TKALICH, K.N.

Decreasing expenses and increasing the time between roll changing on continuous sheet mills. Met. i gornorud. prom. no.2:34-37 Mr-Ap '65. (MIRA 18:5)

ALEKSANDROV, I.A., doktor tekhn. nauk [deceased]; GOLUBEV, N.M.;
MELESHKO, A.M.; TKALICH, K.N.

Ways of decreasing the crescent shape of strip for the manufacture of helically welded pipe. Met. i gornorud. prom. no.4:46-47 Jl-Ag '64. (MIRA 18:7)

MELESHKO, A.M.; TKALICH, K.N.; YUKHNOVSKIY, Yu.M.

Studying the forward flow on continuous sheet rolling mills. Met. i gornorud. prom. no.4:43-45 Jl-Ag '65. (MIRA 18:10)

TKALICH, L.G.

IORDANISHVILI, Ye.K.; TKALICH, L.G.

Semiconductor thermostat for self-oscillators. Zhur.tekh.fiz. 27 no.6:1215-1220 Je '57. (MLRA 10:8)

1. Institut poluprovodnikov Akademii nauk SSSR, Leningrad.
(Thermostat) (Oscillators, Crystal)

TKALICH, L. G.

57-6-10/36

AUTHOR IORDANISHVILI, Ye.K., TKALICH, L.G.

TITLE Semiconducting Thermostat for Autogenerators (Poluprovodnikovyy termostat dlya avtogeneratorov. Russian)

PERIODICAL Zhurnal Tekhn. Fiz. 1957, Vol 27, Nr 6, pp 1215 - 1220 (U.S.S.R.)

ABSTRACT An apparatus for the keeping constant of the temperature of autogenerators as well as the construction of a thermostat by means of semiconductor-thermo-elements are described. The results of the investigations which had been carried out by the Institute for Semiconductors together with the Faculty for Radio Engineering of the Mozhayskiy-Academy are given. 1.) A thermostat with a battery which consumes 3 - 4 W of electric energy can keep constant 100 cc at 20 - 30 ° C and within a temperature fluctuation of from +60 to -60 ° C. 2.) The distribution of the quartz--autogenerator scheme, collected in a point- or plane triode, does not essentially increase the heat stress of the battery in a thermo-stabilizing space. 3.) The blowing at the surface of the thermostat as well as of the radio-technical block is essential as the temperature within the block can be higher than 80 ° C if the outer temperatures are 55 - 60 °C. 4.) In the case of work at low temperature conditions (-60°) an automatic switching off of the blowing, a regulation of the feeding current of the battery and an increase of the heat isolation of the thermostat must be provided. 5.) The heat-balance, i.e. the temperature demanded (+35°C) is attained in the thermostat within 20 - 40 minutes. 6.) The

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Semiconducting Thermostat for Autogenerators 57-6-10/36

scheme within the thermostat must be composed of parts which are moisture-resistant to a high degree. 7.) The inertia of the thermostat is different in the case of heating and in the case of cooling. It mainly depends on the temperature-fluctuation-amplitude as well as on the relation between the capacity of the battery and the heat stress. (With 5 illustrations and 5 Slavic references).

ASSOCIATION Institute for Semiconductors of the Academy of Science of the U.S.S.R. (Institut Poluprovodnikov AN SSSR, Leningrad)

PRESENTED BY

SUBMITTED 29.12.1956

AVAILABLE Library of Congress

Card 2/2

1. TKALICH, M. M.

2. USSR (600)

4. Shchekino District - Coal

7. Report on the prospecting survey for coal in the North Shchekino section of the Shchekino District in the Tula Province. (Abstract) Izv. Glav. upr. geol. fon. no. 3, 1947.

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

1. TKAΠICH, M. M.

2. USSR (600)

4. Coal - Shchekino District

7. Report on the prospecting survey for coal in the North Shchekino section of the Shchekino District in the Tula Province. (Abstract.) Izv. Glav. upr. geol. fon. no. 3, 1947.

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

SHANTER, Yu.A.; TKALICH, N.Ye.

