

Lomkatsi, G.S.

NIKITIN, S. Ya.; SMOLYANKIN, V. T.; KOLGANOV, V. Z.; ~~LEBEDEV, A. V.~~; LOMKATSI,
G. S.

[Dispersion of slow neutrons into ortho- and para-deuterium] Ras-
seianie medlennykh neutronov na orto- i para-deiterii; doklady,
predstavlenyye SSSR na Mezhdunarodnuu konferentsiiu po mirnomu
ispol'zovaniyu atomnoi energii. Moskva, 1955. 12 p. [Microfilm]
(Deuterium) (Nuclear physics) (MLRA 9:3)

LOMKATSI, G.S.

Polarization of hydrogen nuclei in a free radical. Zhur. eksp. i teor.
fiz. 38 no. 2: 635-636 F '60. (MIRA 14:5)
(Nuclei, Atomic--Optic properties) (Hydrogen)

L0759

296/62

S/120/62/000/004/040/047
E039/E420

AUTHORS: Veselov, M.A., Gol'din, L.L., Kirpichnikov, I.V.,
Lomkatsi, G.S., Sidorenko, Z.S., Sysoyev, Ye.A.

TITLE: Investigation of the magnetic field configuration in
the X-blocks of the proton synchrotron

PERIODICAL: Pribory i tekhnika eksperimenta, no.4, 1962, 212-217

TEXT: The magnetic field configuration is measured in
14 compensating blocks at various levels of induction from
80 gauss up to 8000 gauss. Magnetic field gradients are measured
with an accuracy of better than 0.1% and the displacement of the
neutral point obtained with an accuracy of 0.05 to 0.07 mm.
A plexiglass carriage is located on the magnet poles and can
traverse the whole length of the block (1910 mm). This carriage
contains three pairs of permalloy probes for measurements in low
fields and three pairs of coils for the medium and large fields.
The field characteristics are measured at 31 points along the
14 X-blocks. The distribution of the field and its gradient is
obtained near the axis of symmetry for 5 values of induction
(82, 106, 210, 2600 and 7500 Oe) and on 6 of the C-blocks at
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Investigation of the magnetic ...

S/120/62/000/004/040/047

E039/E420

8400 Oe. These measurements are compared with similar measurements on C-blocks. It is shown that displacement of the neutral point depends on the residual field. Displacement also occurs in strong fields because of core saturation. The results are presented graphically and discussed in some detail. The coordinates of the pole pieces with respect to the geodetic markers are determined to an accuracy of 0.03 to 0.04 mm. There are 8 figures.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki
GKAE (Institute of Theoretical and Experimental
Physics GKAE)

SUBMITTED: March 31, 1962

Card 2/2

LOMKATSI, S. I.

Lomkatsi, S. I. "Pruning and formation of vineyards under conditions of vigorous weed growth", Trudy In-ta vinogradarstva i vinodeliya (Akad. Gruz. SSR). Vol. V, 1949, p. 19-38, (In Georgian, resume in Russian), -Bibliog: 17 items.

SO: U-4630, 16 Sept. 53, (Letopis 'Zhurnal 'nykh Statey, No. 23, 1949).

1. LOMKATSI, S. I.
2. USSR (600)
4. Viticulture
7. Role of suckers in viticulture [in Georgian with Russian summary]. Trudy Inst. vin. AN Gruz. SSR 7, 1951.

9. Monthly List of Russian Accessions, Library of Congress, April 1953. Unclassified.

LOMKATSI, S. I., BTKHILADZE, I. T.

Viticulture - Georgia (Transcaucasia)

Achievements of progressive viticulturists of Georgia Vin. SSSR 12 no. 1, 1952.

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

LOMKATSI, T. S.

"The Effect of Microelements on the Morphological and Physiological Functions of Yeast Organisms During Alcohol Fermentation." Cand Biol Sci, Inst of Viniculture and Viticulture Acad Sci Georgian SSR; Moscow Technological Inst, Min Food Industry USSR, Tbilisi, 1954. (RZhBiol, No 3, Feb 55)

SO: Sum. No. 631, 26 Aug 55-Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

Lomkatsi, T.S.

✓ Effect of certain microelements on wine fermentation.
 T. S. Lomkatsi (District Exptl. Sta., Telavi, Georgian
 S.S.R.) *Sadokhito, Vinogradarstvo i Vinodelo-Moldavi*
 11, No. 1, 48-7(1956).—Grape juice was subjected to the alc.
 fermentation by the wine yeast *Saccharomyces vini*, variety
 Kakhuri 10, in the presence of the following microelements:
 Cu 0.02, Zr 0.0002, Ni 0.5, 10, 20, 30, 40, Co 0.1, 10, 20, 30,
 40, and Th 1×10^{-4} , 5, and 10 mg./l., resp. In all instances
 the addns. of the microelements showed pos. effects on the
 fermentation regarding the organoleptic and chem. proper-
 ties of wine. The most effective were Th, Cu, and Co.
 E.g., the wine obtained after the addns. of 10 g. Th, Co, or
 Ni per l. of juice showed the following chem. properties
 (control values in parentheses): alc. 11.8, 11.8, 11.8 (11.8-
 8%); aldehydes 8.0, 15.7, 10.7 (traces), and acetals 4.8,
 4.8, 24.0 (2.4 mg./l.); titratable acidity 5.2, 5.5, 5.2(5.2)
 and volatile acids 0.80, 0.46, 0.43 (0.57 g./l.); pH 3.05,
 3.23, 3.05 (3.48); and oxidation-reduction potential (Eh)
 462.3, 307.0, and 425.0 (434.3 mv.), resp. In the case of
 the smallest addns. of the microelements the amt. of 2,3-
 butylene glycol was also detd. and its concn. was 0.10-0.18,
 instead of 0.05 g./l. found for the control. The concns.
 of aldehydes and volatile acids increased with increased
 addns. of Ni, those of acetals and volatile acids by the addns.
 of Th and Co.

E. Wierbicki

LOMKATSI, T.S.

Transformation of $2C^{14}$ -acetic acid by yeasts in alcoholic
fermentation. Soob. AN Gruz. SSR 33 no.3:573-578 Mr '64
(MIRA 17:8)

1. Otdel biokhimii Instituta botaniki AN GruzSSR. Predstavleno
akademikom S,V, 'Durmishidze,

LOMKATSI, T.S.; BOCHORIDZE, L.D.

Participation of basic and secondary alcohol fermentation
products in the synthesis of yeast protein. Soob. AN Gruz.
SSR 39 no.1:81-86 JI '65. (MIRA 18:10)

КОНКИН, А.В.

Concepts of the subacute pathogenesis of ...
review of literature. Vestn. dermat. i ven. no. 3 (1973), 106.

L. Kafedra kozhnitsy i venericheskikh bolezney (222) ...
korrrespondent OMA SSSR prof. P.V. Kozhevnikov, Leningradskiy
Instituta venericheskikh i venerykh vraznykh.

KANIN, P.; BOLDENKOV, K.; LOMKO, A.; KITAYEV, I.; OVSYANNIKOV, V.;
KUTISHCHEV, N.

In honor of the Twenty-First Congress of the CPSU. Prom.koop. 13
no.1:10 Ja '59. (MIRA 12:2)

1. Predsedatel' pravleniya arteli imeni 15-letiya koperatsii invalidov, g. Voronezh (for Kanin). 2. Predsedatel' pravleniya arteli "Metallist," g. Bryansk (for Boldenkov). 3. Starshiy inspektor orgotdela oblpromsoвета, g. Zhitomir (for Lomko). 4. Nachal'nik orgotdela oblpromsoвета, g. Vladimir (for Kitayev). 5. Sekretar' partiynoy organizatsii arteli imeni Stalina, s. Katyuzhanka, Kiyevskoy ob. (for Ovsyannikov). 6. Zamestitel' predsedatelya pravleniya oblpromsoвета, g. Ural'sk (for Kutishchev).

(Cooperative societies)

LOMKO, Ya.

Friendship and cooperation of the countries in the socialist
camp. Sov. profsoiuzy 3 no.6:12-18 Je '55. (MIRA 8:8)
(Europe, Eastern--Economic conditions)

LOMKOVSKAYA, M.V.

Calculation producing nuclear Russian sentences. NFI no.7:
35-41 '65. (MIRA 18:9)

LOMKOVSKAYA, M.V.

Computation generating nuclear Russian sentences. Part 2.
NTI no.9:37-40 '65. (MIRA 19:1)

RYATNOV, Ye.G.; GLAZKOV, A.A.; LOMDEV, S.P.

