROLOGY)

MIFTS, A.Ya., kand.med.nauk, OSTROVSKIY, M.I., saslyzhonnyy vrach USSR,
polkovnikmed. sluzhby; GUR, E.K., ordinator

Takayashi's disease (pararteritis of vessels originating in the aorta)
Vrach.delo no.9:933-938 8'58 (MIRA 11:10)

1. Klinika nervnykh bolezney (nauchnyy rukovoditel'-deystv. chlen
AMS, prof. B.N. Man'kovskiy) Kiyevskogo meditsinskogo instituta i
Okruzhnoy voyennoy gosptal'.
(ARTERIES--DISEASES)

MINTS, A.Ya., kanz. med.nauk., PEREK, N.V., BURLYAY, G.S. (Kiyev)

Cerebral genesis of exophthalmos. *Klin.med.* 36 no.9:35-40 S'58
(MIRA 11:10)

1. Iz AMN SSSR i kafedry nervnykh bolezney Kiyevskogo meditsinskogo instituta imeni A.A. Bogomol'tsa (rukovoditel' gruppy AMN SSSR i sav. kafedroy - deystvitel'nyy chlen AMN SSSR B.N. Man'kovskiy).
(EXOPHTHALMOS, etiol. & pathogen.
brain dis. (Rus))
(BRAIN, dis.
causing exophthalmos (Rus))

MINTS, A.Ya.

Narcolepsy, cataplexy & diencephalic epilepsy [with summary in French].
Zhur.nevr. i psikh. 58 no.4:410-417 '58. (MIRA 11:5)

1. Akademiya meditsinskikh nauk SSSR (rukovoditel'gruppy -deystvitel'ny
chlen ANU SSSR B.N. Man'kovskiy), Kiyev.

(DIENCEPHALON, dia.

manifesting as & differentiated from narcolepsy & cataplexy
(Rus))

(SLEEP DISORDERS,

narcolepsy, caused by & differentiated from diencephalic
lesions (Rus))

(CATAPLEXY

caused by & differentiated from diencephalic lesions (Rus))

(EPILEPSY, differ. diag.

narcolepsy & cataplexy from diencephalic epilepsy (Rus))

MINTS, A.Ya., kand.med.nauk (Kiyev)

Combined diseases of the blood vessels of the heart and brain. Vrach.
delo no.8:803-809 Ag '59. (MIRA 12:12)

1. Otdeleniye vozrastnykh izmeneniy nervnoy sistemy (zav. - deystv.
chlen AMN SSSR, prof. B.N. Man'kovskiy) Instituta gerontologii i
eksperimental'noy patologii AMN SSSR.
(CARDIOVASCULAR SYSTEM--DISEASES) (BRAIN--DISEASES)

MAKARCHENKO, A.F., prof., otv. red.; KULIKOVSKIY, A.G., kand. med. nauk, red.; LITVAK, L.B., prof., red.; MIRTOVSKIY, N.V., prof., red. [deceased]; MINTS, A.Ya., kand med. nauk, red.; SLONIMSKAYA, V.M., prof., red.; SAVENKO, S.N., prof., red.; FRUMKIN, Ya.P., prof., red.; SHAROVSKIY, S.N., prof., red. [deceased]; BYKOV, N.M., tekhn. red.

[Problems in clinical neurology and psychiatry] Problemy klinicheskoi neurologii i psikhatrii. Kiev, Gos.med.izd-vo USSR, 1961. 308 p.
(MIRA 14:12)

1. Ukrainskoye respublikanskoye obshchestvo nevropatologov i psikhiatrov.
(NERVOUS SYSTEM—DISEASES) (MENTAL ILLNESS)

MINTS, A.Ya.; GORBACH, N.L.