Ultrasonic control of cast parts. Zav.lab. 25 no.7:884 '59. (MIRA 12:10)

1. Luganskiy teplovozostroitel'nyy zavod im. Oktyabr'skoy revolyutsii.
(Founding--Testing) (Ultrasonic testing)

SHANTER, Yu.A.; TKALICH, N.Ye.

Ultrasonic inspection of weld seams. Zav.lab 25 no.7:818-821 '59. (MIRA 12:10)

1. Luganskiy teplovozostroitel'nyy zavod im. Oktyabr'skoy revolyutsii.

(Welding--Testing)

28 (5) SOV/32-25-7-18/50

AUTHORS: Shanter, Yu. A., Tkalich, N. Ye.

TITLE: Ultrasonic Control of Welding Seams (Ul'trazvukovoy kontrol' svarnykh shvov)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 7, pp 818 - 821 (USSR)

ABSTRACT: The quality control of welding seams by means of ultrasonics and prismatic feeler gauges (FG) of the system TsNIITMASh can take place according to two schemes - with a direct ray and a reflected ray. The distance of the front surface of the (FG) from the middle of the welding seam, under consideration of the different rates of propagation of the longitudinal and transversal ultrasonic waves, is determined by means of an equation. Other equations serve for the determination of the position of the defect for the direct and the reflected sound ray. In the present case corresponding nomographs were drawn by means of equations, for (FG) with angles of 50 and 40° (Fig 2), and thus a considerable simplification of the computation was achieved. The work with such nomographs is illustrated by the example of the definition of the quality of a welding seam with a metal thickness of 10 mm. An appliance was designed for the exact

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Ultrasonic Control of Welding Seams SOV/32-25-7-18/50

displacement limit of the (FG) (Ref 1). A description of the working technique is given for the detection of cracks. Welding seams of bridge cranes, welded by hand, were tested according to the described method. Special samples of welding seams were produced with the standard types of defects (pores, cracks, slag enclosures etc) and the connection was examined between the shape of the echo signal on the screen of the crack detector and the kind of the defect. The investigations were carried out by means of the crack detector UZD-7N with frequencies of 2.5 megacycles. It was found that a provisional estimation can be made with regard to the kind of defect in the welding seam (Fig 4). There are 4 figures and 2 Soviet references.

ASSOCIATION: Luganskiy teplovozostroitel'nyy zavod im. Oktyabr'skoy revolyutsii (Lugansk Works for Locomotive Construction imeni Oktyabr'skaya revolyutsiya)

Card 2/2

28(5) SOV/32-25-7-39/50

AUTHORS: Shanter, Yu. A., Tkalich, N. Ye.

TITLE: Attempt at Ultrasonic Control of Castings (Opyt ul'trazvukovogo kontrolya litykh detaley)

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 7, p 884 (USSR)

ABSTRACT: The sensitivity of ultrasonic control was examined by controlling forgings and castings. The examinations were carried out with the apparatus UZD-7N and a feeler gauge at frequencies of 2.5 megacycles. The sensitivity curves obtained are given (Fig). In examining castings of large dimensions it was difficult to obtain the surface purity required (▽▽ 6,▽▽▽7). In these cases the roughly treated surface (▽ 2, ▽ 3) of such castings was filled and it was found that thus a sufficiently sensitive control could be carried out. Upon increasing the thickness of the filler layer, however, the sensitivity of control decreases. Cast cog wheels of steel 45KhNT and cast die castings of steel 5KhNV were ultrasonically controlled by the method described. There is 1 figure.

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Attempt at Ultrasonic Control of Castings SOV/32-25-7-39/50

ASSOCIATION: Luganskiy teplovozostroitel'nyy zavod im. Oktyabr'skoy revolyutsii (Lugansk Locomotive Construction Factory imeni Oktyabr'skaya revolyutsiya)

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

DOLIDZE, G.V., kand.biolog.nauk; VOLKOVA, L.P., starshiy nauchnyy sotrudnik; NESTERENKO, N.I., kand.biolog.nauk; TKALICH, P.P.