Dynamics of the longitudinal motion of particles in a wave guide
buncher of a linear electron accelerator. Nek.vop.inzh.fiz. no.2:
65-84, 157. (MIRA 12:7)
(Particle accelerators) (Wave guides)

L O M N & V, S. P.

PHASE I BOOK EXPLOITATION

NOV/2000

Resonance. Inzhenerno-fizicheskiy Vestnik
Linyevyye ubitornitsy obratnik stroy (Linear Accelerators Collection of Articles)
Moscow, 1959. 94 p. 1,000 copies printed.

Ed.: G. A. Tyugunov, Doctor of Technical Sciences, Professor; Tech. Ed.:
A. A. Nagimovskaya.

PURPOSE: This collection of articles may be useful to engineers engaged in
the development, production and application of linear accelerators.

COVERAGE: The authors discuss the theory and operation of linear accelerators
developed by NII. They describe methods of measuring variable phase velocity
in a waveguide of a linear electron accelerator and discuss ways of determining
the diameter of a waveguide. A method of measuring the energy spectrum at
the output of an accelerator is also discussed. The personalities are mentioned.
References appear at the end of each article.

Shilov, A. V., and S. L. Lomak. Preliminary Bunching of Electrons in a
Linear Accelerator by Means of a Klystron Resonator

64

The authors study the axial motion of particles in a waveguide resonator
of a linear electron accelerator with a klystron resonator. Methods of
analyzing electron bunching are also presented. The authors suggest
plotting the output characteristics of a waveguide resonator as a function
of output parameters (terminal energy and phase) and the phase of the high-
frequency field of a particle entering the klystron resonator. They also
present two numerical examples illustrating the advantageous effect of
preliminary bunching by means of a klystron. The authors also discuss the
selection characteristics of two types of resonators and present the
necessary characteristics of a klystron resonator. There are 8 references
3 Soviet, 2 English, and 1 French.

Tropey, A. G. Phase Shifter With Two Dielectric Plates

91

The author discusses a phase shifter in which phase shifting is accom-
plished by moving two dielectric plates in the cross-section of a rectangu-
lar waveguide. It is shown that the use of two plates instead of one
makes it possible to increase the phase shift and decrease the size of the
phase shifter by one and a half times. Results of theoretical and ex-
perimental calculations are presented. There are 2 references, both Soviet.

AVAILABLE: Library of Congress

Card 4/6

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16.7500

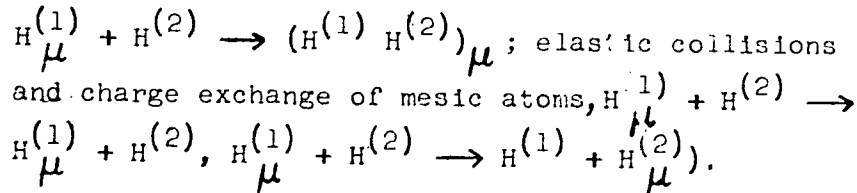
76981
SOV/56-37-6-21/55

AUTHORS: Belyaev, V. B., Gershteyn, S. S., Zakhar'ev, B. N.,
Lomnev, S. P.

TITLE: μ -Mesic Molecular Processes in Hydrogen

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki,
1959, Vol 37, Nr 6, pp 1652-1662 (USSR)

ABSTRACT: A theoretical analysis was made of the mesic atomic
and mesic molecular processes in a medium of
hydrogen isotopes (the formation of mesic molecules,



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The calculations were performed on the BESM electronic
machine with compensation for the motion of the nuclei.

μ^- Mesic Molecular Processes in Hydrogen

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SOV/56-37-6-21/55

The magnitude of the correction was of the order of m_{μ}/M . The mesomolecular processes of μ^- -mesons with hydrogen are due to the neutrality of mesic atoms. This is owing to the fact that at distances greater than Bohr's orbits of mesoatoms (2.57×10^{-11} cm), the nuclear charge is practically fully shielded by the charge of the meson. Such a condition results in a peculiar catalysis of reactions in hydrogen (or its isotope mixtures), which was predicted by A. D. Sakharov (Report Phys. Inst. Acad. Sciences USSR, Moscow, 1948), and was experimentally investigated by A. Ashmore, R. Nordhagen, K. Strauch, and B. M. Townes (Proc. Phys. Soc., 71, 161, 1958). The effective cross section of the charge exchange (ch.e.) as determined in asymptotic form for $R \rightarrow \infty$, and it could be represented as follows:

$$\sigma_{\text{ch.e.}} = 4\pi f a_{\mu}^2 v_0/v, \text{ where } v \text{ is velocity before}$$

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Mesic Molecular Processes in Hydrogen

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307/56-37-6-11/55

collision; $v_0 = \sqrt{2\Delta E/M_1^2}$; $a_\mu = \hbar^2/m_\mu e^2$. For the processes:

$p_\mu + d \rightarrow d_\mu + p$, $p_\mu + t \rightarrow t_\mu + p$, and $d_\mu + t \rightarrow t_\mu + d$, the values of f were found to be, respectively: 2.11, 0.84, and 0.0007. In Table 3 are listed levels of the mesic molecules.

	L 0		L 1		L 2	L 3
	" 0	" 1	" 0	" 1	" 0	" 0
$(pp)_\mu$	252	--	109	--	--	--
$(dd)_\mu$	330	40	226	71	88	--
$(tt)_\mu$	367	86	288	15	170	55
$(pd)_\mu$	220	--	90	--	--	--
$(pt)_\mu$	213	--	98	--	--	--
$(dt)_\mu$	319	32	232	--	102	--

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Table 3. Levels of mesic molecules.

Mesic Molecular Processes in Hydrogen

76981

SOV/56-37-3-2,755

The levels are given in electron volts; for mesic molecules with different nuclei the energy levels are calculated from the level of the heavier isotope. There are 3 tables; 1 graph; and 18 references, 5 Soviet, 5 U.K., 1 German, 1 Italian, 2 U.S. The most recent U.S. and U.K. references are: L. W. Alvarez, H. Bradner, P. S. Crawford, Jr., J. A. Crawford, P. Faik-Vairant, M. L. Good, J. D. Low, A. H. Rosenfeld, F. Seimitz, M. L. Stevenson, H.K. Ticho, R. D. Tripp, Phys. Rev., 105, 1127, 1957; A. Ashmore, R. Nordhagen, K. Strauch, B. M. Townes, Proc. Phys. Soc., 71, 101, 1958; S. Cohen, D. L. Judd, R. I. Riddell, Phys. Rev., 110, 1471, 1958; M. Shimizu, Y. Mizuno, T. Inuyama, Progr. Theor. Phys., 20, 777, 1958; A. Dalgaard, R. McCarroll, Proc. Roy. Soc., 237, 385, 1956.

ASSOCIATION:

Joint Inst. Nuclear Research, USSR (Ob'edinenyy Institut yadernykh issledovaniy, SSSR)

SUBMITTED:
Card 4/4

June 7, 1959

U.S. GOVERNMENT PRINTING OFFICE: 1960

PHASE I BOOK EXPLORATION SCV/5113

Pchelintseva, T. N., ed.
Usoritskiy, Abramik Stepan (Accelerators: Collection of Articles) Moscow, Atomizdat, 1960. 121 p. Errata slip inserted. 5,000 copies printed.

Scientific Ed.: B.N. Ioblov; Ed.: G.M. Pchelintseva; Tech. Ed.: M.A. Vlasova.

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

CONTENTS: These original articles treat specific problems arising in the operation of present-day accelerators, particularly linear electron accelerators. New schemes for the construction and operation of linear electron accelerators are described and problems in the dynamics of particles in linear electron accelerators are discussed. New schemes associated with the shaping of permanent magnetic fields and the acceleration of particles are also treated. The changeover of the series cyclotron to the phaseotron 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.

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LOMNEV, S P.

p. 3, 4.

PHASE I BOOK EXPLOITATION

SOV/5134

Moscow. Inzhenerno-fizicheskii institut

Uskoriteli; sbornik statey (Accelerators; Collection of Articles)
Moscow, Atomizdat, 1960. 163 p. Errata slip inserted. 3,600
copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo
obrazovaniya RSFSR.

Ed. (Title page): G. A. Tyagunov, Doctor of Technical Sciences,
Professor; Tech. Ed.: S. M. Popova.

PURPOSE: This collection of articles is intended for persons design-
ing and constructing accelerators, and for technical personnel
specializing in the field of superhigh frequencies.