Some characteristics of the cerebral electrical activity
in the process of ageing in atherosclerosis. Zhur. névr.
i psikh. 64 no.2:219-224 '64. (MIRA 17:5)

1. Otdel'niye vozrastnykh izmeneniy nervnoy sistemy (zaveduyushchiy - prof. B.N. Man'kovskiy) Instituta gerontologii AMN SSSR i otdel nevrologii i neyrofiziologii (rukovoditel' - prof. A.F. Makarchenko) Instituta fiziologii im. A.A. Bogomol'tsa AN UkrSSR, Kiyev.

MINTS, A.Ya.

Some characteristics of the development and course of atherosclerotic lesions of the brain in elderly and senile age. Vop. geron. i geriat. 4:189-196 '65. (MIRA 18:5)

1. Institut gerontologii AMN SSSR, Kiyev.

BLEYKHER, V.M.; MINTS, A.Ya.

Disorders of memory in atherosclerosis of cerebral vessels. Trudy
Gos. nauch.-issl. inst. psikh. 43:172-178 '65. (MIRA 18:9)

1. Laboratoriya eksperimental'noy patopsikhologii Kiyevskoy
psikhonevrologicheskoy bol'nitsy imeni akademika Pavlova
(glavnyy vrach - zasluzhennyy vrach UkrSSR P.N.Lepekhov;
nauchnyy rukovoditel' .. prof. Ya.P.Frumkin) i Institut gerontologii
AMN SSSR (direktor - chlen-korrespondent AMN SSSR prof. D.N.Chebotarev).

MINTS, A.Ya.; LITOVCHENKO, S.V.; TITARENKO, M.P.

State of the vegetative nervous system in elderly and senile persons; clinical physiological study of neurovascular reactions. Fiziol. zhur. [Ukr.] 11 no.6:786-795 N-D '65. (MIRA 19:1)

1. Otdeleniye vozrastnykh izmeneniy nervnoy sistemy Instituta gerontologii AMN SSSR, Kiyev. Submitted April 14, 1965.

SOV/58-59-5-11173

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, p 178 (USSR)

AUTHOR: Mints, A.Z.

TITLE: Vacuum Measurement²¹ of 35LK2B Kinescopes Under Working Conditions

PERIODICAL: Tyazh. prom-st' Podmoskov'ya (Mosk. obl. sovnarkhoz), 1958, Nr 5,
pp 26 - 30

ABSTRACT: The article has not been reviewed. ✓

Card 1/1

BARYSHNIKOV, P.; MINTS, B.; STRELOVA, A.

A new shape has been mastered. Metallurg 6 no.12:33-34 D '61.
(MIRA 14:11)

1. Omutninskiy metallurgicheskiy zavod.
(Rolling(Metalwork))

MINTS, Bratislav.

Price and value in a socialist economy. Vop. ekon. no.1:90-100
Ja '58. (MIRA 11:3)

1. Direktor Instituta ekonomiki Pol'skoy Narodnoy Respubliki.
(Prices) (Value)

SKRYABIN, N.P.; TROFIMOV, G.K.; KOCHETOV, I.M.; BARYSHNIKOV, P.A.;
ANAN'IN, K.I.; SHKURKO, I.M.; MINTS, B.M.; PASTUKHOV, Ye.S.; ZHELNIN, P.P.

Greater efficiency in grooving and the mechanization of rolling
on the 500 and 280 mills. Metallurg 6 no.12:23-27 D '61.
(MIRA 14:11)

1. Omutninskiy metallurgicheskiy zavod i Ural'skiy institut
chernykh metallov.
(Rolling mills—Equipment and supplies)

MINTS, B. M.

Apr 49

USSR/¹edicine - Bacteriology
Medicine - Microorganisms

"Microflora on a Burned Surface," P. N. Kashkin, Ye. G. Kashkina, B. M. Mints, N. S. Neyelova, Leningrad Sci Res Inst of First Aid, 8 1/3 pp

"Khirurgiya" No 4

Due to unfavorable influence of microorganisms on healing processes and interrelations of the microflora in air and burned areas, air of surgical departments treating burns must be kept free of pathogenic and saprophytic microorganisms and maintain a higher degree of asepsis than in any other surgical department.