From practices in the use of poisonous chemicals. Zashch. rast. ot vred. i bol. 8 no.9:20-21 S '63. (MIRA 16:10)

1. Institut sadovodstva, vinogradarstva i vinodeliya Gruzinskoy SSR (for Dolidze). 2. Pskovskaya sel'skokhozyaystvennaya opytnaya stantsiya (for Volkova). 3. Laboratoriya toksikologii Vsesoyuznogo nauchno-issledovatel'skogo instituta sakharnoy svekly, Kiyev (for Nesterenko).

TKALICH, P.P., mladshiy nauchnyy sotrudnik

Biological mathod for controlling the borer Pyrausta nubilalis
Zashch. rast. ot vred. i bol. 6 no.8:24-25 Ag '61. (MIRA 15:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lubyanykh kul'tur, g. Glukhov, Sumskoy obl.
(Hemp--Diseases and pests)
(Pyralid moths--Biological control)
(Trichogramma)

1. TKALICH, S. M.

2. USSR (600)

4. Geological Research

7. Botanical methods in geological exploration. Bot. zhur. 37 no. 5, 1952

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

1. TKALICH, S. M.

2. USSR 600

b. Prospecting

7. Contents of iron in plants as a prospecting criterion, Priroda, 42, No. 1, 1953.

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

TKALICH, Serafim Mironovich; KRASNIKOV, V.I., red.; VERSTAK, G.V., red.izd-va; BYKOVA, V.V., tekhn.red.

[Practical guide on the biogeochemical method of prospecting for ore deposits] Prakticheskoe rukovodstvo po biogeokhimicheskomu metodu poskov rudnykh mestorozhdenii. Moskva, Gos. nauchno-tekhnizd-vo lit-ry po geol. i okhrane nedr, 1959. 50 p. (MIRA 12:8)
(Geochemical prospecting) (Indicators (Biology))

ANTIPOV, G.I.; IVASHCHENKO, M.A. [deceased]; KORABEL'NIKOVA, V.V.; KOSYGIN, M.K., dotsent; KUZNETSOV, G.A., dotsent; PEKARIN, P.M.; ROSLYAKOV, G.V., dotsent; STRAKHOV, L.G.; CHERNYSHEV, G.B., red.; TKALICH, S.M., red.; MUKHIN, S.S., red.izd-va; GUROVA, O.A., tekhn.red.

[Angara-Ilim iron ore deposits of trap formation in the southern Siberian Platform] Angaro-Ilimskie zhelezorudnye mestorozhdeniia trappovoi formatsii iuzhnoi chasti Sibirskoi platformy. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr, 1960. 375 p. (MIRA 13:10)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr. 2. Geologi Irkutskogo geologicheskogo upravleniya (for Antipov, Ivashchenko, Korabel'nikova, Pekarin, Strakhov). 3. Irkutskiy gornometallurgicheskiy institut (for Kosygin, Roslyakov). 4. Irkutskiy gosudarstvennyy universitet (for Kuznetsov). 5. Glavnyy inzh. Irkutskogo geologicheskogo upravleniya (for Tkalich).
(Angara-Ilim region--Iron ores)

BYKADOROV, V.S., red. toma; PEKARETS, P.A., red. toma; RADCHENKO, G.P., red. toma; RYABOKON', N.F., red. toma; TKALICH, S.M., red. toma; IZRAILEVA, G.A., ved. red.

[Geology of coal and oil shale deposits in the U.S.S.R.] Geologiia mestorozhdenii uglia i goriuchikh slantsev SSSR. Vol.8. 1964. 790 p. (MIRA 17:12)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy geologicheskiy komitet.

TKALICH, S.P.

Studies of karst carried out by the Southern Ural Geological Administration; theses. Nov.kar.i spel. no.2:65-66 '61. (MIRA 15:9)

(Ufa Valley—Karst)
(Belaya Valley (Bashkiria)—Karst)

TKALICH, V.L.

Landscaping the roadside of the Novo-Ukrainka Highway Section.
Avt.dor. 18 no.2:p 3 of cover Mr-Ap '55. (MLRA 8:6)
(Novo-Ukrainka--Roadside improvement)

ACC NR: AR7000838 SOURCE CODE: UR/0058/66/000/009/G001/G001

AUTHOR: Saltanov, M. V.; Tkalich, V. S.

