VANCURA, ZDENEK

"Analyticka metoda v geometrii. /Vyd. 1./ Praha, Statni nakl. technicke literatury. /The analytic method in geometry; a university textbook. 1st ed. bibl., graphs, index/
Vol. 1. 1957. 297 p.

p. 297 (Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 6, June 1958.

VANCURA, Zdenek (Praha)

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Studies on microbiological determination of staphylococci. I. One-stage method for the determination of leukocytic activity of staphylococcal toxin (leukocidin). Cesk. epidem. mikrob. imun. 8 no.3: 197-201 May 59.

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(MICROCOCCUS PYOGENES,
toxin, leukocytic activity (Cz))
(LEUKOCYTES,
leukocytic activity of Micrococcus pyogenes toxin (Cz))

VANCURIK, Josef; SVEJCAR, Jan

Contribution to microbiological diagnosis of staphylococci. II. The importance of the determination of leucocodin and its relation to certain further properties of staphylococci. Cesk. epidem. mikrob. imun. 8 no.5:304-306 Sept 59.

1. Vojensky ustav hygieny, epidemiologie a mikrobiologie v Praze.
(STAPHYLOCOCCUS)

VANCURIK, J.

The generalization of local staphylococcal infection in X-irradiated rabbits. Folia microbiol 6 no.1:33-39. (60.
(EEAI 10:5)

1. Military Institute of Hygiene, Epidemiology, and Microbiology, Prague.
(STAPHYLOCOCCAL DISEASES) (X RAYS)

VOHREITH, Milos; BARES, Ludek; BENES, Vladimir; VANCURIK, Josef

Candidiasis of the central nervous system diagnosed by a bioptic test. Cas.lek.cesk 100 no.31:966-971 4 Ag '61.

1. Patologickoanatomicke odd. UVN v Praze, nacelnik pplk. MUDr. M. Vorreith, neurologicke odd. nemocnice OUNZ v Rumburku, prim. MUDr. L. Bares, neurochirurgicka, klinika KU v Praze, prednosta gen. prof. MUDr. Z. Kunc a Vojensky ustav hygieny, epidemiologie a mikrobiologie, nacelnik pplk. MUDr. Z. Vlasak.

(MONILIASIS diag) (BRAIN dis)

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Contribution to the importance for human pathology, of gram-negative coccal bacillary microbes difficult to classify (B. anitratum). Cesk. epidem. 12 no.4:220-224 Jl '63.

1. Vojensky ustav hygieny, epidemiologie a mikrobiologie v Praze.

(MENINGITIS) (ACHROMBACTER)

VANCUROVA, E.

Some emotional and social aspects of preschool children. Cesk. pediat. 17 no.7/8:628-631 Ag '62.

1. I. detska klinika fakulty detskeho lekarstvi KU v Praze, prednosta prof. dr. J. Sevjcar.
(CHILD PSYCHOLOGY)

VANCUROVA, E.

Introduction to the problem of the psychological sequelae in restriction of movement in chronically ill children. Cesk. pediat. 18 no.4:289-290 Ap '63.

1. I detska klinika fakulty detskeho lekarstvi KU v Praze, prednosta prof. dr. J. Svejcar.
(MOVEMENT) (CHRONIC DISEASE) (PERSONALITY)

VANCUROVA, L.

Research problems concerning education in the field of hygiene.

P. 75 (Ministry of Health, Research Institute for Organization of Health Service) Vol. 5, No. 2, Feb. 1957.

SO: Monthly Index of East European Acessions (EEAI) Vol. 6, No. 11 November 1957.

VANCUROVA, Ludmila, MUDr.

Problems of research in public health education. Cesk. zdravot. 5 no.2:75-80 Feb 57.

1. Reditelka Ustredniho ustavu zdravotnicke osvety v Praze.
(PUBLIC HEALTH, educ.
research problems (Cz))
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in public health educ. (Cz))

VANCUROVA, L.

Precancerous conditions of the cervix uteri. Role of health education. Cesk. gyn. 24[38] no.7:550-552 S '59

1. Ustredni ustav zdravotnicke osvety v Praze.
(CERVIX UTERI, neopl.)
(HEALTH EDUCATION)

VANCUROVA, L. MUDr., nositelka Radu prace; KLIMOVA-FUGNEROVA, MUDr. M.

Health education in the retrospect (1945-1960). Cesk. zdravot. 8 no.5:257-264 My '60.

1. Reditelka Ustredniho ustavu zdravotnicke osvety (for Vancurova). 2. Krajska osvetova, lekarska UNV - Praha (for Klimova-Fugnerova)
(HEALTH EDUCATION)

VANCUROVA, RUZENA

Special botanika zemedelska. Praha, Statni pedagogicke nakl., 1955. 260 p. (Ucebni texty vysokych skol)

SOURCES: EEAL LC Vol. 5 No. 10 Oct. 1956

VANCUROVA, Ruzena

Cviceni ze specialni botaniky a geobotanicke exkurse. (Exercises in Special Botany and Geobotanical Excursions; a university textbook. 1st ed. illus., bibl.) Authors: Ruzena Vancurova, Vaclav Fiala, Framtisek Volf. For the students of the faculties of agronomy and economics. Prague, SPN, 1957. 225 p.

Bibliograficky katalog, CSR, Ceske knihy, No. 33. 24 Sept 57. p. 717.

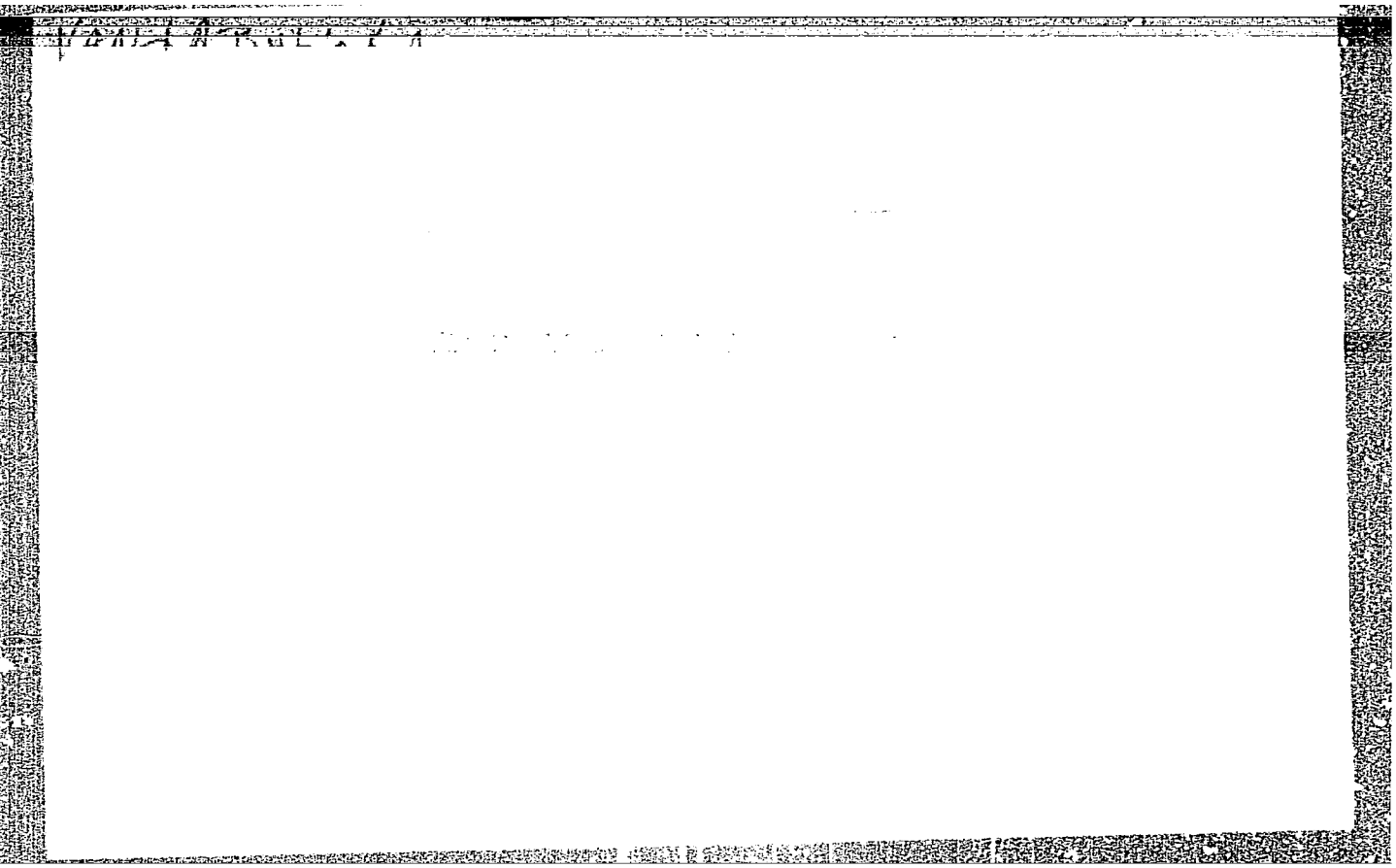
AVDOT'IN, L., kand. arkhitektury; VANO, I., inzh.

Designing apartment houses by electronic computers. Zhil. stroi. no.1:24-25 '65. (MIRA 18:3)

VAND, L.E.

Long-term planning of construction by the methods of linear programming. Vych. i org.tekh. v stroi. i proek. no.1:40-43 '64. (MIRA 18:10)

1. Gosudarstvennyy institut tipovogo i eksperimental'nogo proyektirovaniya i tekhnicheskikh issledovaniy Gosstroya SSSR.



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VANDA, M.; SUBRT, O.

Repairs of Zetor Super tractors, the repairs of pulleys.

p. 428 (Mechanisace Semedelstvi) Vol. 7, no 1?, Sept. 1957 - Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 1, Jan. 1958

27

Preparation of calcium hypophosphite. Jaroslav Novotný and Pavel Vanda (Karlova Univ., Prague). *Chem. průmysl* 8, 301-3(1958); cf. preceding abstr.—The optimum wt. ratio 20:5:100:2 of $Ba(OH)_2$:P:H_2O:activated C yielded Ba hypophosphite 3 parts in 99.65% purity. The same molar proportions were used for the prepn. of Ca hypophosphite. White P and the activated C were mixed with water in a N atm., and CaO was added. The reaction was carried out under reflux and the escaping PH_3 was burned in air and absorbed in water. After cooling, CO_2 was passed to ppt. excess $Ca(OH)_2$, the suspension was filtered, concd., and mixed with an equal vol. EtOH, pptg. $Ca(H_2PO_2)_2$. The yield was 0.50, 0.68 and 0.40 g./g. P with H_2O/P wt. ratios of 30, 20, and 10. Most of the reaction was found to take place within the 1st hr. Fe^{+++}, Al^{+++}, and solvents renewing the P surface (CCl_4, cyclohexanone) were not catalysts.

Herbert Morawetz

VANDAKUROV, Yu. V. FD 401

USSR/Physics - Electromagnetic waves diffraction

Card 1/1

Author : Vandakurov, Yu. V.