COVERAGE: The book contains articles by staff members of the De-
partment of Electrophysical Installations of the MIFI (Moscow Engi-
neering Physics Institute) reflecting theoretical and experimental
investigations of linear electron accelerators, betatrons and

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Accelerators (Cont.)

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synchrotrons; one article deals with ion sources for cyclotrons. The theoretical papers on linear electron accelerators are a continuation of a similar research paper published in the collection of articles "Lineynye uskoriteli" (MIFI edition, 1959) on the dynamics of particles in these machines. The theoretical papers on particle trapping for acceleration conditions in betatrons and synchrotrons contain a mathematical solution of this problem which takes into account the collective interaction of particles in the beam and the inductive properties of that beam at the moments of onset and break. A number of experimental investigations deals with measurements at shf and with electron accelerator and betatron components, while a special study is concerned with the linear cyclic accelerator ("elutron") proposed a few years ago by one of the coauthors of the article in question. No personalities are mentioned. References accompany most of the articles.

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Accelerators (Cont.)

SOV 573

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S/058/61/000/007/005/086
A001/A101

24.6731

AUTHOR: Lomnev, S.P.

TITLE: Fraction of power for the accelerating harmonic of a linear electron accelerator

PERIODICAL: Referativnyy zhurnal. Fizika, no. 7, 1961, 37, abstract 7B26 (V sb. "Uskoriteli", Moscow, Atomizdat, 1960, 52 - 58)

TEXT: The author presents the results of numerical calculations of the fraction of power (η) for the field accelerating harmonic in a linear electron accelerator. The η -value is different for different cells and varies from 0.89 to 0.65.

[Abstracter's note: Complete translation]

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Card 1/1

89021

S/O20/60/135/004/015/037

B019/B077

26.2340

AUTHOR: Lomnev, S. P.

TITLE: Calculation of Phase Trajectories of Charged Particles With
Regard to Coulomb Interaction in the Buncher of a Linear
Electron Accelerator

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 4, pp. 822-824

TEXT: The longitudinal motion of an electron beam in a linear accelerator
with regard to the Coulomb interaction has been calculated in relativistic
approximation by using a high-speed electronic computer. The differential
equations

$$d\varphi_j/dz = k \left(\frac{1}{\beta_B(z)} - \frac{1}{\sqrt{1-(E_0/E_j)^2}} \right) \quad (1)$$

$$dE_j/dz = e\epsilon_0(z)\sin\varphi_j + e\Delta F_z, \quad j = 1, 2, \dots, N$$

describe the longitudinal motion of the j-th charged particle effected by
the electrical field of traveling waves. e is the particle charge; k is

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Calculation of Phase Trajectories of Charged Particles With Regard to Coulomb Interaction in the Bunches of a Linear Electron Accelerator

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the wave vector; φ_j is the phase position of the charged particle relative to the phase of the waves; $0 \leq \varphi_j(0) \leq 2\pi$; β_B is the phase velocity of the waves; E_j is the energy of the j -th particle; E_0 is the rest energy; ΔF_z takes the interaction of the j -th particle with other particles into account, and is represented by retarded potentials. For ΔF_z an expression is obtained, and with the transition to an independent variable ct of (1) the author obtains:

$$dE_j/cdt = e\dot{z}_j \epsilon_0 \sin \varphi_j + 2\pi e \dot{z}_j \int \frac{\alpha[\varphi - \varphi_j] (1 - \dot{z}^2) r dr d\varphi}{[(\varphi - \varphi_j)^2 + (1 - \dot{z}^2) r^2 \alpha^2]^{3/2}} \quad (5)$$

$$d\varphi_j/cdt = \beta_0 \dot{z}_j - k, \quad \beta_0 = k/\beta_B, \quad \dot{z}_j = \sqrt{1 - (E_0/E_j)^2}, \quad j = 1, 2, \dots, N.$$

It is assumed that (5) possesses a solution for $N \rightarrow \infty$, which approaches the solution of (1) if a suitable value of ΔF_z is determined. The set of

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Calculation of Phase Trajectories of Charged Particles With Regard to Coulomb Interaction in the Buncher of a Linear Electron Accelerator S/020/60/135/004/015/037 B019/B077

equations was solved with the computer BESM I (BESM I) of the AS USSR for some typical cases. It was found that a sufficiently large number of resolutions (N) has to be chosen to be able to neglect the influence of space charges at small amperage (0.1 a and less) and in order that at high amperage the influence of Coulomb interaction on the bunching of particles and the initial conditions for particle acceleration. The influence of clusters on the bunching of particles can be neglected. A decrease of $d\beta_p(z)/dz$ and an increase of $t_{b \max}$ and $d\xi_0(z)/dz$ decrease the influence of Coulomb interaction. This work was conducted at the Vychislitel'nyy tsentr AN SSSR (Computation Center of the AS USSR) and the Moscow Engineering Physics Institute. A. A. Abramov and G. A. Tyagunov are thanked for valuable advice. There are 3 figures and 5 references: 3 Soviet and 2 US. X

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering Physics Institute)

Card 3/4

89021

Calculation of Phase Trajectories of Charged S/020/60/135/004/015/037
Particles With Regard to Coulomb Interaction in B019/B077
the Buncher of a Linear Electron Accelerator

PRESENTED: June 16, 1960, by I. V. Obreimov, Academician

SUBMITTED: June 16, 1960

X

Card 4/4

32314

S/020/61/141/005/005/C10
B104/B102

24.4400

AUTHOR: Lomnev, S. P.

TITLE: A method of solving a many-body problem for charged particles with a high-speed computer

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 5, 1961, 1065-1067

TEXT: The relativistic equation of motion of M interacting charged particles where the external field is taken into account is given by:

$$\left\{ \frac{d\vec{p}_m}{dt} = A_m(t, R_m, \dot{R}_m) + \sum_{k=1}^{M'} a_{mk} \right\}_m^M, \quad (1),$$

where \vec{p}_m denotes the momentum of a particle, \vec{R}_m its position vector, $\dot{\vec{R}}_m$ its velocity \vec{A}_m the external field, and \vec{a}_{mk} the interaction force expressed by the Lehnert-Wichert potential

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A method of solving a many-body ...

32311,
S/O20/61/141/005/005/018
B104/B102

$$\begin{aligned}
 \vec{a}_{mk} &= e_m \left\{ \vec{e}_k + \frac{1}{c} [\dot{\vec{R}}_k \cdot \vec{h}_k] \right\}, \\
 \vec{e}_k &= e_k \left\{ \frac{1 - \dot{\vec{R}}_k^2/c^2}{(R_{km} - \vec{R}_{km} \cdot \dot{\vec{R}}_k/c)^3} \left(\vec{R}_{km} - \frac{\dot{\vec{R}}_k}{c} R_{km} \right) + \frac{[\vec{R}_{km}(\vec{R}_{km} - \dot{\vec{R}}_k R_{km}/c) \cdot \dot{\vec{R}}_k]}{c^2 (R_{km} - \vec{R}_{km} \cdot \dot{\vec{R}}_k/c)^3} \right\} \quad (2), \\
 \vec{h}_k &= \frac{1}{R_{km}} [\vec{R}_{km} \cdot \vec{e}_k].
 \end{aligned}$$

Here, e_m denotes the particle charge, c the velocity of light,

$\vec{R}_{mk} = \vec{R}_k - \vec{R}_m$; all the quantities in (2) are taken for $r_{km} = t = R_{km}/c$.

If the initial conditions for $t = 0$ are $\vec{R}_m = \vec{R}_{m0}$, $\dot{\vec{R}}_m = \dot{\vec{R}}_{m0}$ (3), then the motion of all the particles $m = 1, 2, \dots, N$ is completely determined by solutions of (1)-(3):

$$\begin{aligned}
 \vec{R}_m(t) &= f(t; \vec{R}_{10}, \dots, \vec{R}_{M0}; \dot{\vec{R}}_{10}, \dots, \dot{\vec{R}}_{M0}), \\
 \dot{\vec{R}}_m(t) &= g(t; \vec{R}_{10}, \dots, \vec{R}_{M0}; \dot{\vec{R}}_{10}, \dots, \dot{\vec{R}}_{M0}) \quad (3).
 \end{aligned}$$

Card 2/4

A method of solving a many-body ...