TITLE: Nonstationary problem in magnetic gas dynamics

SOURCE: Ref. zh. Fizika, Abs. 9G1

REF SOURCE: Visnyk Kyyivs'k. un-tu. Ser. fiz. ta khim., no. 6, 1966, 75-77

TOPIC TAGS: gas dynamics, linear equation, nonstationary problem, magnetic gas dynamics, relativistic problem, three dimensional problem, symmetry integral, steady state motion, Riemann wave, nonsteady flow, cyclic coordinate, hydrodynamics

ABSTRACT: The relativistic nonstationary problem of gas dynamics and magnetic gas dynamics is analyzed in the three-dimensional form for a case of two cyclic coordinates. A complete set of symmetry integrals is obtained. These are then used to derive an equation identical, except for the notations, to Rudnev's form of Sedov's equation in the theory of plane steady-state motions. Conditions are obtained in which the problem is reduced to the solution of a linear equation.

Card 1/2 UDC: 538.4

ACC NR: AR7000838

Riemann waves are analyzed. An auxiliary function is introduced which satisfies the linear equation, and by means of which all the physical parameters are expressed in their final form. [Translation of abstract] [SP]

SUB CODE: 20/

Card 2/2

TKALICH, Ye.F.; TKALICH, V.S.

Steady states of a high-temperature plasma. A plasma column in a longitudinal magnetic field. Zhur. tekh. fiz. 32 no.12:1418-1427 D '62. (MIRA 16:2)
(Plasma (Ionized gases))
(Magnetic fields)

S/179/61/000/002/012/017
E081/E141

AUTHORS: Tkalich, V.S., and Tkalich, Ye.F. (Sukhumi)

TITLE: The correspondence between stationary flow in hydrodynamics and magneto-hydrodynamics

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1961, No.2, pp. 115-116

TEXT: The paper is a continuation of previous work by V.S. Tkalich (Ref.4: Sbornik voprosu magnitnoy gidrodinamiki i dinamiki plazmy, Riga, 1959, p. 191; Ref.5: the present journal, 1960, No.1). The system of vector equations for the ideal magneto-hydrodynamics of an incompressible fluid are quoted from H.Alfvén (Cosmic Electrodynamics, IL, 1952). If the electric field vanishes, then in the stationary state ($\partial/\partial t = 0$) the equations reduce to :

$$\operatorname{div} \mathbf{H} = 0, \qquad \operatorname{div} \mathbf{V} = 0, \qquad \mathbf{V} = \varphi \mathbf{H}$$
$$\nabla w = \mathbf{V} \times \operatorname{rot} \mathbf{V} - \frac{1}{4\pi\rho} \mathbf{H} \times \operatorname{rot} \mathbf{H}, \qquad w = \frac{1}{2} V^2 + \frac{p}{\rho} + f \tag{1}$$

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where $\varphi = \varphi(r)$ is a function of the coordinates. (Abstractor's note: φ is the only quantity in Eq.(1) defined in the paper). If $4\pi\rho\varphi^2 \neq 1$ the equations reduce to the simpler form (Eq.3) by introducing:

$$s \equiv \mathrm{sign}\,(4\pi\rho\varphi^2 - 1), \qquad \xi \equiv \pm\sqrt{s\left(\varphi^2 - \frac{1}{4\pi\rho}\right)}, \qquad U \equiv \xi H \tag{2}$$

$$\nabla(sw) = U \times \mathrm{rot}\,U, \qquad \mathrm{div}\,U = 0, \qquad (U\nabla)\,\xi = 0 \tag{3}$$

The first two equations in (3) coincide with the system of equations of stationary hydrodynamics, except that differing symbols are used. The solutions of these equations enable comparisons to be made of the kinetic and magnetic energies of the field and the solutions are compared with those obtained earlier by other workers. Acknowledgements are expressed to N.V.Saltanov for his participation in the discussions.
There are 6 Soviet references.