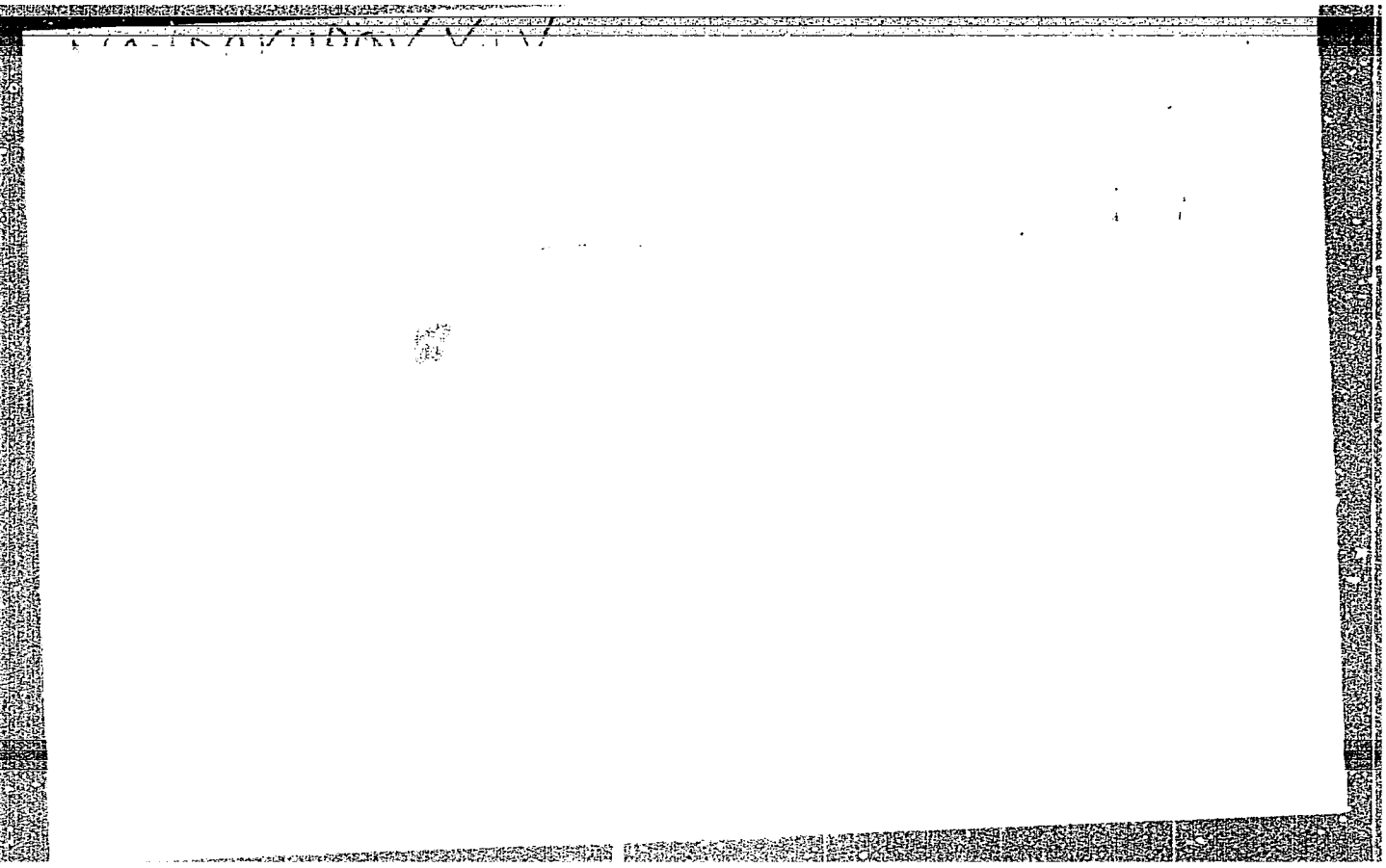
Title : Diffraction of electromagnetic waves emitted by an arbitrarily oriented electric or magnetic dipole in an ideally conducting half-plane

Periodical : Zhur. eksp. i teor. fiz. 26, 3-18, Jan 1954

Abstract : Derives a rigorous solution of the problem of the diffraction of electromagnetic waves emitted by an arbitrarily oriented electric or magnetic dipole in an ideally conducting half-plane. The results are presented in the form of single integrals with finite limits of tabulated functions. Generalizes the Sommerfeld problem by locating the dipole source at a finite distance from the edge of the half-plane. Acknowledges the close guidance of Prof G. A. Grinberg and advice of Prof N. N. Lebedev and Ya. S. Uflyand. Refers to G. A. Grinberg's Izbrannyye voprosy matematicheskoy teorii electricheskikh i magnitnykh yavlenyy, Acad Sci USSR Press, 1948.

Institution : Leningrad Physicotechnical Institute, Acad Sci USSR

Submitted : June 23, 1953



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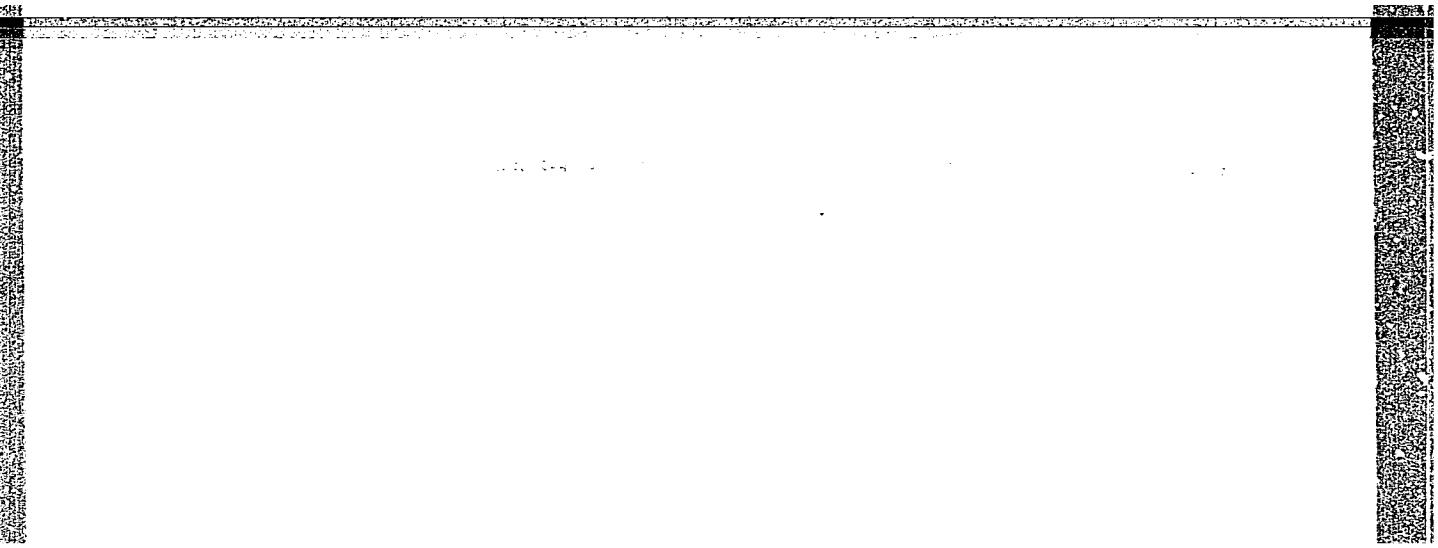

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858520012-9"

VANDAKUROV, Yu. V. :

VANDAKUROV, Yu. V.: "The theory of Electron-optical focusing systems with cirvilinear axes, and its application to the investigation of certain types of systems with a plane axial trajectory." Leningrad Physicotechnical Inst. Acad Sci USSR. Leningrad, 1956 (Dissertation for the Degree of Candidate in Physicomathematical Science.)

So. Knizhnaya letopis' No. 38, 1956 Moscow

124-1957-1-27

Translations from: Referativnyy zhurnal, Mekhanika, 1957 Nr 1, p 4 (USSR)

AUTHOR: Vandakurov, Yu. V.

TITLE: On a Method of Approximate Solution of the Problem of n Bodies in Natural Coordinates (Ob odnom metode priblizhennogo resheniya zadachi n tel v yestestvennykh koordinatakh)

PERIODICAL: Byul. In-ta teor. astron. AN SSSR, 1956, Vol 6, Nr 4, pp 240-243

ABSTRACT: A method is proposed for the approximate integration of an equation of celestial mechanics by introducing into the perturbation function the solution of the problem of two bodies and by evaluating only the first powers of the deviations of the perturbed motion relative to the unperturbed motion. The new feature in the paper is the use of natural coordinates.

G. A. Merman

1. Celestial mechanics--Equations--Theory

Card 1/1

VANDAKUROV, YU. V.

Category : USSR/Nuclear Physics - Instruments and Installations. C-2
Methods of Measurement and Investigation.

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 5761

Author : Vandakurov, Yu.V.
Title : Concerning Certain Anti-Symmetrical Magnetic Fields with Double Focusing.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 7, 1599-1610

Abstract : Examination of the focusing properties of anti-symmetrical magnetic fields with a rotational symmetry for the case when the fundamental trajectory of the beam, lying in the central plane of the field, is perpendicular at the initial point to the radius r. Fields are investigated with double focusing, in which several intermediate images are produced between the source and the final image, as a result of the focusing in a single direction, horizontal or vertical. It is shown that in certain fields of this type the dispersion is great and at the same time the second-order aberration, which depends on the angle of divergence of the beam in the central plane, is absent. For Part I see Referat Zhur Fizika, 1956, 21918.

Card : 1/1

VANDAKUROV, Yu.V.

USSR/Electronics - Electron Optics H-3

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 12302

Author : Vandakurov, Yu.V.

Inst :

Title : Electron-Optical Systems, Whose Fields are Independent of One Coordinate.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 11, 2578-2594

Abstract : A method, developed by Grinberg (Selected Problems in the Mathematical Theory of Electric and Magnetic Phenomena, published by the Academy of Sciences, USSR, 1948), has been employed. Almost all the derivations are made in the non-relativistic approximation. The author examines electron-optical systems, that have cylindrical or axially-symmetric fields (electrostatic and magnetostatic). In addition to the two known differential equations of Grinberg (second-order equations), which describe the deflection of the trajectory from the axial trajectory of

Card 1/2

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 12302

the beam, the author obtains for these fields still another equation, which is simpler (of first order), and which is a consequence of the two Grinberg equations (and in some cases of one of these equations). When investigating the trajectory, this simpler equation can be used to replace one of the second-order equations. Particular cases are examined, for example, that of a field with a center plane, and also the case of fields with symmetry of rotation and with a center plane. Very briefly discussed are the following examples: field of a linear current, field of spherical and cylindrical capacitors, field of a cylindrical capacitor with a superimposed inhomogeneous magnetic field.

Bibliography, 15 titles.

VANDAKUROV, Yu. V.

57-6-26/36

AUTHOR VANDAKUROV, Yu. V.