PA 45/49T84

MINTS, B. S.

4440. Indikatory urovnya v radioveshchani. M., svyaz'izdat, 1954. 36S.S chert.
22SM. (M-VO svyazi sssr. tekhn. upr. lektssi potekhnike svyazi). 5.000 ekz. ir.-
(54-118) P

621.396.712+621.396.08

SO: Knizhnaya Letopsis', Vol. 1, 1955

MINTS, B.

107-5-38/54

AUTHOR: Mints, B.

TITLE: A-F Push-Pull Amplifier (Drukhtaktno-parallel'nyy usilitel')

PERIODICAL: Radio, 1956, Nr5, pp. 49-51 (USSR)

ABSTRACT: A popular description of the theory, design, and construction of the a-f push-pull amplifier suitable for radio-ham needs. Class AB and B operations are considered. A new circuit is suggested in which the output transformer has one secondary and two primaries; one of the primaries is connected in the plate circuit as usual while the other primary is connected in the cathode circuit acting cumulatively with the first primary. The secondary is placed between the two primaries. A lower magnetic dispersion and harmonic distortion are claimed as advantages. Detailed instructions for amateur work are given. Practical design formulae are also given.

There are 5 figs in the article.

AVAILABLE: Library of Congress

Card 1/1

MINTS, B.S., inzhener

~~From: "Radio and Television News,"~~
The protection of low-frequency amplifiers from radio frequency
interferences (From: "Radio and Television News," no.6 and no.7,
1954.) Vest.sviazi 15 no.8:30-32 Ag'55. (MLRA 8:12)
(Radio--Interference)

MINTS, B.S.

Control of radio broadcasts by an indicator of average values
and an indicator of peak values. *Elekresvias'* 10 no. 4:39-44
Ap '56. (MIRA 9:7)
(Radio--Transmitters and transmission)

AUTHOR: Mints, B.S., Engineer SOV/111-58-3-10/29

TITLE: A Standardized Level Indicator Is Required for Broadcasting
(Nuzhen yedinyy indikator urovnya dlya radioveshchaniya)

PERIODICAL: Vestnik svyazi, 1958, Nr 3, p 10 - 11 (USSR)

ABSTRACT: The author presents his views on the selection of the most suitable integration time for level indicators to be used at radio stations. He states that the types available in the USSR, "I-53", "RI-55", are not adequate. In this connection, he mentions the experience made with such instruments in the US and various other countries. There is one table.

Card 1/1

AUTHOR: Mints, B.S., Engineer SOV-111-58-9-7/30

TITLE: A New Method of Automatic Control for Radio Broadcasting Channels (Novyy sposob avtomaticheskogo kontrolya radio-veshchatel'nykh traktov)

PERIODICAL: Vestnik svyazi, 1958, Nr 9, pp 8 - 10 (USSR)

ABSTRACT: A new method of automatic control of broadcasting channels, described by F. Enkel in the March, 1958, issue of "Neue Technische Zeitschrift", is reviewed. The method consists in a system of frequency-response control of the channel's transmission factor during operation, checking the noise level in the intervals between useful modulation and a check on non-linearity. The operating principles of the system, block lay-out of the apparatus and technical characteristics are given. There are: 1 German reference, 4 block diagrams and 2 graphs.

1. Radio broadcasting--Control systems

Card 1/1

MINTS, B.S., insh.

We need a unified level indicator for radiobroadcasting. Vest.sviasi
18 no.3:10-11 Mr '58. (MIRA 11:4)
(Radiobroadcasting)