32314
S/020/61/141/005/005/016
3104/F102

By means of modern high-speed computers it is possible to solve (1)-(2) for less than 100 equations. For this purpose, the space V_0 , in which charged particles exist at the instant $t = 0$, is divided into small, equal volumes ΔV_k . The charge in ΔV_k is assumed to be centrally located as a new enlarged particle. Thus, $N \ll M$ particles are obtained and their motion can be calculated from the foregoing system. There are several numerical solution methods for the system of equations obtained. The Runge-Kutta method has been applied to the example under consideration. The motion of a beam of charged particles was investigated in a autophasing linear electron accelerator. In such a case, the interaction of particles is of great importance. The set of equations is put into cylindrical coordinates according to the method described. This system has been solved with the BESM (BESM) machine of the Computer Center AS USSR for various focusing magnetic fields, for various currents of injected particles, and for various types of waveguides. As shown for small injection currents, it is possible to estimate the repulsion of the particles from the behavior of the outer cells. For the core of the beam

$r_0 < \frac{2}{3} r_{\text{omax}}$. The radial spread of the particle beam is stronger than the
Card 3/4

A method of solving a many-body ...

3231h
S/C20/61/141/005/005/018
B104/B102

longitudinal one and cannot be compensated by increasing H_z , the best chance to reach a large I_{capture} is given to accelerators with small phase oscillations. The author thanks A. A. Abramov and G. A. Tyagunov. There are 1 figure and 3 Soviet references.

ASSOCIATION: Vychislitel'nyy tsentr Akademii nauk SSSR (Computer Center of the Academy of Sciences USSR)

PRESENTED: June 30, 1961, by A. A. Dorodnitsyn, Academician

SUBMITTED: June 29, 1961

Card 4/4

37379

S/020/62/143/006/008/024
B125/B112

24.4400

AUTHOR: Lomnev, S. P.

TITLE: Mean density method for calculating the motion of charged particles with electron computers

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 6, 1962, 1309-1312

TEXT: The calculation of the many-body problem discussed here eliminates the difficulties caused by the large number of equations. At the j-th point of observation, the residual particles (density $\rho(x, y, z, t)$) act on the charge e_j with the force $\vec{a}_j = e_j(\vec{E}_j + (1/c) [\vec{R}_j \vec{h}_j])$.

$\vec{E}_j = \int_{\Delta V_j} \rho dv \vec{b}_j$ is the dielectric constant, $\vec{h}_j = \int_{\Delta V_j} \rho dv [\vec{R}, \vec{b}_j]$ is

the magnetic-field strength, and R is the radius vector. When calculating these integrals, the range of existence of the charges is subdivided with respect to x, y, z by a lattice with uniform step: $\delta z_k = (z_{max} - z_{min})/K$;

$\delta x_i = (x_{max} - x_{min})/I$; $\delta y_p = (y_{max} - y_{min})/P$. ρ is calculated from the Card 1/3

Mean density method for ...

S/O20/62/143/006/008/024
B125/B112

configuration of a finite number of particles ("points of observation"). b_j is averaged over the volume of the cube $\Delta V = \Delta x \Delta y \Delta z$. The solution of the problem by the present method approaches the true solution with increasing K, I, P , and initial density n_j at the point of observation, and with decreasing dV . For a synchrocyclotron, the number of equations of motion of the j -th point of observation is reduced considerably. A provisional calculation of these equations of motion with the BESM (BESM) high-speed electron computer of the AS USSR under conditions similar to those prevailing in the synchrocyclotron of the Ob'yedinenny institut yadernykh issledovaniy (Joint Institute of Nuclear Research) has shown that the charge maximum of $\sim 5 \cdot 10^{-5} \text{ a}$ can be maintained without any loss. For $\Delta z = 2 \delta z$, $n(0, z) = n_0$; $K = 11$, $z(t)$ can be calculated with an accuracy of 5%. The "mean density" and "increased charge" methods require about the same amount of work. With $f_z(t) = \text{const}$, $z_{\min} = \text{const}$, and $z_{\max} = \text{const}$, and if the z -oscillations are ignored, the radial phase oscillations (with respect to $r \Theta$) cause a "phase perturbation" already described by S. Lomnev (DAN, 141, no. 5, (1961)). The automatic phase control limits the

Card 2/3

s/020/62/143/006/008/024
B125/B112

Mean density method for ...

amperage. The "mean density" method differs from the "increased charge" method in that the shape of the beam is less changed at the moment of phase perturbation. Because of the limited possibilities of the computer the results of the two methods were not fully consistent. The entire system of equations of motion and initial conditions could only be solved for $P=4$, $I=3$, and $K=4$, owing to the limited memory of the machine. V. P. Dmitriyevskiy and G. A. Tyagunov are thanked. There are 2 figures.

ASSOCIATION: Matematicheskiy institut im. V. A. Steklova Akademii nauk SSSR (institute of Mathematics imeni V. A. Steklov of the Academy of Sciences USSR)

PRESENTED: December 21, 1961, by A. A. Dorodnitsyn, Academician

SUBMITTED: December 21, 1961

Card 3/3.

S/058/62/000/010/008/093
A061/A101

24, 6731

AUTHOR: Lomnev, S. P.

TITLE: Waveguide buncher of a linear electron accelerator

PERIODICAL: Referativnyy zhurnal, Fizika, no. 10, 1962, 5, abstract 10B42
(In collection: "Uskoriteli", no. 3, Moscow, Gosatomizdat, 1962,
98 - 114)

TEXT: The effect of the accelerating field amplitude, $E_0(z)$, and of the phase velocity, $\beta_w(z)$, of a wave on the grouping and the spectrum of accelerated electrons has been investigated numerically. The calculation has been made for some values of $E_{0 \max}$ (15 - 180 kv/cm) and $\beta_{w1} = 0.2 \div 0.5$ (for $\beta_{w1} = \beta_{e1}$); the case is also considered, when $\beta_{w1} \neq \beta_{e1}$, where β_{w1} and β_{e1} are the initial values of phase and electron velocity, respectively. ✓B

[Abstracter's note: Complete translation]

Card 1/1

S/759/62/000/003/006/021

AUTHOR: Lomnev, S. P.

TITLE: Radial oscillations at different values of β_w and E_0

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Uskoriteli. no.3. 1962. 54-67.

TEXT: A check on the magnitude of the radial oscillations as a function of the maximum field intensity E_0 has shown that although the maximum value of the field intensity is of importance in the estimate of the focusing field, the rate of variation of β_w , the relative phase velocity, and of the field intensity, greatly influences the choice of the longitudinal magnetic field. Although it is possible to write down equations in closed form for these variations, these closed equations do not yield sufficiently convenient or accurate estimates. In view of this, the investigation of the influence of the laws governing the variation of the relative phase velocity and of the field intensity, as well as of the initial conditions, on the radial oscillations has been carried out by numerical integration of the equations of motion. Methods for determining the focusing magnetic field are described and the need for the use of focusing magnetic fields in high-energy accelerators is discussed. There are 14 figures.

Card 1/1

S/759/62/000/003/007/021

AUTHOR: Lomnev, S. P.

TITLE: Some problems in the dynamics of particles in the case of an inhomogeneous focusing magnetic field

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Uskoriteli. no.3. 1962. 68-74

TEXT: The necessary accuracy with which the focusing coils must be installed and the degree of required homogeneity of the magnetic field are discussed. It is assumed that the field is inclined to the axis at some angle, and the radial and azimuthal deflections of the beam, due to this inclination, are evaluated by numerical means. Calculations for a tilt angle of 1° or 2° for fields of 900 and 1200 Oersted show that the particle with maximum deflection from the axis is one with relative phase of 3.15, and this particle is considered for the further estimates. It is found that the tilt of the focusing coils in the section with constant phase velocity must not exceed 0.1° . The effect of a constant radial field component on the transverse oscillations is considered. For a longitudinal field of 700 Oersted, a radial component of 0.07 Oersted already has a noticeable effect, and 0.7 Oersted already shows noticeable defocusing action.

Card 1/2

Some problems in the dynamics ...

S/759/62/000/003/007/021

On the other hand, some interest attaches to the use of radial field components for the production of hard focusing. However, unless there is a longitudinal field, it is impossible to choose a combination of radial field and length of gap between poles such as to accommodate all particles with different initial conditions. An increase in the gap between magnet poles gives rise to oscillations that cannot be suppressed by suitable choice of field components, and an increase in the field intensities does not improve the hard-focusing conditions appreciably, since the amplitude of the oscillations increases with the linear distance. There are 14 figures.