TITLE Investigation of Axially Symmetrical Magnetic Fields Which Bring into Focus a Space Beam Having a Helical Axial Path with a Slowly Varying Radius. (Issledovaniye aksial'no simmetrichnykh magnitnykh poley, osushchestvlyayushchikh fokusirovku prostranstvennogo puchka, osevaya trayektoriya kotorogo imeyet vid spirali s medlenno menyayushchimsya radiusom. Russian)

PERIODICAL Zhurnal Tekhn. Fiz. 1957, Vol 27, Nr 6, pp 1319 - 1329 (U.S.S.R.)

ABSTRACT

Axially symmetrical fields with a mean level (symmetry-level of the pole shoe type) are investigated. The character of the fields is determined by the condition of the focusing of a broad plane bundle with a non-circular axial trajectory. The author shows that if the axial curve is almost circular the field distribution can be chosen in such a way that the aberrations dependent on the deflection-angle on the mean level are small compared to other aberrations. The focusing of the bundle round a wide angle can be carried out in the fields investigated. With increasing width of the focusing-angle the dispersion increases proportionally to the square of the angle while the aberrations which are dependent on the height of the source and of the initial angle between trajectory and mean level, change only slightly. Besides, the focusing of the bundle takes place in two directions in the case of some angles. The author shows that the fields investigated here can be used for the

Card 1/2

57-6-26/36

Investigation of Axially Symmetrical Magnetic Fields which Bring into Focus a Space Beam Having a Helical Axial Path with a Slowly Varying Radius.

construction of a spectrometer with a great resol[illegible]power in the case of a sufficient intensity of light. (With 3 Slavic references).

ASSOCIATION FTI, Leningrad
PRESENTED BY
SUBMITTED 29.11.1956
AVAILABLE Library of Congress

Card 2/2

VANDAKUROV, Yu. V.

AUTHOR: Vandakurov, Yu.V. 57-8-28/36

TITLE: On the Theory of Aberrations of Electronoptical Systems with a Curvilinear Axis (K teorii aberratsiy elektronnoopticheskikh fokusiruyushchikh sistem s krivolineynoy os'yu)

PERIODICAL: Zhurnal Tekhn.Fiz. 1957, Vol 27, Nr 8, pp 1850-1862 (USSR)

ABSTRACT: Equations are deduced according to the trajectory method and the method developed by Grinberg. By their means the geometrical aberrations of first and second order as well as the chromatic aberrations of first and second order can be found for any electric and magnetic fields. Formulae are given for these aberrations. Formulae are also deduced for the dispersion according to velocities and masses. The conditions are put up in the case of the fulfillment of which the geometric aberrations of second order lack. All deductions of general formulae are carried out for a relativistic case. There are 10 Slavic references.

ASSOCIATION: Leningrad Physical Technical Institute of the Academy of Sciences of the USSR)(Leningradskiy fiziko-tekhnicheskiy institut AN SSSR)

SUBMITTED: January 15, 1957

Card 1/1

AUTHOR: Vandakurov, Yu. V. 57-28-5-27/36

TITLE: Investigation of the Stability of Particle Motion in Accelerators With Radially Growing Field and Supplementary Systems Guaranteeing the Focussing of the Particle Beam(Issledovaniye ustoychivosti dvizheniya chastits v uskoritelyakh s radial'no narastayushchim polem is dopolnitel'nymi sistemami, obespechivayushchimi fokusirovku puchka chastits)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 5, pp. 1065-1076 (USSR)

ABSTRACT: In the present paper the author investigated the motion of the particle beam in accelerators, the field of which can be represented by the sum of two separate fields: One field symmetrical to the axis of the leading field, and one field periodically dependent upon the azimuth of the field, which is intended for focussing the beam in a direction parallel to the axis. The second field is created by differently arranged systems of current-carrying conductors. In one of the investigated fields the full field belongs to the class of ordinary fields with a gradient variable as the azimuth. In alinear approximation the trajectories of particles with constant energy were investigated and the conditions were found, at a satisfaction of which

Card 1/ 5

Investigation of the Stability of Particle Motion in Accelera- 57-28-5-27/36
tors With Radially Growing Field and Supplementary Systems Guaranteeing the
Focussing of the Particle Beam

the motion is stable. The relation determining the minimum amperage necessary for the maintenance of the stability of motion, was found, 1) If it is assumed, that the length of the horizontal conductor area is so great that it influences only little the magnitude of field in the range of from r_1 to r_2, when it is increased, the investigated system can approximately be replaced by a system of N conductors of infinite length intersecting in the point with the coordinates r = 0, z = h. The field created by the current passing through the n-th conductor with an amperage I can conveniently be expressed by the scalar potential Ω_n. The scalar potential is obtained from a summation of the quantities Ω_n with n, n extending from 0 to N - 1. If the leading field is created by a magnet with an iron core, the directed currents in the iron can exert considerable influence on the magnitude of the leading field. These currents are determined by concrete constructive peculiarities, and can approximately be taken into account by the introduction of an effective field into formula (5). The scalar potential then becomes $\Omega = \Omega_t + \Omega_v$.

Card 2/5 2) In order to investigate the stability of motion, the motion

of the particle beam, the energy of which can be assumed as being constant, must be examined. If one of the trajectories of the beam is known, the others can be computed according to the equation by Grinberg(Ref 9). 3) The minimum amperage I_{min} equals $I_{min} = 4.76\sqrt{1 + \frac{h^2}{r_2^2}} (\text{Ar sh } \frac{h}{r_2}) (k r_o H_o)_{r_o = r_2}$.

The value of the current I necessary for guaranteeing the stability of the vertical movements can be reduced by winding the conductors in a spiral form in a plane parallel to the middle field plane. In order to remove unfavorable resonance phenomena such an acceleration condition is advantageous, at which μ and ν remain constant for all r in the interval $r_1 \leqslant r_o \leqslant r_2$. μ will be constant, if $(\text{Hz v.})_{z=o} \sim r^k$. Furthermore the conductors can be twisted in such a way as to make ν also independent of r_o. 4) The error corresponding to an inaccurate choice of the axis curve is small; it also has only an effect on the trajectory and by no means on the frequency. In the investigated case the amplitude of the fast oscillations is N-times less than the amplitude of the slow oscillations. This

circumstance is unfavorable, because it increases the number of resonance values μ and ν. The amperage in the case $\frac{h}{r_0} \ll 1$ is in the investigated field equal to that in section three. 5) The formulae set up in sections 3 and 4 determine the trajectory of the beam in the zero-th approximation with respect to the small quantity 1/N. They are sufficiently accurate, if k and $\frac{\lambda^2}{\lambda\mu\omega}$ are considerably smaller than N^2. If, however, they are only somewhat smaller, more accurate solutions of the equations of motion are necessary. The obtained solutions are as follows:

$$\zeta = \left[1 + \frac{(2g+f)\sin N\vartheta - \frac{1}{4}g^2\cos 2N\vartheta}{N^2}\right]\left\{\left(1+\frac{g^2}{4N^2}\right)\zeta_0\cos\mu_2\vartheta + \left[\left(1-\frac{g^2}{2N^2}\right)\zeta_0' - \frac{2g+f}{N}\zeta_0\right]\frac{\sin\mu_2\vartheta}{\mu_2}\right\},$$

$$z = \left[1 - \frac{f\sin N\vartheta - \frac{1}{8}g^2\cos 2N\vartheta}{N^2}\right]\left\{\left(1-\frac{g^2}{8N^2}\right)z_0\cos\nu_2\vartheta + \left[\left(1-\frac{g^2}{8N^2}\right)z_0' + \frac{f}{N}z_0\right]\frac{\sin\nu_2\vartheta}{\nu_2}\right\}$$

Card 4/5

Investigation of the Stability of Particle Motion in Accelerators with Radially Growing Field and Supplementary Systems Guaranteeing the Focussing of the Particle Beam

57-28-5-27/36

The here detailed method can easily be generalized to cases of a more general type. It can also be applied to the computation of equations, taking into consideration terms of a higher order of infinitesimals. The author thanks V. M. Kel'man as well as Professor G. A. Grinberg. There are 2 figures and 11 references, 5 of which are Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR, Leningrad (Leningrad, Physical-Technical Institute AS USSR)

SUBMITTED: May 29, 1957

1. Particle accelerators--Design 2. Particle beams--Focusing

Card 5/5

VANDAKUROV, Yu.V.

Theory of focusing in accelerators with a magnetic field of azimuthal periodicity. Zhur. tekh. fiz. 28 no.11:2567-2582 N '58. (MIRA 12:1)

(Particle accelerators)

9.3150,16.7800,24.2120

77845
SOV/57-30-3-11/15

AUTHOR: Vandakurov, Yu. V.

TITLE: Stability of a Fine Annular Plasma Conductor in a Magnetic Field

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol 30, Nr 3, pp 330-337 (USSR)

ABSTRACT: Many authors have analyzed stability of an infinite cylindrical plasma twine, with respect to different perturbations, assuming the validity of equations of magneto-hydrodynamics. It is usually assumed criterions obtained in the infinite case apply also in case of a thin annular plasma conductor. The present paper investigates the validity of such assumptions. The author, in the framework of magneto-hydrodynamics, investigates stability of an annular plasma twine located inside a perfectly conducting mantle. The twine is bent only slightly, i.e., $a/R = \epsilon$ and b/R are small compared to unity. Here a and b are respective

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radii of the sections of the twine and the mantle; R is mean radius of the ring. The author assumes further that in the stationary state there are no volume currents inside the plasma conductor, while the medium is taken to be incompressible and perfectly conducting. He starts from equations for total fields inside H_1 and outside H_e of the twine developed previously by Vandakurov (ZhTF, XXIX, Nr 11, 1959). He investigates stability of the equilibrium configuration with respect to perturbations depending on time t and angle according to

$$e^{i(\omega t + n\varphi)}, \quad n = \pm 1, \pm 2, \ldots$$

The author does not investigate n = 0 axially symmetrical perturbations. He denotes by p, v, and H the values of perturbed pressure, velocity, and magnetic field in the inside region $r \leq a$. Total values of

these quantities are then denoted by p_0+p; V and H_1+H. The author starts from magneto-hydrodynamic Eqs. "B"

$$i\omega\mathbf{H} = \frac{h_i H_0}{R\lambda^2}\{in\mathbf{v} + 2R(\mathbf{v}\,\mathrm{grad}\,\lambda)\mathbf{l}_\varphi\},$$

$$\frac{i\omega}{u^2}\mathbf{v} = -\mathrm{grad}\,\sigma + \frac{1}{h_i H_0 R)^2}\{in\mathbf{H} - 2RH_\varphi\,\mathrm{grad}\,\lambda\},$$

WHERE $\mathrm{div}\,\mathbf{H} = 0,\ \mathrm{div}\,\mathbf{v} = 0,$

$$\sigma = \frac{1}{h_i^2 H_0^2}\left(4\pi p + \frac{h_i H_0 H_\varphi}{\lambda}\right),\quad u = \frac{h_i H_0}{\sqrt{4\pi\rho_0}},\quad H_r = (\mathrm{Hi}_r).$$