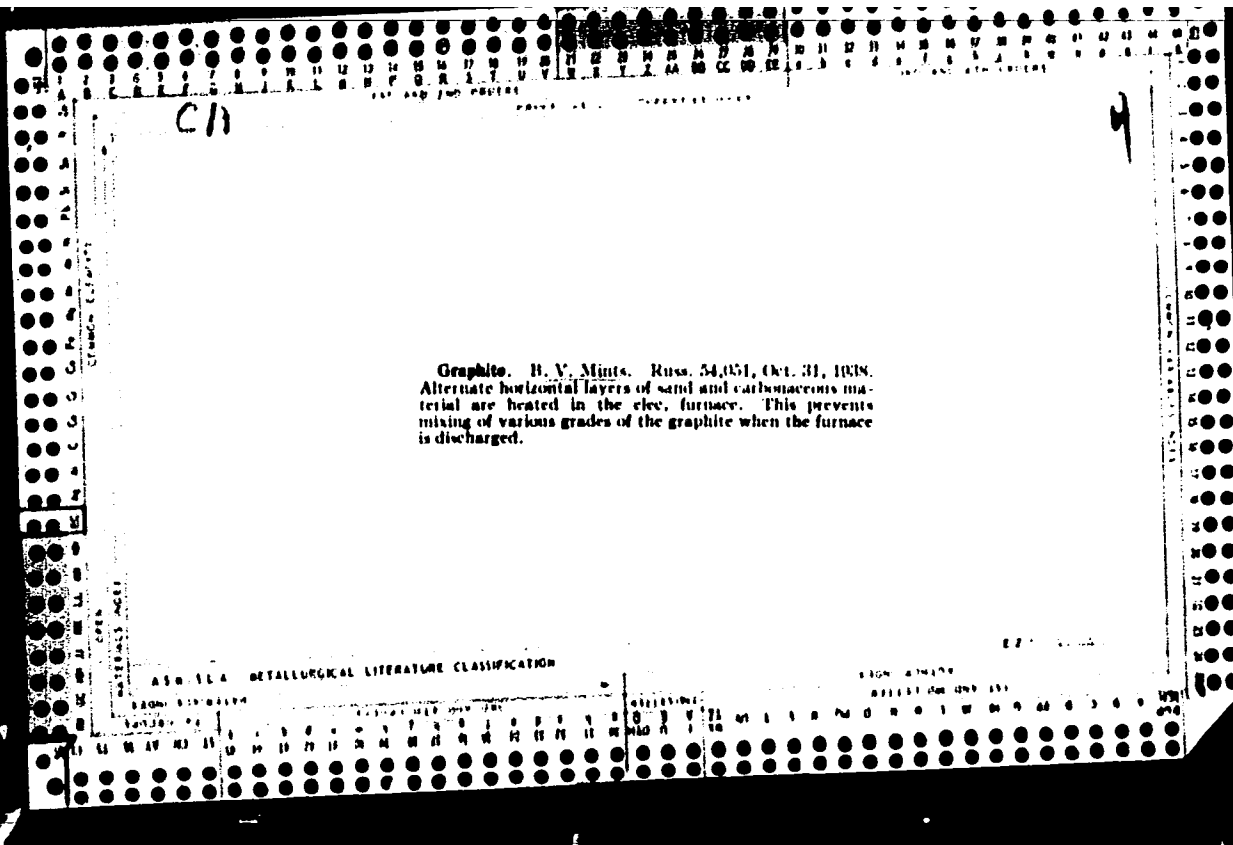
MINTS, B.S., insh.

Automatic indicator of the limiting value of the harmonic coefficient.
Vost. sviasi 20 no.9:10-11 S'60. (MIRA 13:10)
(Radio--Transmitters and transmission)

MINTS, B.S., inzh.

Contactless automatic audio frequency voltage regulator at the
output of a level comparator. Vest. sviazi 22 no.2:7-8 F
'62. (MIRA 15:2)

(Radio--Transmitters and transmission)