Card 2/2

S/759/62/000/003/008/021

AUTHORS: Gavrilov, N. M., Lomnev, S. P., Milovanov, O. S., Pyatnov, Ye. G.
Tyagunov, G. A., Shal'nov, A. V.

TITLE: Output parameters and operating characteristics of linear electron accelerators

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Uskoriteli. no.3. 1962. 78-82

TEXT Tentative figures and plots of the output parameters and operating characteristics are presented for several linear accelerators developed at the Moscow Engineering-Physics Institute. The computations were made with the BESM electronic computers. The output parameters evaluated were the energy of the accelerated electrons, the width of the energy spectrum, and the phase width of the electron clusters. The input parameters were the injection energy, the injection current, and the power and frequency of the high-frequency supply. The energy was expressed in terms of its effective action (or thermal action if calorimetry is employed). The operating characteristics were determined in terms of dependence on the injection, the current, the power, and the frequency. Each dependence could in turn pertain to the energy, phase, and spectrum. Data are

Card 1/2

Output parameters and operating characteristics... S/759/62/000/003/008/021

presented for the 2, 3, 5.5, and 26 MeV accelerators, and it is pointed out that changes in the waveguide structure will modify all the figures presented. There are 10 figures.

Card 2/2

S/759/62/000/003/009/021

AUTHOR: Lomnev, S. P.

TITLE: Variational characteristics of the buncher of a linear electron accelerator

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Uskoriteli. no.3. 1962. 83-97

TEXT: The variations of the phase width of the electron bunch, the width of the energy spectrum, the average phase, and the average energy as functions of the relative phase velocity, the electric field intensity, the wave number, and the injection energy are determined. The varied parameters were combinations of the last mentioned functions, namely $A = eE_0/k$ and $\beta_w E = \beta_w k z$ (e is the electron charge, E_0 the field intensity, k the wave number, z the linear distance, and β_w the relative phase velocity). The relationships obtained were complicated in character, but for some values of β_w and A they were linear or else exhibited little variation. It is therefore recommended that even before making the choice of the geometry the values of β_w and A be chosen such as to exhibit minimum sensitivity to deviations. Knowledge of the variational char-

Card 1/2

Variational characteristics of the buncher...

S/759/62/000/003/009/021

acteristics makes it possible to employ them for the regulation of various factors at the output by corresponding variation of the input quantities. There are 10 figures and 6 tables.

Card 2/2

S/759/62/000/003/010/021

AUTHOR: Lomnav, S. P.

TITLE: Waveguide buncher of linear electron accelerator

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Uskoriteli. no.3. 1962. 98-114

TEXT: An investigation was made of the influence of the character of variation of the phase velocity of the wave and of the amplitude of the accelerating field intensity on the characteristics of the output parameters of the beam in a linear accelerator. The investigation was based on the integration of the equation for the phase oscillations. In order to clarify the behavior of the solution as a function of $\beta_w(z)$ (the relative phase velocity as a function of the length) and $E_0(z)$ (the field intensity as a function of the length), a detailed analysis was made of the case when the buncher is fed from a magnetron producing an accelerating field with maximum intensity on the order of 30 kV/cm. Various field intensities and relative phase velocities were considered. The field intensities ranged from 15 to 180 kV/cm, and the relative phase velocities from 0.5 to 0.2. Various bunching conditions and particle spectra were

Card 1/2

Waveguide buncher of linear electron ..

S/759/62/000/003/C10/021

considered. Methods of narrowing down the energy spectrum are discussed.
There are 12 figures and 10 tables.

Card 2/2

S/759/62/000/003/014/021

AUTHOR: Lomnev, S. P.

TITLE: Use of the Walkinshaw method to calculate the geometry, the fields, and the damping in the waveguide of a linear electron accelerator

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Uskoriteli. no.3. 1962. 141-147

TEXT: A numerical investigation is reported of the Walkinshaw approximation relations (J. Appl. Phys. v. 20,634, 1949) for the calculation of the geometry of the iris waveguide for linear electron accelerators. These relations, based on the assumption that the field in the accelerating waveguide is axially-symmetrical and the walls are perfectly conducting, are believed to be the most accurate. The present investigation is aimed at ascertaining whether the use of a larger number of rows and columns of the infinite determinant (Walkinshaw had originally suggested 3) would yield better results. An electronic computer was used and the tabulated functions (trigonometric, Bessel, etc) were taken with 8 significant figures. The optimum number of terms was found to be 4. The losses in the waveguide walls at the fundamental harmonic are also computed, and are found to depend little on the number of waveguide cells. There are 5 tables.

Card 1/1

S/058/62/000/010/016/093
A061/A101

24 6731

AUTHOR: Lomnev, S. P.

TITLE: Radial oscillations for different values of β_v and E_0

PERIODICAL: Referativnyy zhurnal, Fizika, no. 10, 1962, 6, abstract 10B50
(In collection: "Jskoriteli", no. 3, Moscow, Gosatomizdat, 1962,
54 - 67)

TEXT: The effect of the rate of the change in the amplitude, $E_0(z)$, of an electric field and in the phase velocity, $\beta_w(z)$, of a wave along the waveguide axis, as well as the effect of the initial conditions on the radial electron oscillations in a linear accelerator, were investigated by way of a numerical integration of the equations of motion. The investigations were conducted for the case of sharp changes of E_0 and β_w , and for large E_0 max. The magnitude of the focusing magnetic field was determined from the resulting data. It is shown that magnetic focusing is necessary up to ~ 20 Mev (as from 20 Mev, the angular divergence of the beam after breaking the magnetic field amounts to 10^{-4} rad). The account is illustrated by a great number of diagrams. S. Semenov
[Abstracter's note: Complete translation]

Card 1/1

13

S/058/62/000/010/017/093
A061/A101

AUTHORS: Gavrilov, N. M., Lomnev, S. P., Milovanov, O. S., Pyatnov, Ye. G.,
Tyagunov, G. A., Shaht'nov, A. V.

TITLE: Exit parameters and working characteristics of linear electron
accelerators

PERIODICAL: Referativnyy zhurnal, Fizika, no. 10, 1962, 6, abstract 10B51
(In collection: "Uskoriteli", no. 3, Moscow, Gosatomizdat, 1962,
75 - 82)

TEXT: The working characteristics, obtained with the БЭСМ (BFSM) elec-
tronic computer, of 2 - 25 Mev linear electron accelerators developed at MIFI,
are presented. By working characteristics are meant the different dependences of
the exit parameters of the accelerator (maximum energy, width of the energy spec-
trum, phase width of clusters) on the energy and flux of injected particles, as
well as on the frequency and power of the h-f feed.

V. Kanunnikov

[Abstracter's note: Complete translation]

Card 1/1

S/058/62/000/010/091/093
A061/A101

24.6731

AUTHORS: Lomnev, S. P., Tyagunov, G. A.

TITLE: A linear electron accelerator with $\beta_v = 1$ and $E_M = \text{const}$

PERIODICAL: Referativnyy zhurnal, Fizika, no. 10, 1962, 44, abstract 10-3-881
(In collection: "Uskoriteli", no. 3, Moscow, Gosatomizdat, 1962, 21 - 38)

TEXT: To investigate the characteristics of a beam obtained with a linear electron accelerator with $\beta_v = 1$ and $E_M = \text{const}$, a numerical integration of equations of particle motion is performed for a great number of particles and different initial conditions. The calculation results are represented in diagrams which show that the particle capture is improved with a growth of injection energy and accelerating field strength. For each value of field strength amplitude there is a minimum value of injection energy, below which capture does not take place at all. The following details are described and explained: the relationships between E_M and the particle velocity at the entrance, between the phases of particle entrance into the beam and their exit from it for different

Card 1/2

A linear electron acclerator with...

S/058/62/000/010/091/093
A061/A101

E_M ; the particle energy spectra at the exit; energy of particles at the exit as a function of their initial phase; the focusing of particles by a longitudinal magnetic field. The presented formulas of interpolation do not replace the exact equations which have been the basis for all the principal calculations in the present study. Still, they are useful, inasmuch as they provide the means for quickly estimating and explaining the qualitative dependences.

V. L.

[Abstracter's note: Complete translation]

Card 2/2

54.5141
S/058/62/000/011/046/061
A160/A101

AUTHOR: Lomnev, S. P.