He next transforms the equation into more convenient forms, and develops appropriate boundary conditions. He solves the problem applying the Fourier Expansion and notes each solution containing one of the harmonics s = m (m = 0.1....) as the dominant one corresponds to a perturbation of type m. The final step is to introduce these solutions into Eq. 13

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$$\left\{\frac{ah_i^2\Psi}{\lambda_0^2}-[1-\varepsilon q\cos\varphi+O(\varepsilon^2)]\frac{\partial\Phi}{\partial\varphi}-\frac{inch_e}{\lambda_0^2}\Phi\right\}\Big|_{r=a}+$$
$$+[1-3\varepsilon q\cos\varphi+O(\varepsilon^2)]\xi=0. \qquad (13)$$

and obtain the boundaries of the stability region which completes the study. In Eq. (13) $\bar{\psi} = \lambda^2 b$. Note the solutions in form of Fourier expansions are characterized by various values of expansion coefficients. The author expands those coefficients into power series in $\mathcal{E}$, and solves the problem utilizing the method of successive approximations. The problem of investigation of various types of perturbations is now reduced to discussion of roots of the determinant

$$\begin{vmatrix} A_0 & \varepsilon B_0 & \varepsilon^2 U_0 & \varepsilon^2 C_0 & \varepsilon^3 V_0 & \cdot \\ A_1 & \varepsilon B_1 & \varepsilon U_1 & \varepsilon^2 C_1 & \varepsilon^3 V_1 & \cdot \\ \varepsilon \bar{A}_1 & \bar{B}_1 & \bar{U}_1 & \varepsilon C_1 & \varepsilon \bar{V}_1 & \cdot \\ A_2 & \varepsilon B_2 & \varepsilon U_2 & C_2 & V_2 & \cdot \\ \varepsilon^2 \bar{A}_2 & \varepsilon B_2 & \varepsilon \bar{U}_2 & C_2 & \bar{V}_2 & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \end{vmatrix} = 0. \qquad (16)$$

where the elements of the determinants are obtained as the result of substitution of the Fourier-expanded solution into Eq. (13). In the first approximation one uses for instance the minor

$$\begin{vmatrix} A_0 & \varepsilon B_0 & \varepsilon^2 U_0 \\ A_1 & \varepsilon B_1 & \varepsilon U_1 \\ \varepsilon \bar{A}_1 & \bar{B}_1 & \bar{U}_1 \end{vmatrix} = 0. \qquad (18)$$

and two of the roots give Eqs. 20.

$$\frac{2a^2}{b^2-a^2}+n^2+\left(k_1^2+k_2^2\frac{b^2+a^2}{b^2-a^2}\right)=\pm 2n\,k_1 k_2\frac{b^2+a^2}{b^2-a^2}. \qquad (20)$$

It can be shown these roots determine the boundary of stability for perturbation m = 1. The author also finally shows that with accuracy up to the order in ε^2, the limits of stability of a fine annular twine are determined by the same equations used for an infinite cylindrical plasma twine. The wavelength of the perturbation in the latter case must then be put equal to $\frac{2\pi R}{n}$. Prof. G. A. Grinberg evaluated the work. There are 5 references, 3 Soviet and 2 U.K. The U.K. references are: R. J. Tayler. Proc. Phys. Soc., B70, 1049, 1957. M. Kruskal a. M. Schwarzschild. Proc. Roy. Soc., 223, 348, 1954.

Stability of a Fine Annular Plasma Conductor in a Magnetic Field

77845
SOV/57-30-3-11-15

ASSOCIATION: Physico-Technical Institut AS USSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR, Leningrad)

SUBMITTED: October 22, 1959

Card 7/7

VANDAKUROV, Yu.V.

Oscillations of a thin annular plasma flux in magnetic field.
Zhur. tekhn. fiz. 30 no.6:711-722 Je '60. (MIRA 13:8)

1. Fiziko-tekhnicheskiy institut AN SSSR, Leningrad.
(Plasma (Ionized gases)) (Magnetic fields)

VANDAKUROV, Yu.V.

Stability of a thin annular plasma conductor in a magnetic field Part 2. Zhur. tekh. fiz. 30 no.7:781-789 Jl '60. (MIRA 13:8)

1. Fiziko-tekhnicheskiy institut AN SSSR, Leningrad.
(Magnetic fields) (Plasma (Ionized gases))

84454
S/057/60/030/009/021/02:
B019/B054

26.1410

AUTHOR: Vandakurov, Yu. V.

TITLE: Steady State of a Thin Annular Plasma Column of Finite Conductivity

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 9, pp. 1134-1136

TEXT: In the introduction, the author refers to the known fact that in an infinite cylindrical plasma column in an electric longitudinal field the plasma drifts, which are described by two summands in formula (1) for $\vec{v}_1$ set up by L. Spittser may compensate each other ($\vec{v}_1$ is the plasma velocity in transverse direction to the magnetic field lines in a state near the steady one). In the transition to a toroidal form, this compensation is not maintained, and a plasma drift of a new type originates. In his investigation, the author also restricts himself to states near the state of equilibrium, and first he studies an infinite cylindrical plasma column. Expressions for the current density and the radial plasma velocity

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84454

Steady State of a Thin Annular Plasma Column of Finite Conductivity

S/057/60/030/009/021/021
B019/B054

are obtained. It appears that with a toroidal column no complete compensation of drifts can be attained. Further, the radial velocity depends on the conductivity of the plasma and its distortion, but not on the magnetic longitudinal field. The drift which is connected with the distortion of the axis of the plasma column is considered to be essential in systems with strong magnetic longitudinal fields. There are 3 Soviet references.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR
(Institute of Physics and Technology of the AS USSR)

SUBMITTED: June 18, 1960

Card 2/2

VANDAKUROV, Yu.V.

Effect of the final conductivity on the stability of a slightly curved string plasma. Zhur.tekh.fiz. 31 no.8:907-915 Ag '61. (MIRA 14:8)

1. Fiziko-tekhnicheskiy institut AN SSSR, imeni A.F.Ioffe, Leningrad.
(Plasma (Ionized gases))

VANDAKUROV, Yu.V. (Leningrad)

Theory of the stability of a conducting fluid cylinder in a magnetic field. Prikl. mat. i mekh. 26 no.5:877-884 S-O '62. (MIRA 15:9)

(Plasma (Ionized gases)) (Magnetic fields)

39817

S/057/62/032/008/006/015
B104/B102

AUTHOR: Vandakurov, Yu. V.

TITLE: Effect of finite conductivity on the equilibrium of a slightly curved plasma column. II

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 8, 1962, 948 - 957

TEXT: The steady state of a slightly twisted and a slightly helical plasma column with finite conductivity is studied. The column is located in a strong longitudinal magnetic field and in a transverse magnetic field, necessary for the equilibrium condition. It is assumed (1) that the equations of magnetohydrodynamics are valid; (2) that the diameter 2a of the column is small compared with the radius of curvature, R, and the radius of twisting, Q; (3) that the pressure produced by the longitudinal current is equal to the plasma pressure and much smaller than the total magnetic pressure; (4) that the zeroth approximation depends only on the distance from the axis of the column. Hence the author approximates the solutions with respect to powers of $\epsilon = a/R$. The distribution of the fields and of pressure proves to be similar to that of an infinitely long plasma column with circular cross section. It is shown that the

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S/057/62/032/008/006/015
B104/B102

Effect of finite conductivity...

longitudinal current may prevent a separation from the wall and that the pressure over the cross section remains constant. An experiment with an incompressible liquid is described which enables mass flow distribution in the column to be studied. There are 3 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR Leningrad (Physicotechnical Institute imeni A. F. Ioffe AS USSR, Leningrad)

SUBMITTED: August 26, 1961

Card 2/2

36911
S/020/62/143/005/007/018
B104/B102

24.6714
26.2321

AUTHOR: Vandakurov, Yu. V.

TITLE: The stability problem of a plasma cylinder with an inhomogeneous cross-sectional current distribution

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 5, 1962, 1078-1081

TEXT: The stability of an incompressible, nonviscous, and ideally conducting plasma cylinder of radius a is investigated. The equilibrium distribution of the magnetic field inside and outside (vacuum) the column is given by

$$\frac{H}{H_0}=\begin{cases} i_\varphi g\frac{r}{a}+i_z h & \text{при } 0\leqslant r\leqslant d,\\ i_\varphi \frac{r}{a}\left(g+f\ln\frac{r}{d}\right)+i_z h\left(1+l\ln\frac{r}{d}\right) & \text{при } d\leqslant r\leqslant a,\\ i_\varphi \frac{a}{r}+i_z h\left(1+l\ln\frac{a}{d}\right) & \text{при } a\leqslant r<\infty. \end{cases}$$

where $g = 1 - f \ln(a/d)$, and $\vec{i}_{r,\varphi,z}$ are the unit vectors; the constants

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The stability problem of a...

d, f, g, h, l, and H_0 are such that $p \geqslant 0$. Plasma perturbations are described by $\exp(i(\omega t+m\varphi+kz)$. The system of magnetohydrodynamic equations reads

$$\frac{H_0^2}{a^2}(s^2-\Omega^2)\vec{\xi} = -4\pi\nabla P^* + l_r r\xi_r \frac{d}{dr}\left(\frac{H_\varphi}{r}\right)^2 - \frac{2isH_0H_\varphi}{ar}(l_r\xi_\varphi - l_\varphi\xi_r);$$

$$\operatorname{div}\vec{\xi} = 0,$$

где $s = \frac{a}{H_0}\left(\frac{mH_\varphi}{r} + kH_z\right)$, $\Omega^2 = \frac{4\pi\rho a^2\omega^2}{H_0^2}$.

The investigation is limited to long-wave perturbations with $m \geqslant 1$. First of all, the stability of the cylinder in a uniform, longitudinal field (l=0) is studied. The oscillation frequencies do not depend on the axial current distribution characterized by f. The stability problem is then analyzed for the case of a uniform current distribution over the cross section (f = 0, $l \neq 0$). An equation for the boundaries of stability is derived and discussed in detail. There is 1 figure.