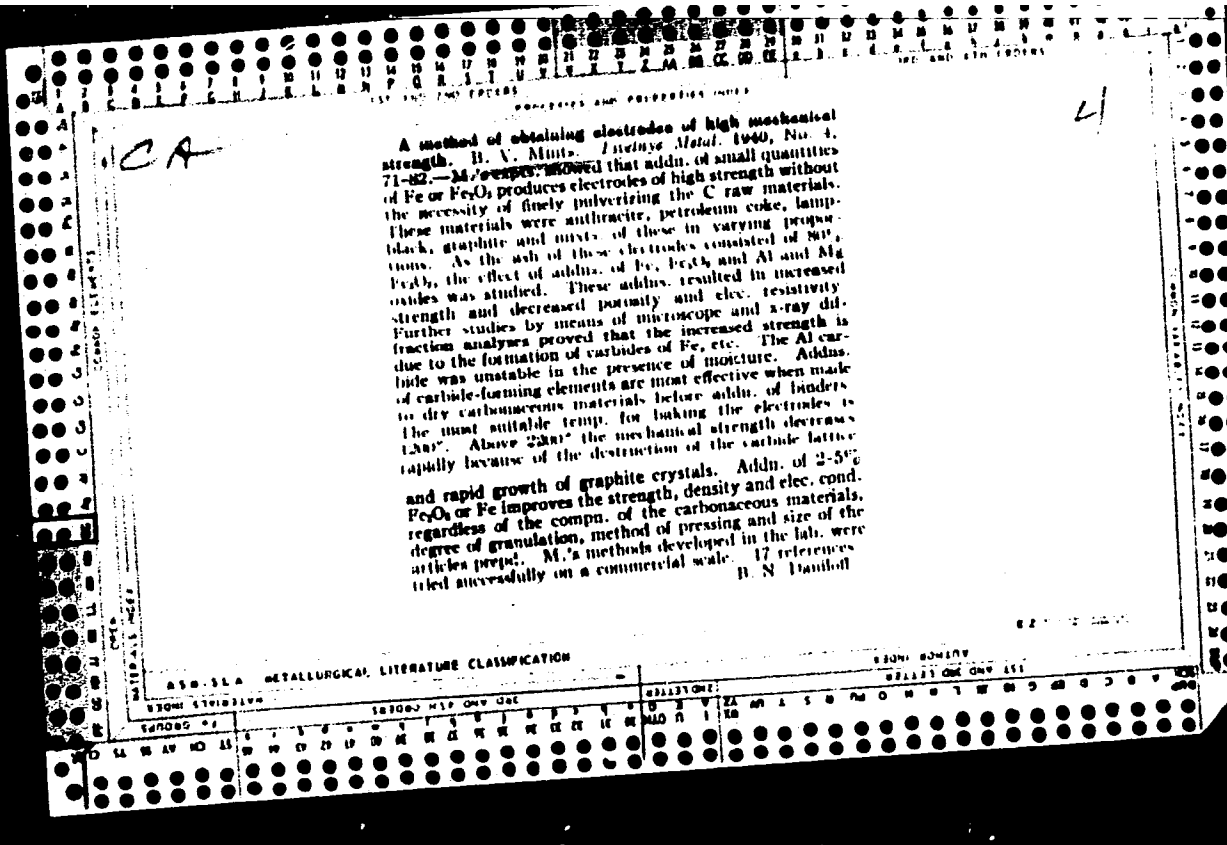
1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX

Change in the physicochemical properties of graphitized carbon products during the process of electrographitization. *Zhurnal Metal.* 1930, No. 12, 92-105. — 31. Investigated prepn. of graphite from various materials, such as petroleum coke, anthracite, coke and their mixts. Samples were mixed with a binder and formed into cubes or plates, then heated at various temps. for various lengths of time. The influence of