SUBMITTED: October 11, 1960

TKALICH, V.S. (Sukhumi); TKALICH, Ye.F. (Sukhumi)

Conformity between stationary motions in hydrodynamics and magnetohydrodynamics. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr. no.2:115-116 Mr-Ap '61. (MIRA 14:4)

(Hydrodynamics) (Magnetohydrodynamics)

TKALICH, V.S. (Sukhumi); TKALICH, Ye.F. (Sukhumi)

Non-stationary spiral movements in multicomponent magnetohydrodynamics. PMTF no.6:8-16 N-D '61. (MIRA 14:12)
(Magnetohydrodynamics)

TKALICH, Ye.F.; TKALICH, V.S.

Steady states of a high-temperature plasma. A plasma column in a longitudinal magnetic field. Zhur. tekh. fiz. 32 no.12:1418-1427 D '62. (MIRA 16:2)

(Plasma (Ionized gases))
(Magnetic fields)

31627
S/207/61/000/006/002/025
A001/A101

26.1410

AUTHORS: Tkalich, V.S., Tkalich, Ye.F. (Sukhumi)

TITLE: On non-steady screw motions in multi-component magnetic hydrodynamics

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1961, 8 - 16

TEXT: The purpose of this work was investigation of non-steady screw motions in multi-component magnetic hydrodynamics. The authors introduce in the analysis the analogs of electromagnetic potentials (φ, rotB) and total momentum (P_k) of the unit of mass of k-type ions. A definition of "screw" motions is given as motions satisfying the condition:

$$\mathrm{rot}\, P_k = a_k \left(P_k - \frac{\mu e_k}{c m_k} \mathrm{rot}\, B\right) \qquad (1.4)$$

The present work is restricted to studying "homogeneous" screw motions in which $a_k = a_k(t)$ i.e., quantities are independent of space coordinates. Then the system of equations given is linear with respect to the functions sought for, which

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are magnetic and electric fields and velocities V_k. Solving the system the authors express magnetic field in terms of a single vector F depending on coordinates and time and electric field in terms of the gradient of an arbitrary harmonic function φ_o. If $a_k \neq 0$, momenta P_k and velocities V_k are expressed in terms of vector F. If $a_k = 0$, momentum P_k is a gradient, and such motions represent a generalization of potential motions in conventional hydrodynamics. Using harmonic-conjugated functions the authors solve the system of equations for the case of potential motions and find the vector fields of quantities E, H and V_k. The next case considered is steady motions; in case of the absence of any magnetic field, the equation of motion in the steady case is reduced to Bernoulli's equation. In the case of traveling waves, energy W_k depends on magnetic field H_o and derivatives of function F. Several extreme cases of function F presenting a special interest are analyzed. One or another form of this function is selected depending on the mutual orientation of the magnetic field vector and direction of propagation of traveling waves. For the case of waves traveling along the magnetic field H_o, which is applicable to plasma waveguides in which magnetic field is oriented along the waveguide axis, the form of F-function looks as follows:

$$F = F\,(q_1,\ q_2,\ \gamma_3 x_3 + \omega t) \qquad (5.1)$$

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A001/A101

On non-steady screw motions ...

As an example the authors consider propagation of axial-symmetrical waves in a cylindrical waveguide. Introducing dimensionless quantities for frequency, density and phase velocity the authors derive a dispersion equation and find the conditions under which its solution is a real quantity. There are 17 references, 16 of which are Soviet-bloc.

SUBMITTED: February 16, 1961

Card 3/3

TKALICH, V.S. (Sukhumi); TKALICH Ye.F. (Sukhumi)

Helical motion in the multicomponent magnetohydrodynamics. Izv.AN SSSR. Otd.tekh.nauk.Mekh.i mashinostr. no.5:184-186 S-O '60. (MIRA 13:9)

(Magnetohydrodynamics)

IVANOV, Boris Nikolayevich; TKALIN, Ivan Mikhaylovich; SOLNTSEV, Vyacheslav Aleksandrovich; SHTRUM, Viktor L'vovich; SHNEYDER, Roman Izraylevich; MAYANSKIY, Iosif Isaakovich; BORISOVA, Volya Petrovna; ARUTYUNOV, V.O., retsenzent; BLEKHSHTEYN, L.I., red.; SOBOLEVA, Ye.M., tekhn.red.