Card 2/3

The stability problem of a... S/020/62/143/005/007/018
B104/B102

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute imeni A. F. Ioffe of the Academy of Sciences USSR)

PRESENTED: December 25, 1961, by B. P. Konstantinov, Academician

SUBMITTED: December 6, 1961

X

Card 3/3

S/040/63/027/001/006/027
D251/D308

AUTHOR: Vandakurov, Yu.V. (Leningrad)

TITLE: On the stability of a plasma column of good conductivity in a magnetic field

PERIODICAL: Prikladnaya matematika i mekhanika, v. 27, no. 1, 1963, 46-54

TEXT: A continuation of a previous paper (PMM, 1962, v. 26, no. 5, 877). The author considers the equation of a plasma layer in the steady state, lying between two coaxial cylinders of radii r_1 and r_2 where the pressure, density and conductivity of the layer are functions of the radius vector only, and the azimuthal and axial components of the magnetic field are of the form

$$H_\varphi = H_0 \frac{rg(r)}{r_0}, \quad H_z = H_0 h(r), \quad g(r_0) = 1, \quad H_0 = (H\varphi)_{r-r_0} \neq 0 \qquad (1.1)$$

where r_0 is some intermediate radius. The initial system of equations of magnetohydrodynamics is linearlized; $\underline{\xi}$ (the displacement

Card 1/3

On the stability ...

vector from the position of equilibrium) is expressed in terms of $\underline{H}^*$ (the linearized field vector) and div $\underline{E}$, and hence a solution is obtained in terms of P_1, P_2, P_3. Boundary conditions are obtained by considering the region outside the conducting layer. The special case of an incompressible medium is considered. Here div $\underline{E}$ = 0, and hence the previous equation for $\underline{E}$ is [illegible]. By [illegible] tained by taking the internal radius of the conducting layer to be not small, the function s(r) not close to zero and the equilibrium distribution to be smooth and deriving the asymptotic equations. In this case there are six partial equations. By seeking solutions in the form of these in the form of power series and substituting in the [illegible] solutions, the dispersion equations are obtained and the conditions of their stability, dependent on the complex roots of Ω, are considered. In the case of a complex column, the above method is inapplicable, and the solution is obtained from the solutions of A.B. Taylor (Rev. Mod. Phys., 1960, v. 32. 907) and B.I. Dreus (ZhTF, 1960, v.30, 1030) for the case q - const, [illegible] = const, s - const. The conditions of instability are obtained by expansion in terms of a small parameter. In the case of a compressible medium, the solution is reduced

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to two partial equations and the roots of the dispersion equation are obtained by similar approximations as in the case of incompressible medium. All the deductions in this paper are based on the assumption that the conductivity of the plasma $\sigma(r)$ is a large parameter but no other conditions are imposed on $\sigma(r)$. There is 1 figure.

SUBMITTED: July 7, 1962

Card 3/3

VANDAKUROV, Yu.V.

Equilibrium of a fluid imperfectly conducting cylinder in a magnetic field. Zhur.tekh.fiz. 33 no.2:145-149 F '63. (MIRA 16:5)

1. Fiziko-tekhnicheskiy institut imeni A.F.Ioffe AN SSSR, Leningrad.
(Magnetohydrodynamics) (Magnetic fields)
(Plasma (Ionized gases))

VANDAKUROV, Yu.V.

Flute instabilities for a rotating plasma filament. Zhur. tekh. fiz. 33 no.9:1134-1137 S '63. (MIRA 16:11)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR, Leningrad.

ACCESSION NR: AP4013382 S/0040/64/028/001/0068/0078

AUTHOR: Vandakurov, Yu. V. (Leningrad)

TITLE: Theory of plasma stability in a strong longitudinal magnetic field changing along the axis of symmetry

SOURCE: Prikladnaya matematika i mekhanika, v. 28, no. 1, 1964, 68-78

TOPIC TAGS: plasma stability, magnetic field, strong magnetic field, longitudinal magnetic field, plasma filament magnetic field distortion, flute instability, kinetic equation, Larmor ion radius, magnetic force line, magnetohydrodynamics

ABSTRACT: The problem of stability is investigated by the normal oscillations method on the basis of magnetohydrodynamic equations, with consideration given to "magnetic viscosity," a phenomenon studied by K. V. Roberts and J. B. Taylor (Magnetohydrodynamic equations for finite Larmor radius. Phys. Rev. Letters, 1962, 8, 197) and by L. I. Rudakov (Vliyaniye vyazkosti plazmy* v magnitnom pole na ustoychivost' plazmy*, Nuclear fusion, 1962, v.22, no.7). It is assumed that the pressure of the plasma is small compared to the magnetic pressure, and the author considers, in the first approximation, only perturbations which do not distort the

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ACCESSION NR: AP4013382

magnetic field. He studies stability for an infinitely small Larmor ion radius, when the behavior of the plasma can be described with the help of a system of equations for a single-fluid conducting medium. He shows that the problem can be reduced to solving an ordinary second-order differential equation whose coefficients are averaged over the length of the magnetic force lines of the variable. For complete determination of the latter one must find the solution of another differential equation (for a given distribution of the magnetic field in a stationary state). The author investigates the stability of (1) a filament whose diameter is much smaller than the length of one element of the periodicity and (2) flute instabilities growing relatively slowly with time. He studies the stability of plasma with sectionally homogeneous temperatures of ions and electrons, giving consideration to effects caused by the large magnitude of the Larmor ion radius. He assumes that the curvature of the lines of force of the magnetic field is a small parameter. The solution of the problem is expressed in terms of known functions for the distributions of density and pressure, which decrease exponentially as the distance from the axis of symmetry increases. He shows that stabilization of flute instabilities is possible (with the exclusion of certain perturbations m = 1). Orig. art. has: 66 formulas.

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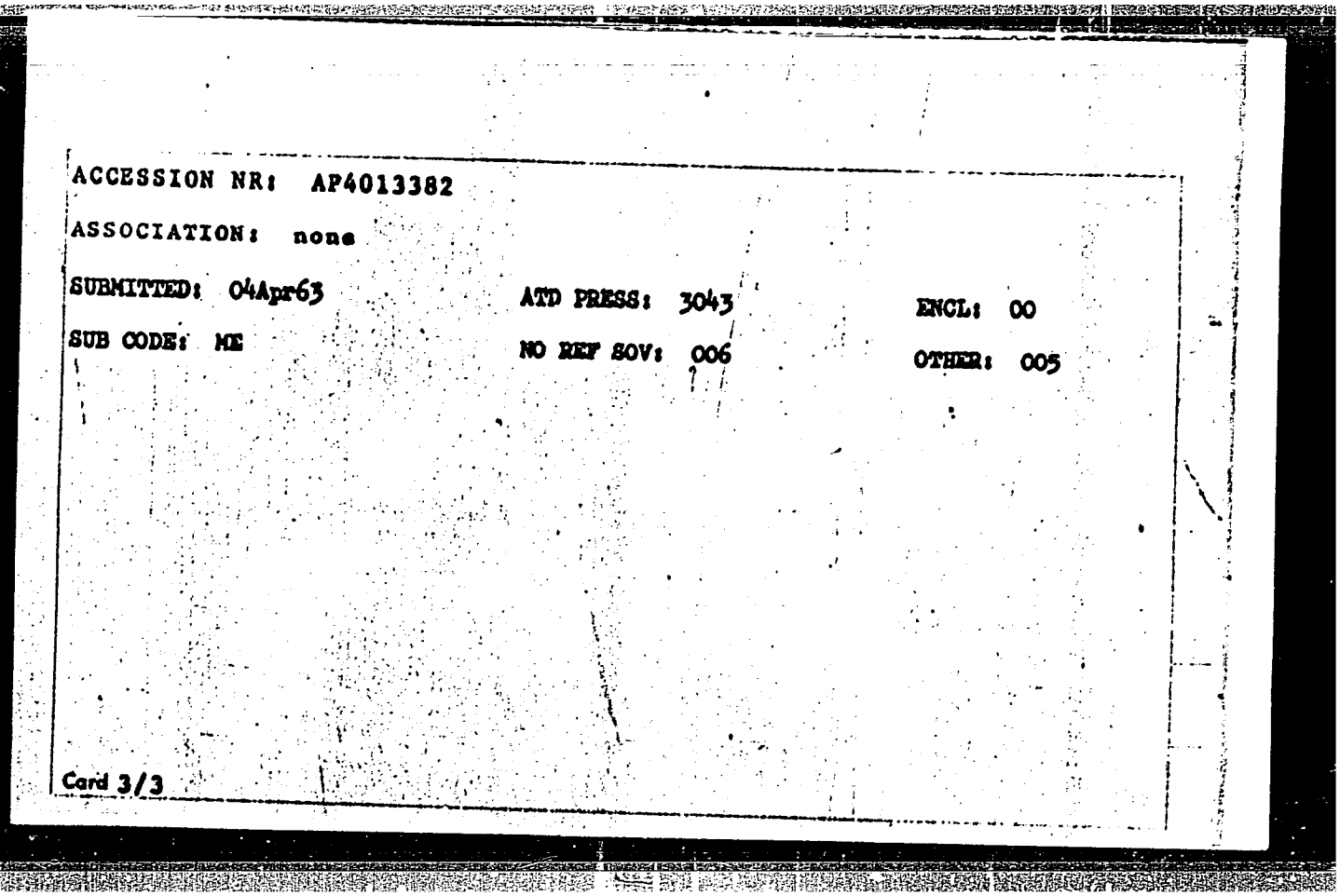

ACCESSION NR: AP4013382

ASSOCIATION: none

SUBMITTED: 04Apr63 ATD PRESS: 3043 ENCL: 00

SUB CODE: ME NO REF SOV: 006 OTHER: 005

Card 3/3

ACCESSION NR: AP4035685 S/0057/64/034/005/0788/0800

AUTHOR: Vandakurov, Yu.V.

TITLE: On the stability of a pulsating plasma filament

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.5, 1964, 788-800

TOPIC TAGS: plasma, plasma filament, plasma stability, plasma filament stability, pulsating plasma filament, pulsating field plasma stabilization

ABSTRACT: The problem of an infinitely long plasma cylinder of finite radius in a longitudinal, pulsating magnetic field is treated in the magnetohydrodynamic approximation. The purpose of the discussion is to explore the possibility of employing a pulsating magnetic field to stabilize a plasma filament. The calculations are based on the magnetohydrodynamic equations for a perfectly conducting non-viscous fluid. The applied magnetic field is assumed to execute harmonic pulsations of small amplitude about a large average value. Only axially symmetric unperturbed motions are considered in which all quantities are independent of the axial (longitudinal) coordinate and there is no longitudinal motion. The following simplifying assumptions are introduced: the hydrodynamic pressure is small compared with the magnetic pres-

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sure; the pulsation frequency is small compared with the ion Larmor frequency; the pulsation period is small compared with characteristic relaxation times (thermal and other) of the plasma; conditions are such that displacement currents may be neglected; harmonics of the pulsation frequency do not appear with appreciable amplitude. The equations of motion are simplified with the aid of these assumptions, and they are solved for two special cases in terms of the confluent hypergeometric function. The linearized equations of motion for small perturbations about a steady solution are derived. Only perturbations with a long wavelength as compared with the radius of the filament are considered. The perturbation equations are simplified by averaging over a period of the pulsations; the method of N.N.Bogolyubov and Yu.A.Mitropol'skiy (Asimptoticheskiye metody* v teorii nelineyny*kh kolebaniy. Fizmatgiz,1958) and V.M.Volosov (UMN,17,3,1962) is employed with some modifications necessitated by the fact that some of the perturbations vary at the pulsation frequency. The stability of the plasma filament is discussed on the basis of the equations thus obtained. The flute instability of a rotating plasma filament is discussed in considerable detail. If the pulsation frequency is much less than the ratio of the Alfven velocity to the radius of the filament, the pulsations have a stabilizing effect, and the filament is stable against fluting provided the pulsation amplitude is sufficiently great. As the pulsation frequency is increased, alternating regions of stability and in-

ACCESSION NR: AP4035685

stability are encountered. The stability of the plasma against longwave perturbations with constant linear density and longitudinal current, and against local non-uniformities of the longitudinal current is also discussed, and stability criteria are derived. "The author expresses his deep gratitude to V.Ye.Golant and A. D.Piliya for a number of valuable remarks during discussion of the work." Orig. art.has: 86 formulas and 1 figure.