TITLE: Waveguide buncher of a linear electron accelerator

PERIODICAL: Referativnyy zhurnal, Fizika, no. 11, 1962, 40, abstract 11-3-20n
(In collection: "Uskoriteli". no. 3. Moscow, Gosatomizdat, 1962,
98 - 114)

TEXT: Considered is a waveguide-type buncher with a variable phase velocity. With the help of the buncher, an investigation was carried out of the effect of the character of a change in the wave phase-velocity, and in the amplitude of intensity of the accelerating field on the characteristics of the beam output parameters. Presented are the results of an investigation of the dependence of the bunching of the particles on the magnitude of the upper limit of the amplitude of the accelerating field intensity, and also on the magnitude H_{BH} at $E = 100$ kv/cm. The possibility of obtaining narrow energy spectra of a given shape is considered.

[Abstracter's note: Complete translation]

V. K.

Card 1/1

LOMNEV, S.P.

Using the average density method in calculating the motion of
charged particles on electronic computers. Dokl. AN SSSR 143
no.6:1309-1312 Ap '62. (MIRA 15:4)

1. Matematicheskii institut im. V.A.Steklova AN SSSR. Predstavleno
akademikom A.A.Dorodnitsynym.
(Particles (Nuclear physics)) (Electronic digital computers)

LOMNEV, S.P.; ORLLVA, I.A., red.; LOPOVA, N., tekhn. red.

[Methods for designing linear electron accelerators] Metody
rascheta lineinykh elektronnykh uskoritelei. Moskva, Vychi-
slitel'nyi tsentr AN SSSR, 1962. 199 p. (MIRA 15:11)
(Particle accelerators)

LOMNEV, S.P. (Moskva)

Calculation of the particle capture cross section in a betatron
by the use of an electronic computer. Zhur.vych.mat.i mat.fiz.
2 no.3:491-494 My-Je '62. (MIRA 15:7)
(Electronic data processing--Nuclear physics) (Betatron)

L 10768-63 EWT(1)/EWG(k)/BDS/T-2/EEG(b)-2/
ES(w)-2--AFFTC/ASD/ESD-3/SSD--Pz-l/P1-l/Po-l/Pab-l--AT/IJP(C)
ACCESSION NR: AP3003552 S/0020/63/151/002/0315/0317

AUTHOR: Lomnev, S. P.

80
79

TITLE: Solution by electronic computers of the problem of the motion of charged particles with different charges and masses in a field of magnetic mirrors

SOURCE: AN SSSR. Doklady, v. 151, no. 2, 1963, 315-317

TOPIC TAGS: charged particle motion, plasma instability magnetic mirror, computer model of plasma, plasma containment

ABSTRACT: A previous study by the author (S. P. Lomnev. Doklady AN SSSR, 148, no. 5, 1963), in which he made a computer modeling of the motion of charged particles of one sign in a magnetic bottle and their diffusion along and across the magnetic field, is generalized to include particles of both signs and varying masses as well as their scattering by additional magnetic fields. As before, "grouped" charges are used instead of single particles, owing to the limitations of computer memory. The results make it possible to evaluate the diffusion of inhomogeneous plasma, to calculate various considerations affecting particle containment, and to analyze the use of auxiliary magnetic fields to improve containment properties. The article was presented by A. A. Dorodnitsy*n, 4 December 1962. Orig. art. has: 4 figures and 4 formulas.

Card 1/2/ *Computation Center, Academy of Sci.*

LOMNEV, S.P.

Solution of the problem of the motion of interacting particles
of like charge in a "magnetic bottle" using an electronic computer.
Dokl. AN SSSR 148 no.5:1049-1052 F '63. (MIRA 16:3)

1. Vychislitel'nyy tsentr AN SSSR. Predstavleno akademikom A.A.
Dorodnitsynym.
(Particles (Nuclear physics)) (Magnetic fields)
(Electronic computers)

12917-65 EWT(1)/EWG(k)/EPA(sp)-2/EPA(w)-2/EEC(t)/T/EEC(b)-2/EWA(m)-2 Pz-5/
4/Pab-10/4-4 IJP(c)/AEDC(b)/AFWL/ASD(p)-3/SSD/ESD(as)/EST(t)/SSD(b) AT
ACCESSION NR: AP4047321 870020/64/158/004/0827/0830

AUTHOR: Lomnev, S. P.

TITLE: Variant of magnetic trap a) B

SOURCE: AN SSSR. Doklady*, v. 158, no. 4, 1964, 827-830

TOPIC TAGS: plasma trapping, magnetic trap, magnetic dipole field

ABSTRACT: The author presents the calculated trajectories of non-relativistic ions in a magnetic-dipole field, at velocities close to those used to obtain thermonuclear reactions. The main conclusion of the analysis is that the field of a magnetic dipole is capable of confining and accumulating heavy particles, and the field intensity required for this purpose is physically attainable. The time of flight of the particle between the poles and the amplitude of the radial oscillation can be controlled by varying the magnetic field intensity, the radius, and the injection energy. The necessary

ard 1/2

L 12917-65
ACCESSION NR: AP4047321

condition for particle capture can be created by superimposing a supplementary sinusoidal field. The results of an earlier investigation by the author (DAN v. 148, No. 5, 1963) indicate that the Coulomb interaction will not be a major obstacle to the realization of such a magnetic trap. This report was presented by I. V. Obreimov. Orig. art. has: 4 figures and 6 formulas.

ASSOCIATION: Vy*chislitel'ny*y tsentr Akademii nauk SSSR (Computation Center, Academy of Sciences SSSR)

SUBMITTED: 19Jun64

ENCL: 00

SUB CODE: ME, EM

NR REF SOV: 003

OTHER: 001

Card 2/2

L 20286-65 EWT(1)/EEC-l/ENA(h) Feb AFETH/RARM(a)

ACCESSION NR: AP4049914

S/0020/64/159/003/0528/0531

AUTHORS: Krasnushkin, P. Ye.; Lomnev, S. P.; Tragov, A. G.

TITLE: Method for precision calculations of a periodic sectionalized waveguide

SOURCE: AN SSSR. Doklady*, v. 159, no. 3, 1964, 528-531

TOPIC TAGS: periodic waveguide, ¹¹⁵ waveguide calculation, waveguide propagation, normal propagation mode

ABSTRACT: The exact calculation of a periodic sectionalized waveguide is based on the determination of the parameters of a limited number of lowest normal modes propagating in the waveguide, as described elsewhere by one of the authors (Krasnushkin, Radiotekhn. i elektronika, in press). The method consists of writing down the Breisig operator equation of each unit section in the periodic waveguide, and replacing the functional operators in the equation with

Card 1/2

L 20286-65
ACCESSION NR: AP4049914

matrix operators by means of some system of basis functions. The method is illustrated by means of the classical example of propagation of axially symmetric waves in a round diaphragmed waveguide with unit section consisting of a stub of smaller diameter between two stubs of larger diameter. The algebraic equations are solved in this case numerically with an electronic computer accurate to better than 10^{-6} . This report was presented by I. M. Vinogradov. Orig. art. has: 1 figure, 16 formulas, and 1 table. 2

ASSOCIATION: Matematicheskii institut im. V. A. Steklova Akademii nauk SSSR (Mathematics Institute, Academy of Sciences SSSR)

SUBMITTED: 18Jun64

ENCL: 00

SUB CODE: EC

NR REF SOV: 006

OTHER: 004

Card 2/2

LOMNEV, S.P.

Variant of a magnetic trap. Dokl. AN SSSR 158 no.4:827-830 C. 167.
(MIRA 17:11)

1. Vychislitel'nyy tsentr AN SSSR. Predstavleno akademikom I.V.
Obreimovym.

L 43718-65 EWT(1)/EWP(m)/EPA(sp)-2/LPF(n)-2/ENG(v)/ENG(m)/EWA(d)/EPR/T-2/
EPA(w)-2/FCS(k)/EWA(m)-2/EWA(h)/EWA(c) Pz-6/Po-4/Pd-1/Pab-10/Pe-5/Ps-4/
ACCESSION NR: AP5008502 P1-4 IJP(c) WM/AT S/0207/64/000/006/0089/0092

28
B

AUTHOR: Korobeynikov, V.P. (Moscow); Lomnev, S.P. (Moscow)

TITLE: The motion of charged particles in a plasma in the presence of a mag-
netohydrodynamic shock wave

21

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1964, 89-92

TOPIC TAGS: perfect gas, shock wave, magnetohydrodynamic shock wave, wave front,
shock wave front, charged particle, charged particle motion, plasma, magneto-
hydrodynamics

ABSTRACT: Several special cases are investigated of the problem of determining
the subsequent motion of a charged particle of sufficiently high energy which
passes at the instant of time $t = t_0$ through the wave front of a magnetohydrody-
namic shock wave which itself is propagating through a gas changing the gas from
state 1 into state 2. It is also required to determine the possibilities of the
particle being accelerated by induced electromagnetic and magnetic fields. For
definiteness it is assumed that the gas is at rest in front of the shock wave and
that all the parameters of the medium are known. Behind the shock wave front there

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L 43718-65

ACCESSION NR: AP5008502

is a certain gas flow in the general case with changing values of velocity, density, pressure, and magnetic field. The following particular cases of the propagation of shock waves in a perfect gas are considered: 1) the motion of a plane shock wave with constant velocity D and 2) the motion of a spherical shock wave formed in a powerful point explosion in an infinitely conducting gas with initial field H_1 . The problem of the motion of particles during interaction with shock waves coming in the opposite direction was also investigated. Orig. art. has: 5 figures and 10 formulas.