addns. of oxides of Fe, Mg, Ca and Si was studied. Graphitization was also studied in vapors of SO_2 and Si. The expts. showed that the physicochem. properties of the product are greatly influenced by the quality of the materials used and by their ash content. In the process of graphitization the phys. properties of the product change with the temp. Up to 2000° mech. strength drops abruptly and the sp. gr. increases. In the range of 2000 to 2200° the strength, sp. gr. and elec. cond. increase and the ash content decreases. The increase in strength may be due to the formation of carbide lattice in the material. In products made at 2500° a 2nd drop in the strength and a decrease in the ash content and of the sp. gr. occur because of the breakdown of the carbide lattice. Anthracite, or mixts. of equal parts of anthracite and petroleum coke, can be used as material for the prepn. of graphite if first freed from ash and calcined at 1700-1800°. Petroleum coke is the best material at all temps. in the range of 1400-2500°; coke next; and anthracite third. Oxides of metals should not be present in any of the materials prepd. at temp. above 2200° because they impair the strength and elec. cond. of the graphite product. The presence of SiO_2 vapor is undesirable, because it decreases the strength of the material. 14 references. *I. N. Daniloff*

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

14



1ST AND 2ND SECTORS PROCESSES AND PROPERTIES MOBI

3RD AND 4TH SECTORS

64

2

Electrical conductivity of carbon materials in relation to temperature. B. V. *Makot*. *Trudy Metal.* 1949, No. 12, 68-74. —The elec. cond. of artificial graphite, coke, petroleum cokes and anthracite was investigated at the temp. range from 30° to 2100° and at specific pressures from 0.1 to 300 kg. per sq. cm., and the effects of impurities, character of the material, porosity, grain size, etc., were studied. The data given in the paper show that (1) higher pressures decrease the effect of temp. on the elec. cond. of the materials, (2) the presence of macroscopic pores affects the cond.-temp. curves, and (3) at low pressures, ionization of intergranular spaces takes place. 12 references. B. N. Danilov

COMMON ELEMENTS

COMMON VARIANTS MOBI

400-000 METALLURGICAL LITERATURE CLASSIFICATION

ROOM SYMBOLS

10000 NIP CIV ECR

COLLECTOR

ROOM SYMBOLS

00000 000 001

137 AND 138 SERIES

PROCEDURES AND PROPERTIES NOTES

140 AND 141 SERIES

CA

Colloidal graphite, B. V. Mintz, U.S.S.R. 66,505,
June 30, 1946. Colloidal graphite is produced by heat-
ing a mixt. of finely ground carbides with finely ground C.
M. Hoesch

18

COMPONENT ELEMENTS

MATERIALS INDEX

450-31A METALLURGICAL LITERATURE CLASSIFICATION

FROM SOURCE

137 AND 138 SERIES

139 AND 140 SERIES

141 AND 142 SERIES

143 AND 144 SERIES

145 AND 146 SERIES

147 AND 148 SERIES

149 AND 150 SERIES

151 AND 152 SERIES

153 AND 154 SERIES

155 AND 156 SERIES

157 AND 158 SERIES

159 AND 160 SERIES

161 AND 162 SERIES

163 AND 164 SERIES

165 AND 166 SERIES

167 AND 168 SERIES

169 AND 170 SERIES

171 AND 172 SERIES

173 AND 174 SERIES

175 AND 176 SERIES

177 AND 178 SERIES

179 AND 180 SERIES

181 AND 182 SERIES

183 AND 184 SERIES

185 AND 186 SERIES

187 AND 188 SERIES

189 AND 190 SERIES

191 AND 192 SERIES

193 AND 194 SERIES

195 AND 196 SERIES

197 AND 198 SERIES

199 AND 200 SERIES

MINTS, B.V.

Low-inertia electric heaters. Sbor. nauch.-tekh. inform. po elek.
sel'khoz. no.6:6-8 '59. (MIRA 13:9)

(Electric heating)

MINTS, D. M.

Mints, D.M. " The hydraulic estimate of a system of surface
flushing with rotating tubes," S_{an}. tekhnika, Issue 2, 1948,
p. 5-18

SO: U-2888, Letopis Zhurnal'nykh Statey, No. 1, 1949

MINTS, D.M.

35433. Teoreticheskie Issledovaniya Protsessa Fil'tratsii suspensiy
Cheres Pesochnye. Nauch. Trudy (Akad. Kommunal. Khos-va im. Pansofilova),
Vyp. 4-5, 1949, s. 16-28.---Bibliogr: 6 nazv.