ASSOCIATION: Fiziko-tekhnicheskiy institut im.A.F.Ioffe AN SSSR, Leningrad (Physicotechnical Institute, AN SSSR)

SUBMITTED: 15Jul63

ATD PRESS: 3080

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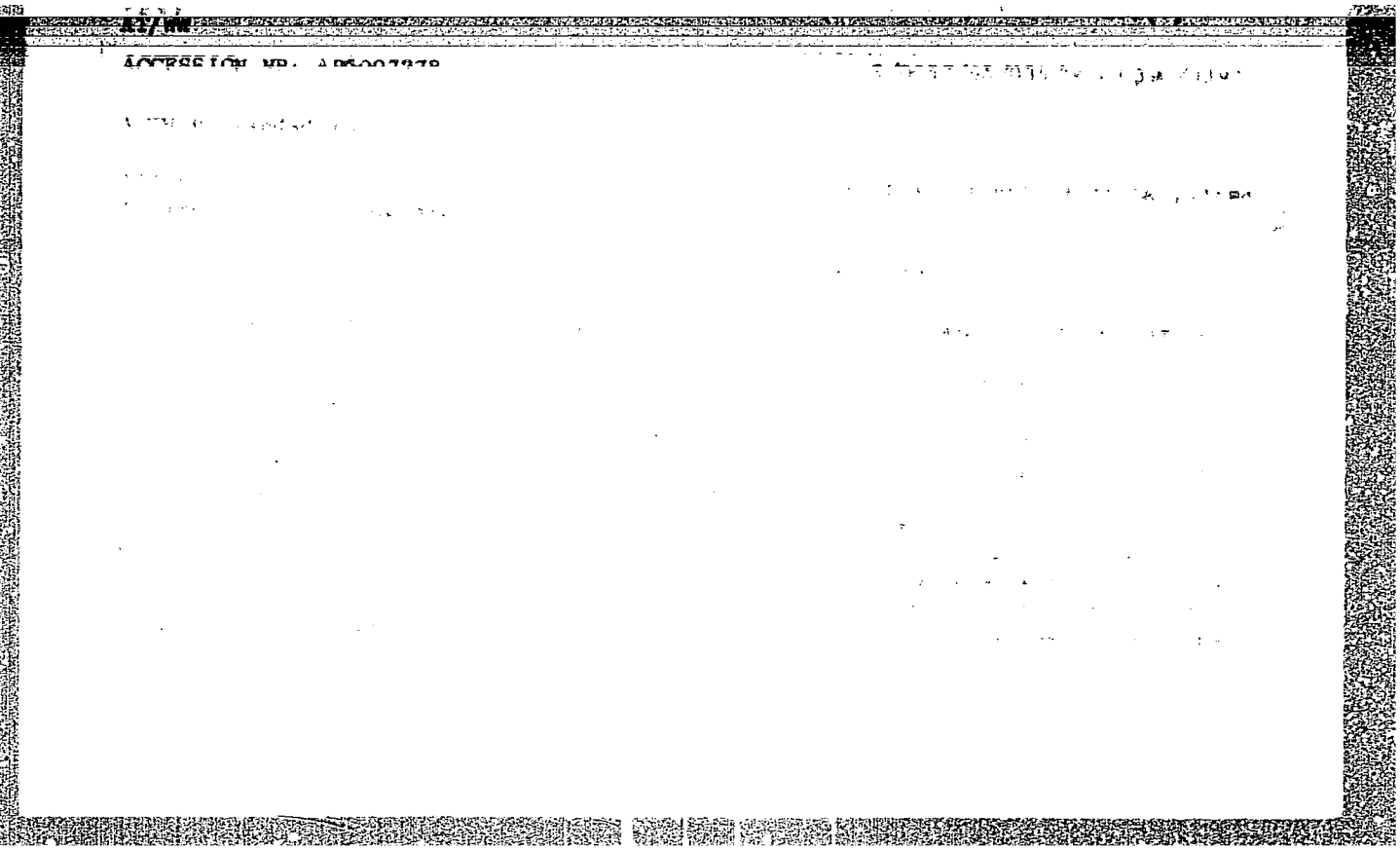
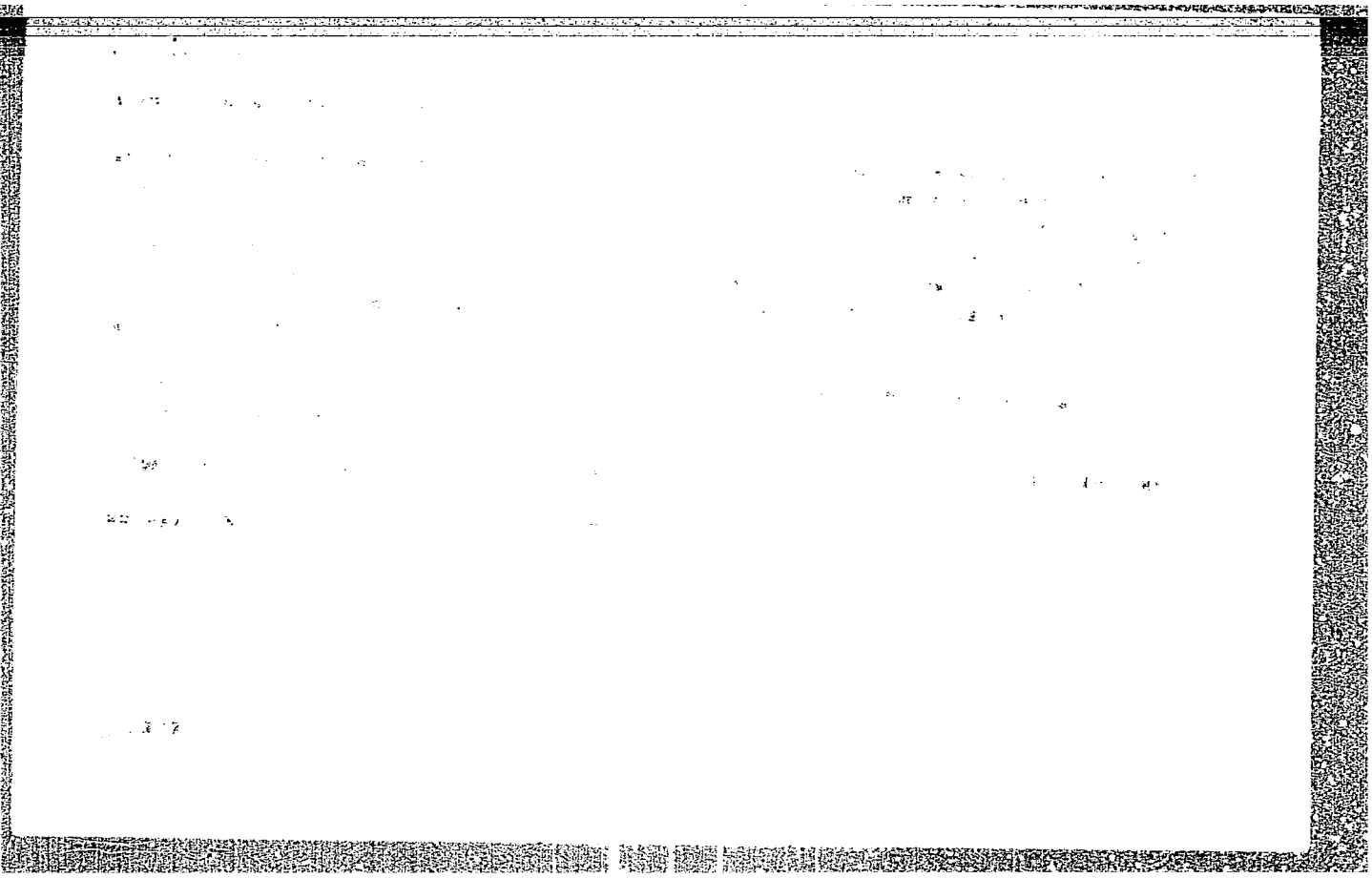
SUB CODE: ME, EM

NR REF SOV: 007

OTHER: 002

Card 3/3





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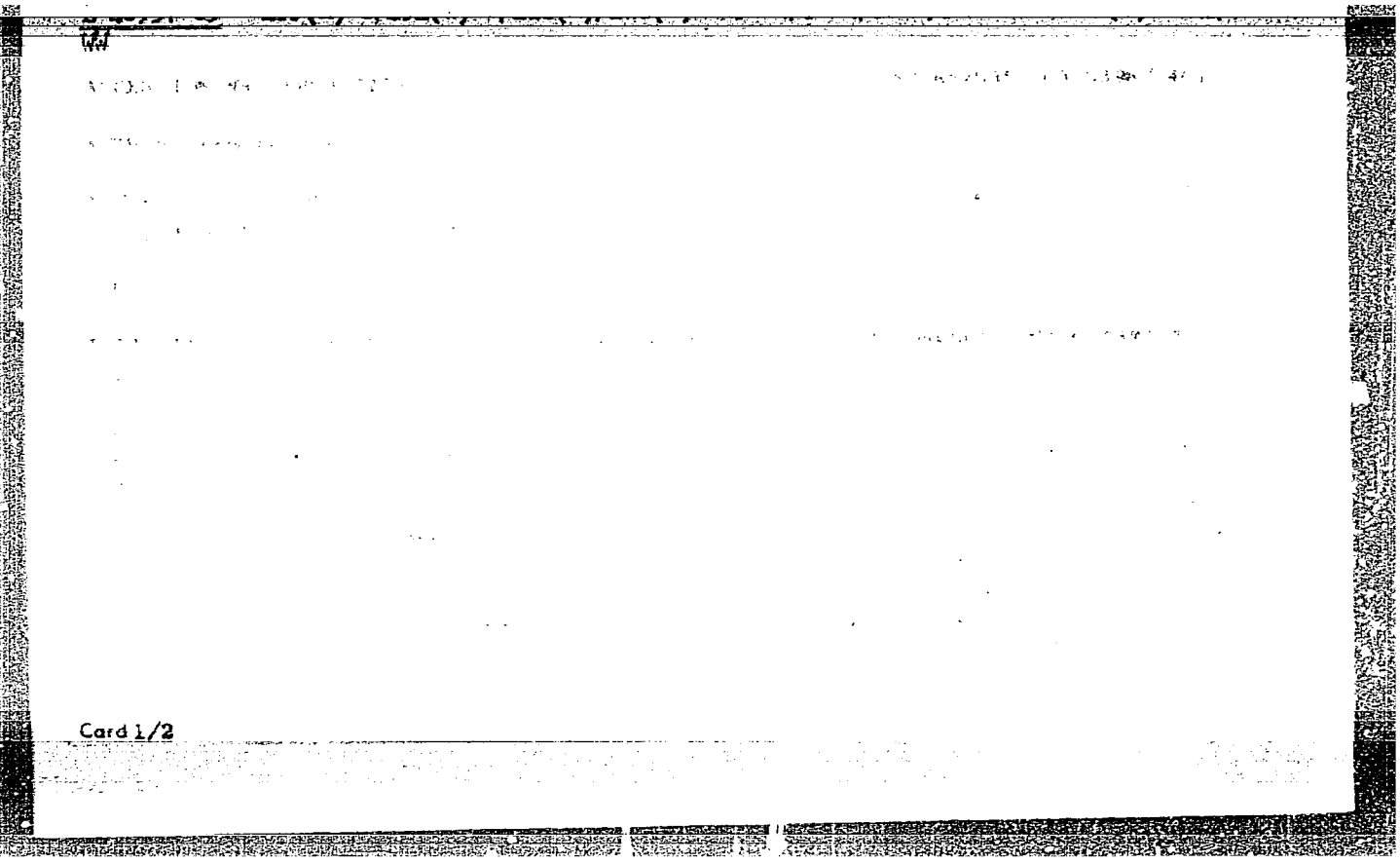

Card 1/2

rithmic increment of the instability by the factor [illegible]
[illegible] is equal to that of the ions). The case of a current-carrying plasma
[illegible]
Orig.art.has: 12 formulas.