ASSOCIATION: none

SUBMITTED: 23Jul64

ENCL: 00

SUB CODE: ME, NP

NO REF SOV: 008

OTHER: 002

NK
Card 2/2

LOMNEV, S.P.

Evolutional method of solving problems in electrodynamics. Dokl.
AN SSSR 159 no.6:1249-1251 D '64 (MIRA 18:1)

1. Vychislitel'nyy tsentr AN SSSR. Predstavleno akademikom
A.A. Dorodnitsynym.

KRASNUSHKIN, P. Ye.; LOMNEV, S.P.; TRAGOV, A.G.

Method for exact calculation of a periodic honeycomb wave
guide. Dokl. AN SSSR 159 no.3:528-531 N '64 (MIRA 18:1)

1. Matematicheskiy institut imeni V.A. Steklova AN SSSR.

LOMNEV, S.P.; ORLOVA, I.A., red.

[Calculation of electrophysical units and electrophysical phenomena using digital computers] Raschet i issledovanie elektrofizicheskikh ustanovok i elektrofizicheskikh iavlenii na tsifrovyykh vychislitel'nykh mashinakh. Moskva, Vychislitel'nyi tsentr AN SSSR, 1965. 130 p.
(MIRA 18:10)

LOWNICKI, A.

FOLIA BIOLOGICA. (Polska Adademia Nauk. Zakladi Zoologii Doswiadczalnej) Warszawa. (Journal on morphogenesis, genetics, and evolution issued by the Laboratory of Experimental Zoology, Polish Academy of Sciences; with English, French, and Russian summaries.)

The daily rhythm of activities in the nutria Myocastor coypus Molina. p. 293.

Vol. 5, No. 4, 1957

Monthly List of East European Acessions (EEAI), LC, Vol. 8, No. 3, March 1959
Unclass.

LOMOV, F.F.

Semiautomatic unit for the shakeout of molds. Mashinostroenie
no.6:104 N-D '62. (MIRA 16:2)
(Foundries--Equipment and supplies)

LOMNICKI, Adam

"Fundamentals of ecology" by Eugene P. Odum. Reviewed by
Adam Lomnicki. Wszechswiat no.5:139 My '62.

ZOMNICKI, Antoni

~~Zomnicki, Antoni~~. Kartografia matematyczna. [Ma-
thematical cartography.] 2nd ed. Państwowe Wydaw-
nictwo Naukowe, Warszawa, 1956. 176 pp. zł. 16.

I-FW

LOMNICKY, Sh.

geoj... 4
③ Geo

Meteorological Abst.
Vol. 4 No. 5
May 1953
Meteorological
Observations and
Instruments

4.5-39
 551.506.1(058)(437) 551.574.42
 Lomnický štít, Czechoslovakia. Observatória, Ročenka poveternostných pozorovaní, 1947, 1948. [Yearbook of meteorological observations, 1947, 1948.] Prague, 1948, 1949. 2 pieces. photos. entirely tables. In Czech, Slovak and French. Czechoslovakia. Státní Meteorologický Ústav v Praze [and] v Bratislave, Publikácia, Rad D, v. 2-3, 1947-1948. DLC
 —First parts of the yearbooks contain daily data of temperature, pressure, cloudiness, visibility, wind and precipitation for 7, 14, 21h and means, and also remarks on meteorological phenomena observed at and between observation times. The results of self-recording observations of pressure, air temperature, relative humidity, sunshine duration and wind are presented in the other parts of the issues. Rare photographs of glazed frost deposits are included. Subject Headings: 1. Observational data 2. Glaze 3. Yearbooks 4. Lomnický štít, Czechoslovakia. I. Gregor, A. II. Konec, M. III. Czechoslovakia. Státní Meteorologický Ústav v Praze [and] v Bratislave. —N.T.Z.

LOMNICKY, Stefan

Experience with glass tubing. Vodni hosp 13 no.5:171 '63.

1. Okresni vodohospodarska sprava, Spisska Nova Ves.

LOMNICKY, Stefan

What did the machine industry do for purification of
streams? Tech praca 15 no. 12: 1004 D '63.

LOMNICZI, Bela, dr.; MIKOSY, Donokos, dr., az allatorovoostudonanyok
kandidatusa

An unusually mild outbreak of chicken cholera. Magyar allatorv
lap 19 no.2:46-48 F '64.

1. Research Institute of Veterinary Hygiene, Hungarian
Academy of Sciences (Director: Dr. Janos Meszaros), Budapest.

HUNGARY

DERZSY, Domokos, Dr., Candidate of Veterinary Sciences, and LOMCICZI, Bela, Dr., Research Institute for Animal Hygiene at the Hungarian Academy of Sciences (Magyar Tudomanyos Akademia Allategeszsegugyi Kutato Intezete) [location not given] (Director: MESZAROS, Janos, Dr., Candidate of Veterinary Sciences).

"Incidence of Infectious Bronchitis in Chickens in Hungary"

Budapest, Magyar Allatorvosok Lapja, Vol 21, No 5, May 1966, pp 194-196.

Abstract: Four collective farms reported outbreaks of infectious bronchitis in poultry, observing typical respiratory difficulties and decline in egg production. Following the acute stage the blood serum of the afflicted animals showed high levels of infectious bronchitis antiviral substance. Attempts at isolating the virus were unsuccessful. It was assumed that the disease has been imported from the West where outbreaks have been reported earlier. 10 references, including 2 Hungarian and 8 Western.

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HUNGARY

LOMNICZI, Bela, Dr., Assistant Staff Scientist, Research Institute
for Animal Hygiene at the Hungarian Academy of Sciences (Magyar Tudományos
Akadémia Állategészségügyi Kutató Intézete) [location not given] (Director:
MESZAROS, Janos, Dr., Candidate of Veterinary Sciences).

"Infectious Bronchitis in Chickens"

Budapest, Magyar Allatorvosok Lapja, Vol 21, No 5, May 1966, pp 221-227.

Abstract: This summary article discusses infectious bronchitis in
chickens and covers the following subjects: pathogenesis, properties of the
virus, pathogenicity, course of the disease, virus excretion, symptoms,
autopsy results, diagnosis, therapy, prevention, and eradication. No re-
ferences.

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-230 -

HUNGARY

LOMNICZI, Bela, Dr. PESTI, Laszlo, Dr. cand. of vet. sci., JUMASZ, Sandor, Dr.; Hungarian Academy of Sciences, Animal Health Research Institute (director: MESZAROS, Janos, Dr, cand. of vet. sci.) (MTA -- Magyar Tudomanyos Akademia --, Allategeszsegugyi Kutato Intezet).

"Studies on the Pathogenesis of the So-Called Infectious Gastroenteritis of Pigs III. Relationship Between the Proteolytic Enzymes of the Digestive Tract, the Clostridium Toxins and Gastroenteritis."

Budapest, Magyar Allatorvosok Lapja, Vol. 22, No. 2, Feb 67, pages 52-56.

Abstract: [Authors' English summary modified] The proteolytic enzyme activity of the small intestine and in part also of the colon was determined in 40 healthy pigs, 30 pigs affected with "animal diarrhea" and 20 pigs suffering from infectious gastroenteritis, using biochemical and mouse protection tests. The effect of the intestinal fluid of healthy and diseased pigs on the β toxin of *Cl. perfringens* 9 type bacteria was also tested. The effect of trypsin and chymotrypsin on the α and β toxin of *Cl. perfringens* was studied. The minimal lethal dose (MLD) of β toxin for mice, pigs, cats, guinea pigs, rats and chicks was also determined. The results showed that the β toxin is very sensitive to the proteolytic enzyme of the intestinal fluid of pigs. In the presence of gastroenteritis of pigs, the proteolytic enzyme activity in the fluid decreases in proportion to the severity of the disease.