Letopis' Zhurnal'nykh Statey, Vol. 48, Moskva, 1949

MINTS, D. M.

Mints, D. M. "Filters of large sediment capacity, (F. B. C.)," In the symposium: Voprosy kommunal. Khoz-va, Moscos-Leningrad, 1949, p. 33-57

SO: U-3850, 16 June 53, (Letopis 'Zhurnal 'nykh Statey, No. 5, 1949).

MINTS, D.M.; SHUBERT, S.A.; KIRSANOV, M.V., red.; GUBOVA, O., tekhn. red.

[AKKh filters and calculations on washing high rate filters] Fil'try
AKKh i raschetny promyivki skorykh fil'trov. Moskva, Izd-vo M-va kom-
mun. khoz. RSFSR, 1951. 173 p. (MIRA 11:8)
(Filters and filtration)

MINTS, D. M.

Wm 8

The kinetics for the filtration of dilute water suspensions in water-purification filters. D. M. Mints. Doklady Akad. Nauk S.S.S.R. 78, 215-18 (1962). The effect of filtration is considered to be the summary result of the removal of particles from the suspension owing to the adherence of particles to the surface of the filtration medium and the reverse action of the particles breaking away from the surface of the filtering material and returning to the suspension. On this basis equations are developed which give good agreement with exptl. data.

I. Kovtar Leach

PM

MINTS, D.; SHUBERT, S.

Filters and Filtration

First results of the use of AKKh filters. Zhil. kom.khoz. 2 No. 8, 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952. UNCLASSIFIED.

USSR/Physics - Hydrodynamics of 1 Jan 52
Suspension

"Suspension of the Granular Layer in the Rising
Flow of a Fluid," D.M. Mintz

"Dok Ak Nauk SSSR" Vol 82, No 1, pp 17-20

Mints expounds his investigations of the phenomenon of granular-layer suspension in an ascending current of a fluid, which investigations were undertaken with the purpose of generalizing the results obtained earlier in his joint work with S. A. Shubert (cf. "AKKh Filters and Designs for
230798

Flushing of Fast Filters," 1951). He says subject problem is of practical significance in water supply in the case of flushing or washing of water-purifying filters. Submitted by Acad
A. I. Nekrasov 9 Nov 51.

230798

MINTS, D. M.

MINTS, D. M.

PA 234T95

USSR/Physics - Hydrodynamic Resist- 1 Apr 52
ance

"Hydrodynamic Resistance of the Granular Layer
Suspended in a Current," D. M. Mints

"Dok Ak Nauk SSSR" Vol 83, No 4, pp 541-544

Obtains formulas and rules of practical value
in various fields of science and technology in
the case of the soln of problems connected with
the suspension of particles in a current of li-
quids or gases, sedimentation or particles, use
of dynamic pumps, and filtration of fluids
through granular materials. Submitted 9 Feb 52
by Acad A. I. Nekrasov.

234T95

MINTS, D.M.

MINTS, D.M., kandidat tekhnicheskikh nauk, laureat Stalinskoy premii.

Motion of a liquid through a granular layer suspended in a rising flow and constrained sedimentation of particles in the liquid.

Trudy Stroi.inst. Mosgorispolkoma no.4:92-103 '53.

(Hydrodynamics)

(MLBA 8:3)

MINTS, D.M., kandidat tekhnicheskikh nauk.

Velocity of precipitation of congested solid particles in a liquid. Gidr.
stroi. 22 no.5:24-28 My '53. (MLBA 6:6)

(Sedimentation and deposition

MARKIZOV, V.I.; MINTS, D.M., redaktor; NOVOCHADOV, A.G., redaktor;
Gurova, G.A., tekhnicheskiy redaktor.

[Purification of water with coagulants] Ochistka vody
koagulantami. Moskva, Izd-vo Ministerstva kommunal'nogo
khoziaistva RSFSR, 1954. 46 p. (MLRA 7:12)
(Water--Purification)(Coagulation)