L 2457-66 EWT(1)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2 LJP(c) AT

ACCESSION NR: AP5020719 UR/0057/65/035/008/1364/1371

AUTHOR: Vandakurov, Yu. V. 44,55 21,44,55

TITLE: On the instability of a rotating plasma filament in the presence of high frequency radial pulsations

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 8, 1965, 1364-1371

TOPIC TAGS: plasma stability, plasma heating, Larmor frequency, longitudinal magnetic field, alternating magnetic field, magnetohydrodynamics

ABSTRACT: The author investigates in the magnetohydrodynamic approximation the stability with respect to radial pulsations of a perfectly conducting rotating plasma filament in a strong longitudinal magnetic field, on which is superimposed a longitudinal oscillating magnetic field of high frequency and moderate amplitude. The calculations are of interest in connection with the problem of heating plasmas by magnetic fields oscillating at frequencies near the ion Larmor frequency. The author has previously treated similar problems for nonrotating plasmas (ZhTF, 34, 788, 1964; ZhTF, No.3, 1965) and employs some results of the earlier work at different stages of the calculations. The rotation frequency of the plasma is assumed

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ACCESSION NR: AP5020719

to be small compared with the ion Larmor frequency, the frequency of the oscillating magnetic field, and the frequency of the radial pulsations. The magnetohydrodynamic equations are linearized for perturbations proportional to exp (im φ), where m is an integer and φ is the azimuthal coordinate, and approximate solutions are derived by expanding in powers of a parameter which is approximately the ratio of the rotation frequency to the magnetic field oscillation frequency. The cases of a plasma filament of constant density and of a filament with the density proportional to exp ($-ar^2$), where a is a constant and r is the distance from the axis, are treated separately. It is found that the stability criteria derived by the author in the work cited above are applicable to the filament with constant density, but that a filament with a Gaussian density distribution can become unstable (whether it rotates or not) at frequencies equal to or greater than the ion Larmor frequency even in the absence of all known unstabilizing factors such as rotation, curvature of the magnetic lines of force, longitudinal current, imperfect plasma conductivity, etc. The experimental results obtained by M.B.Vasil'yev, L.I. Grigor'yeva, B.I.Smerdov, and V.V.Chechkin (ZhTF, 1531, 1964; Yadernyy sintez, 4, 145, 1964) in their attempt to heat plasmas by oscillating magnetic fields are discussed very briefly and it is concluded that the instability observed by these authors may be the instability derived here theoretically. A more detailed com-

Card 2/3

L 2457-66
ACCESSION NR: AP5020719

3

parison with experiment will be possible only when the theory has been developed in a nonlinear approximation. Orig. art. has: 48 formulas and 2 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A.I.Ioffe AN SSSR, Leningrad (Physico-technical Institute, AN SSSR)

SUBMITTED: 16Dec64 ENCL: 00 SUB CODE: ME

NR REF SOV: 007 OTHER: 002

BVK
Card 3/3

L 3953-66 EWT(1)
ACCESSION NR: AP5024206 UR/0020/65/164/003/0525/0528

AUTHOR: Vandakurov, Yu. V. 55

TITLE: On an instability mechanism for pulsating stars 12,55

SOURCE: AN SSSR. Doklady, v. 164, no. 3, 1965, 525-528

TOPIC TAGS: variable star, hydrodynamic theory, astrophysics

ABSTRACT: Starting from the linearized hydrodynamic equations, with an adiabatic equation of state, the eigenmodes for a homogeneous or slightly inhomogeneous star are examined. For the familiar example (see, e.g., P. Ledoux and T. Walraven, Handb. Phys., 51, 353, 1958) with constant density ρ (except for a thin surface layer where ρ goes to zero), a new class of radially symmetric modes is found; its stability is studied with the help of the Bogoliubov-Mitropolskiy asymptotic methods. These modes pulsate periodically; if the frequency is sufficiently close to a half-integral multiple of a frequency σ (which is proportional to the constant internal stellar density), instability results. The mechanism of the instability is a transfer of energy between radial and nonradial modes. Application is made to observed behavior of variable stars like RV Tauri and the Cepheids, and an explanation is provided for the common relationship between

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L 3953-66

ACCESSION NR: AP5024206

fundamental period and spectral class among these disparate types. The author thanks Professor L. E. Gurevich for valuable discussions. Orig. art. has: 21 formulas.

ASSOCIATION: Fiziko tekhnicheskiy institut im. A. F. Ioffe, Akademii nauk SSSR (Physical-Technical Institute, Academy of Sciences, SSSR)

SUBMITTED: 270ct64 ENCL: 00 SUB CODE: AA

NO REF SOV: 003 OTHER: 003

Card 2/2

VANDAKUROV, Yu.V.; KOLESNIKOVA, E.N.

Stability of a compresible gravitating cylinder of homogeneous density in a longitudinal magnetic field. Astron. zhur. 43 no. 1:99-104 Ja-F '66 (MIRA 19:2)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR.
Submitted May 11, 1964.

L 23041-66 FSS-2/EWT(l)/EWP(m)/EWT(m)/EPF(n)-2/EWA(d)/T-2/EWP(t)/EWP(k)/EWA(h)/
ACC NR: AP6011426 EWA(l) IJP(c) SOURCE CODE: UR/0020/66/167/004/0778/0781
JD/WW/JW/HW/JG

AUTHOR: Abramova, K. B.; Valitskiy, V. P.; Vandakurov, Yu. V.; Zlatin, N. A.; Peregud, B. P.

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of Sciences SSSR (Fiziko-tekhnicheskiy institut Akademii nauk SSSR)

TITLE: Magnetohydrodynamic instabilities in an electrical explosion

SOURCE: AN SSSR. Doklady, v. 167, no. 4, 1966, 778-781

TOPIC TAGS: exploding wire, electrical explosion

ABSTRACT: The disintegration mechanism of an electrically exploded conductor was investigated experimentally by the method of pulse x-raying. The arrangement made it possible to obtain four exposures of 0.1 to 0.2 μsec during each experiment at selected instants from the beginning of current flow through the wire. Copper, tungsten, molybdenum, and lead wires and a thread of liquid lead were investigated. The experiments were prompted by the results of an earlier investigation by one of the co-authors (Abramova) showing that the threshold energy for explosion remains below that of evaporation, exceeding only the level required for melting. The data from the experiments show that two types of instabilities develop in the conductor which deform it and lead to its breakup into numerous parts. During the pre-threshold period, a helical instability was observed, which was followed by a constrictive instability accompanying the actual explosion. Both types of instabilities

Card 1/3 UDC: 534.143

L 23041-66
ACC NR: AP6011426

are apparently of magnetohydrodynamic origin. An analysis of the conditions of stability of a fluid cylinder in the magnetic field of the current flowing in it established the dependence of a dimensionless increment $\Omega = i\omega r_0\sqrt{4\pi\rho}$ on the factor $x = kr_0$ (r_0 is the radius of the cylinder, ρ is the density, and $k = 2\pi/\lambda$, λ being the wavelength of the disturbance) for two values of an integral factor m describing the mode of disturbance: m = 0 corresponding to the constrictive, and m = 1, to the helical, instability. However, the experimental values of corresponding wavelengths exceed the calculated values by approximately 2 to 3 times in the case of constrictive instability, and 70 times in the case of helical instability. The difference can be explained by the onset of helical instabilities before the fusion of the wire begins, and by the fact that the energy spent on it is much lower than that necessary for constrictive effects. Special experiments, where the input energy remained below the melting level, bent the specimens. The constrictive instability can develop, apparently, only above the melting point of the specimen. This was also confirmed by the experiments with liquid thread, where constrictive instabilities developed at a relatively low level of input energy. The mechanism of constrictive instability is attributed to the concentration of heat in the nodes of constriction, which leads to a localized evaporation of metal. Since only a small proportion of the metal is evaporated, the threshold energy may remain below the vaporization level, as was actually observed. A complete evaporation of all metal, however, may not occur even when the input energy exceeds the vaporization level. In this case, the helical instability may not have enough time to develop before fusion and evaporation set in. It is concluded that the occurrence of the "current pause" is the result of constrictive magnetohydrodynamic instability. The time constants of the instability

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L 23041-66
ACC NR: AP6011426

increment were 0.2 μsec for copper wire and 0.1 μsec for lead wire. The experiments with molybdenum and tungsten wires showed definitely that the destruction is due solely to m = 0 (ie., constrictive) instabilities. The current, however, after reaching the maximum, drops to 1/2 to 1/3 of its peak value, and after a while rises to a second maximum. Since instability develops after the first peak value of the oscillatory discharge, the conductivity drop at the end of the first pulse cannot be explained by the onset of instability. Orig. art. has: 3 figures. [FP]

SUB CODE: 20/ SUBM DATE: 19May65/ ORIG REF: 003/ OTH REF: 004/ ATD PRESS: 4234

Card 3/3

VANDAKUROVA, Ye.V. [deceased]

Natural virgin and waste land vegetation of northern Kulunda as an indicator of suitability for cultivation. Trudy Biol. inst. Zap.-Sib. fil. AN SSSR. no.3:11-23 '57. (MIRA 13:10)
(Kulunda Steppe--Botany)

1. KUMINOVA, A. V. AND VANDAKUROVA, YE. V.

2. USSR (600)

4. Geology and Geography

7. Steppes of Siberia, A. V. Kuminova and Ye. V. Vandakurova. (New Siberian Regional Press, 1949), Reviewed by M. I. Pomus, Sov. Kniga, No 3, 1951.

9. [redacted] Report U-3081, 16 Jan 1953, Unclassified.

VANDAKUROVA, Yo.V.

Steppes of the Ursul Basin and Their utilization for pastures. Trudy Biol. inst. Zap.-Sib. fil. AN SSSR no.2:363-377 '56. (MIRA 13:10)
(Ursul Valley--Pastures and meadows)

SOV/6-58-6-10/21

AUTHOR: Vandalov, V. S.