[Technology of the manufacture of electric instruments] Tekhnologiia elektropriborostroeniia. Moskva, Gos.energ.izd-vo, 1959. 590 p. (MIRA 13:4)

(Electric apparatus and appliances)

TKALIN, Ivan Mikhaylovich; SHTRUM, Viktor L'vovich; MAYOROV, S.A., kand. tekhn. nauk, retsenzent; BLEKHSHTEYN, L.I., inzh., red.; SOBOLEVA, Ye.M., tekhn. red.

[Automation and mechanization in the manufacture of electrical instruments]Mekhanizatsiia i avtomatizatsiia v elektropriborostroenii. Moskva, Gosenergoizdat, 1962. 331 p. (MIRA 15:12)

(Electric instruments) (Automation)

TKALIN, I.M.

PHASE I BOOK EXPLOITATION SOV/4754

Vsesoyuznoye soveshchaniye po gruppovym tekhnologicheskim protsessam v mashinostroyenii i priborostroyenii. 1st, Leningrad, 1959

Gruppovaya tekhnologiya v mashinostroyenii i priborostroyenii (Group-Processing Methods in the Machine and Instrument Industries) Moscow, Mashgiz, 1960. 378 p. Errata slip inserted. 7,000 copies printed.

Ed. (Title page): S.P. Mitrofanov, Lenin Prize Winner, Candidate of Technical Sciences; Eds.: A.S. Azarov, Candidate of Technical Sciences, N.G. Gutner, Engineer, P.V. Lamnev, Candidate of Technical Sciences, A.K. Kutay, Candidate of Technical Sciences, R.A. Reznikov, Engineer, and G.N. Shalygin, Candidate of Economic Sciences; Managing Ed. for Literature on Machine-Building Technology (Leningrad Department, Mashgiz): Ye.P. Naumov, Engineer; Ed. of Publishing House: N.Z. Simonovskiy; Tech. Ed.: O.V. Speranskaya.

PURPOSE: This collection of articles is intended for technical personnel in machine plants, designing organizations, and scientific-research institutes. It may also be useful to skilled workers.

COVERAGE: The collection consists of papers presented at the [illegible] Conference on Group Processing in the Machine and Instrument Industries, held November 24-28, 1959 in Leningrad. The conference was called by scientific and technical societies of the machine and instrument industry, GNTK RSFSR, and Lensovnarkhoz. The articles are based on the experience of industry in introducing the grouping principle in processing. They discuss basic trends in development, and group machining as the basis of mechanized continuous production. The designing of automatic production lines, construction of accessories, and modernization and specialization of equipment are discussed. Problems dealing with the introduction of group-machining methods into processing on various machine tools and into production of blanks (casting, pressworking, pressing of plastics) are considered. Planning, standardization, and methods for calculating the economic effectiveness of group processing are also treated. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

6/2

TKALIN, I.M., inzh.

Use of a multicycle continuous line for the production of electric instruments. Vest.elektroprom. 31 no.1:55-58 Ja '60. (MIRA 13:5)
(Assembly-line methods) (Electric apparatus and appliance)

VLASOV, Mikhail Fedorovich; PIGIN, Sergey Mikhaylovich; CHERVYAKOVA, Vera Ivanovna; LAVRUKHIN, M.A., retsenzent; TKALIN, I.M., retsenzent; LEKHSHTEYN, L.I., red.; ZHISHNIKOVA, O.S., tekhn. red.

[Assembly and adjustment of electric measuring devices]Sborka i regulirovka elektroizmeritel'nykh priborov. Izd.2., perer. Moskva, Gosenergoizdat, 1963. 260 p. (MIRA 16:3)
(Electric meters)

PANKOV, S.Ye.; TKANKO, N.V.

First steps in lowering the production costs on the "Proletarskii" State Cattle-Breeding Farm. Zhivotnovodstvo 20 no.5:24-30 My '58. (MIRA 11:5)

1. Direktor plemsovkhoza "Proletarskiy," Ryazanskaya oblast' (for Pankov). 2. Glavnyy zootekhnik plemsovkhoza "Proletarskiy," Ryazanskaya oblast' (for Tkanko).
(Dairy cattle breeding)

TKANOV, Yu.R.

Safety of operations on die casting machines. Lit.proizv. no.7:38-39 Jl '62. (MIRA 16:2)
(Die casting—Safety measures)

TKANY, Z.