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HUNGARY

Budapest, Magyar Allatorvosok Lapja, Vol 22, No 2, Feb 67, pages 52-56.

This circumstance facilitates the accumulation of β toxin of *C1 perfringens* in the intestines of pigs afflicted with the so-called infectious gastro-enteritis. In agreement with the results of these investigations, chemically pure trypsin and chymotrypsin exert a strong inactivating effect on β toxin, but both of these enzymes exert only a moderate inactivating effect on the α toxin of these bacteria. It was revealed by MLD testing that the pig is one of the animal species highly sensitive to β toxin and it is thought that this toxin can produce heart muscle degeneration and blood vessel atony.
2 Hungarian, 6 Western references.

2/2

LOMNICZY, Dezso

Experiences in the organization of the group of Ajka and vicinity. Koh lap 9 no. 4: 185-186 Ap '54.

LOMNICZY, Dezso

Construction of the Szekesfehrvar Light Metal Factory. Musz.élet.
15 no.3:13 F '60. (FEAI 9:4)
(Hungary--Light metals)

LEVARDI, Ferenc, dr.; OVARI, Antal; BUBICS, Gyorgy; DOMONY, Andras;
LOMNICZI, Dezso; GAGYI PALFFY, Andras, dr.; BENEDEK, Ferenc;
KOVACS, Dezso; MARTOS, Ferenc, dr.; DENES, Otto; SAFAR, Laszlo;
TAMASY, Istvan, okleveles banyamernok; FOCZE, Laszlo; KREFFLY,
Gabo; BOCSANCZY, Janos; SCHMIDT, Eligiusz Robert, dr.; KONRAD,
Odon, dr.

An account of the November 27, 1964 Executive Committee Session
arranged by the National Hungarian Mining and Metallurgic Society
in Salgotarjan. Bany lap 98 no.3:203-212 Mr '65.

1. President, National Hungarian Mining and Metallurgic Society,
Budapest (for Levardi). 2. Secretary General, National Hungarian
Mining and Metallurgic Society, Budapest (for Ovari). 3. Editorial
Board Member, "Banyaszati Lapok" (for Gagy-Palfy, Benedek, Martos
and Kreffly). 4. Deputy Head, Department of Mining Engineering
of the Ministry of Heavy Industry, Budapest (for Tamasy).

LOMNICZY, Dezso; ZACHAR, Laszlo

Development of the Szekesfehervar Ligh Metal Works. Koh lap 93 no.7:
298-301 J1 '60.

LOMNIEWSKI, K.

Problems in hydrography of the southern Baltic Sea. p. 277.
WIADOMOSCI SLUZBY HYDROLOGICZNEJ I METEOROLOGICZNEJ. Warszawa.
Vol. 4, no. 5, 1954.

SOURCE: East European Accessions List (EEAL), LC, Vol. 5, no. 3, March 1956

LOMNIEMSKI, KAZIMIERZ

Geography & Geology

Zalew Wislany. Warszawa, Panstwowe Wydawn. Naukowe, 1958. 106 p. (Polska
Adademia Nauk. Instytut Jeografii. Prace geograficzne, nr. 15) (The Vistula
Lagoon.)

Monthly List of East European Acessions (EEAI), LC, Vol. 8, No. 3, March 1959
Unclass.

LOMNIEWSKI, Kazimierz

Hydrographic problems on the polish Baltic coast. Przegl geogr Suppl.
to 32:79-87 '60. (EEAI 10:4)

1. University of Nicholas Copernicus, Associated Chairs of Geography,
Torun.

(Poland--Coasts)
(Baltic Sea,

(Poland--Hydrography)

Michalski, Stanislaw, prof. dr

Works of the geographical departments of the Technical University
in Vienna during the 20-year period of the Austrian People's Republic.
Pracej geograf 36 no.3:607-614. 1972.

SUCHKOVA, A.V.; LOMNIK, L.Yu.

Microclimate of vineyards. Trudy OGMI no.22:39-43 '60.

(MIRA 14:10)

(Grapes) (Microclimatology)

Country : USSR

M

Category: Cultivated Plants. Grains.

Abs Jour: RZhBiol., No 11, 1958, 48848

Author : Kiyak; Lonnitskiy, Ya. Ye.

Inst : Sci. Res. Inst. of Agriculture and Animal Husbandry
of the Western Districts of the Ukrainian SSR

Title : On the Spacing of the Winter Wheat Varieties in the
Fields of Crop Rotation.

Orig Pub: Inform. byul. Nauk.-dosl. in-t zemlerobstva i
tvarinitstva zakhidn. rayoni v URSR, 1956, vyp. 1,
11-13

Abstract: No abstract.

Card : 1/1

USSR/Cultivated Plants - Grains.

M-4

Abs Jour : Ref Zhur - Biol., No 9, 1958, 39193

Author : Lomits'kiy, Ya.E.

Inst : Scientific Research Institute of Agriculture and Animal Husbandry of Western Rayons of UkrSSR.

Title : The Influence of Fertilizers on the Yield of Different Varieties of Winter Wheat.

Orig Pub : Inform. byul. Nauk-dosl. in-t zemlerobstva i tvarinnitstva zakhidn. rayoniv UkrSSR, 1957, vyp. 2, 12-15.

Abstract : NO abstract.

Card 1/1

M

Country : USSR
 CATEGORY : CULTIVATED PLANTS: Grains, Leguminous Grains, Tropical Cereals.
 ABS. JOUR. : RZBiol., No. 1, 1959, No. 1586
 AUTHOR : Lomatskiy, Ya.S.
 INST. : Inst. of Agronomy, AN UkrSSR
 TITLE : The Role of Fertilizer Under Winter Wheat in the Western Regions of the Ukrainian SSR
 ORIG. PUB. : Praci Instu agronom. AN URSR, 1957, 7, 25-30
 SUMMARY : The application of 200 centners p. ha. of manure (in experiments made by the Institute of Agronomy of the Academy of Sciences Ukrainian SSR) under the plow and placement of full mineral fertilizers in the form of spring side-dressing boosted the winter wheat yield by 10-11 centners per hectare. The fractional placement of mineral fertilizers in side-dressings (P₂₀ K₂₀ in the fall and N₂₀P₂₀K₂₀ in spring) boosted the crop by 6.2 centners per hectare over one-time placement.

CARD: 1/2

M

Country : USSR
CATEGORY : Cultivated Plants. Grains.

ABB. JOUR. : RZbiol., No. 21, 1958, No. 95911

AUTHOR : Kiyak, G.S.; Lemnitskiy, Ya.R.
INST. : Inst. of Agrobiol., Acad. of Sciences UkrSSR
TITLE : The Utilization of a Grass Layer Under Wheat
in the Western Districts of the Ukrainian SSR

ORIG. PUB. : In-tu agrobiol. AN URSR, 1957, 7, 61-66

ABSTRACT : The utilization of a layer of perennial grasses in the forest steppe districts of the western regions of the Ukrainian SSR (according to experiments made by the Institute of Agrobiol., Academy of Sciences Ukrainian SSR) produced a higher yield of winter wheat and exerted a beneficial effect on the yields of subsequent crops in the rotation. In 1952-53 the winter wheat yield on a layer of perennials (clover 60%, timothy 40%) averaged

CARD: 1/2

LOMITSKIY, Ya.Ye., Cand Agr Sci -- (diss) "Reaction of
varieties of winter wheat ~~to~~ to fertilizer." L²ivov, 1959,
15 pp (Min of Agr UkSSR. Belaya Tserkov' Agr Inst) 150 copies
(KL, 36-59, 117)

LOMNITSKIY, Ya.Ye.

Winter wheat in western provinces of the Ukrainian S.S.R.
Zemledelie 7 no.7:58-64 J1 '59. (MIRA 12:9)

1. Nauchno-issledovatel'skiy institut zemledeliya i zhivotnovodstva
zapadnykh rayonov USSR.
(Ukraine--Wheat)

LOMNO-TROFIMOV, G. F.

Fisheries-Accounting

Problems of improving planning and calculating net-cost; discussion of the article
by V.A. Serdyukov, Ryb. khoz., 23 No. 3, 1952

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

LOMONOS, G.

LOMONOS, G., inzhener-konstruktor

Automatic pumping installation for mine drainage. Mast. ugl. 4
no. 7:25 J1'55. (MLRA 8:10)
(Mine drainage)