TITLE: On the Tolerable Length of the Theodolite Traverse in Systems With Intersections (O dopustimoy dline teodolitnykh khodov v sistemakh s uzlovymi tochkami)

PERIODICAL: Geodeziya i kartografiya, 1958, Nr 6, pp. 45 - 49 (USSR)

ABSTRACT: The determination of the points weakest as regards the accuracy in traverses as well as the tolerable length of the traverses is insufficiently dealt with in the instructions for systems of theodolite traverses incorporating junction points. By subsequent equivalent substitution any network can be reduced to the most simple form - the single traverse. Proceeding herefrom a single theodolite traverse can serve as a basis for the determination of the weakest points. This theodolite traverse is supported at its ends by the triangulation points or by the traverse stations. The weakest point with respect to accuracy in the case of a single traverse supported at its ends by traverse stations is the middle part (this concerns errors of point position after balancing). The error in the position of the traverse central point is equal to about half of the linear

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On the Tolerable Length of the Theodolite Traverse in Systems With Intersections

SOV/6-58-6-10/21

deviation in the traverse: By means of several given formulae the tolerable length of traverse as well as the error at the weakest point can be determined in advance and the weakest points of the system can be found. It is assumed that the length of the traverses between the traverse stations and the junction points as well as between the intersections are the same. Four systems are investigated: 1) Three traverses with 1 junction point. 2) 4 traverses and 1 junction point. 3) 5 theodolite traverses with 2 junction points. 4) 6 theodolite traverses with 3 junction points. For all these cases the weakest point and the tolerable length are determined. Concluding, it is said that the length of the traverse may be calculated according to the given formulae under the assumption that the error magnitude is located at the weakest point, and knowing the accuracy in setting out the theodolite traverses. There are 5 figures and 1 table.

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On the Tolerable Length of the Theodolite Traverse in Systems With Intersections SOV/6-58-6-10/21

1. Theodolites--Performance 2. Theodolites--Calibration 3. Theodolites--Errors

Card 3/3

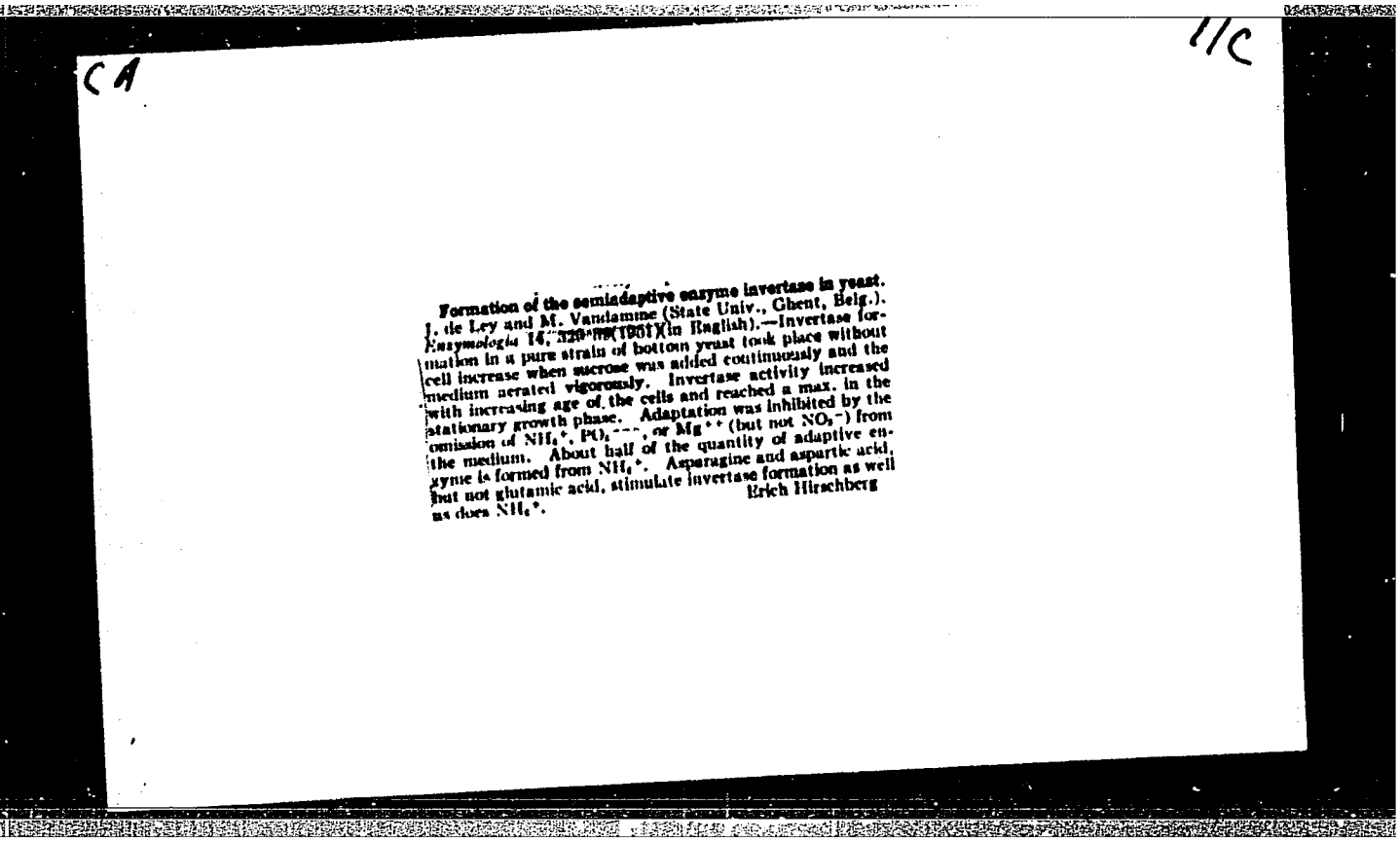
VANDALOV, V.S., inzh.

Precision norms for marking operations. Transp. stroi. 11 no.2:43-44 F '61. (MIRA 14:2)
(Railroads--Stations)

VANDALOVSKIY, V.

27773. VANDALOVSKIY, V.--tsentralizovannoye izmereniye temperatury v sushil'-nykh ustanovkakh (na kirpichnykh zavodakh). mest. Stroit. materialy, 1948, vyp. 10, S. 34-35.

SO: Letopis' Zhurnal'nykh Statey, Vol. 37, 1949.



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Formation of the semiadaptive enzyme invertase in yeast. J. de Ley and M. Vandamme (State Univ., Ghent, Belg.). *Enzymologia* 14, 329–38 (1951)(in English).—Invertase formation in a pure strain of bottom yeast took place without cell increase when sucrose was added continuously and the medium aerated vigorously. Invertase activity increased with increasing age of the cells and reached a max. in the stationary growth phase. Adaptation was inhibited by the omission of NH_4^+, PO_4^{---}, or Mg^{++} (but not NO_3^-) from the medium. About half of the quantity of adaptive enzyme is formed from NH_4^+. Asparagine and aspartic acid, but not glutamic acid, stimulate invertase formation as well as does NH_4^+.

Erich Hirschberg

VANDANOV, T.

For a further improvement of pilotage service. Mor.flot 23 no.4:13-14 Ap '63. (MIRA 16:5)

1. Starshiy shturman parokhoda "Vetluga" Sakhalinskogo parokhodstva. (Pilots and pilotage)

VANDANOV, T., kapitan dal'nego plavaniya, aspirant

Settling controversies concerning the collisions of seagoing vessels. Mor. flot 25 no.2:17-18 F '65.

(MIRA 18:4)

1. Leningradskoye vysshaye inzhenernoye morekhodnoye uchilishche imeni admirala S.O.Makarova.

VANDANOV, T., aspirant

Liability for the collision of seagoing vessels under conditions of poor visibility. Mor.flot 25 no.6:23-24 Jl '65. (MIRA 19:1)

1. Leningradskoye vyssheye inzhenernoye morskoye uchilishche imeni admirala Makarova.

KOZLOVA, Ye.I., kand. biolog. nauk; BELOUSOVA, A.A.; VANDAR'YEVA, V.S.

Effect of simazine and atrazine on the development of soil micro-organisms. Agrobiologiia no.2:271-277 Mr-Ap '64.
(MIRA 17:6)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova, Biologo-pochvennyy fakul'tet.

VANDAS, J., inz.

Miners' Conference on Science and Technology in Pribram, November 22-27, 1964. Rudy 13 no.2:69-70 F '65.

1. Central Administration of the Research and Mining of Radioactive Raw Materials, Pribram.

VANDAS, M.; CHLUMSKY, J.

Organization of work in the unit method of tractor repair. p. 427.

MECHANISACE ZEMEDELSTVI. Praha. Vol. 4, no. 22, Nov. 1954.

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

VANDAS, M.

Repairs of Zetor Super tractors. (To be contd.) p. 377. (MECHANISACE ZEMEDELSTVI, Vol. 7, No. 16, Aug 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

VANDAS, M.

Repairs of Zetor Super tractors; disassembling and assembling the rear semiaxle. (To be contd.) p. 399. (MECHANISACE ZEMEDELSTVI, Vol. 7, No. 17, Sept 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

VANDAS, M.

Repairs of Zetor Super tractors; disassembly and assembly of the suspension apparatus and the front wheel.

p. 446. (Mechanesace Zemedlstvi. Vol. 7, No. 19, Oct. 1957, Praha, Czechoslovakia)

Monthly Index of East European Accession (EEAI) LC. Vol. 7, No. 2, February 1958

COUNTRY : USSR
CATEGORY : Plant Diseases. Cultivated Plants 0

ABS. JOUR. : RZhBiol., No. 3, 1959, No. 11272

AUTHOR : Vandasheva, N. I.
INST. : All-Union Academy of Agricultural Sciences imeni Lenin
TITLE : The Spottiness of Alfalfa and Measures for Its Control.

ORIG. PUB. : Dokl. VASKhNIL, 1958, No. 1, 23-28.

ABSTRACT : The spottiness of alfalfa under the conditions of Voronezh Oblast' and in other regions of the country is caused by the fungi of the genus Ascochyta. Two species parasitize on alfalfa: 1) A. imperfecta which causes the appearance of large dark spots with concentric zones structure or the appearance of small spots on the leaves and black spots on the stems, petioles, floral shoots and the infection of the pods and seeds; 2) A. species which causes light-colored spots on the leaves and on the stems - spots with rims. The causative organisms winter

CARD: 1/3

COUNTRY :
CATEGORY :

ABS. JOUR. : RZhBiol., No. 1959, No. 11272

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : at the conidial stage on the affected post-harvest residues. The source of the resumption of the infection in spring, are the pycnospores which mature at this time. During the vegetation period, the infection is transmitted in the field by the pycnospores. The chief measures for restricting the spread of the disease are a thorough removal of the post-harvest residues from the field in early spring by means of burning the stubble or removing it from the fields, the use of summer sowings, a supplementary feeding of alfalfa with phosphoro-potash fertil-

CARD: 2/3

COUNTRY :
CATEGORY :

ABS. JOUR. : RZhBiol., No. 1959, No. 11272

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : izers and the purification of the seeding material. —
-- G. D. Uspenskaya

CARD: 3/3