"Torpedoing in hydraulic drilling."

p. 299 (Vodni Hospodarstvi) No. 11, Nov. 1957
Prague, Czechoslovakia

SO::Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,
April 1958

TKANY, Z.

Rotating worm boring, a new boring method for soft rocks. p.191.
(Stavivo, Vol. 35, No. 5, May 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 9, Sept. 1957. Uncl.

TKANY, Z.; JEDLICKA, M.

Core bores with large profiles. p. 212. (Inzenyrske Stavby, Vol. 5, No. 4, Apr. 1957. Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 8, Aug 1957. Uncl.

TRANY, Z.

TECHNOLOGY

periodicals: BNDI Vol. 6, no. 12, Dec. 1958

TRANY, Z. Hole boring for screen blasting. p. 412.

Monthly List of East European Accessions (EEAI) LC Vol. 8, no. 5
May 1959, Unclass.

TKANY, Z.

The determination of the boring ability of rocks.

p. 524 (Inzenyrske Stavby) Vol. 5, no. 10, Oct. 1957, Praha, Czechoslovakia

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX

BC

b-3-1

Rice cultivation in the U.S.S.R. B. Tkatchenko (*Rev. Int. Bot. appl. Agric. trop.*, 1950, 30, 278—297; *Colon. Plant Anim. Prod.*, 1950, 1, 156—157).—The present position of rice growing in the U.S.S.R. (Central Asia, N. Caucasus, Don region, Central Ukraine, Lower Volga, Azerbaijan, and the Far East) is discussed. Genetic investigations to produce higher-yielding and hardier varieties, and methods of cultivation, irrigation, weed control, manuring etc., are reviewed. In some sparsely flooded areas (central Asia) fish culture is combined with rice cultivation. P. S. Arup.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

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26

CA

Culture of tung-tree in U.S.S.R. Boris Tkatchenko. *Rev. intern. botan. appl. et agr. trop.* 28, 32-48(1948). A description of the ecologic conditions of the Russian tung belt. Selected *Aleurites fordii* is cultivated in Caucasian coast area of the Black Sea. The drying of fruits is substituted by a *fermentation* which softens epicarp and mesocarp so that the kernels can be freed from the flesh by washing. Losses in oil due to this fermentation are only 0.06-0.09%. Russian tung oil has d 0.9405-15, n 1.5210-60, acid value 0.50-0.98, sapon. value 194-8, I value 166-72. 55 references.

METALLURGICAL LITERATURE CLASSIFICATION

B-III-2

Hydraulic resistance in [sugar beet] diffusion battery cell. F. R. Tkatschenko (Nauch. Zap. Sach. Prom., 1934, 10, No. 37—38, 127—130).—Technical details are examined. Ch. Abs. (p)

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

3688. Transport of Ions by the Explosion-Wave. **A. E. Malinowski and K. T. Tkatschenko.** *Phys. Zeits. d. Sowjetunion*, 3. 5. pp. 529–536, 1933. *In German.*—The paper describes experiments on the transport of ions in the explosion of a definite mixture of acetylene and air, and forms part of a series of investigations on the mechanism of the combustion process and the explosion of gas mixtures [see Abstract 2361 (1930)]. The apparatus used consisted of a glass tube of about 2 cm. internal diameter and 60 cm. long through which the explosion gas mixture was driven at constant pressure, the mixture being ignited at the open end of the tube, at which the gas mixture passed into the air. The tube contained two similar cylindrical condensers whose distance apart could be varied. Each condenser was in circuit with a ballistic galvanometer and a battery. A voltage of from 250 to 1400 volts could be applied to the condensers. When the explosion wave travelled down the tube in the opposite direction to the gas current, a conduction current was observed in the galvanometers. The number of ions caught could be estimated from the galvanometer deflection. Calling the condenser and galvonometer nearer the ignition point of the mixture No. 1, and the other No. 2, it was found that galvanometer No. 2 gave a smaller deflection when the field was applied to condensers Nos. 1 and 2, than when no field was applied. The ion transport is measured by the difference in the deflections of galvanometer No. 2 in the two cases. A diagram of the apparatus, with tables of results, are given, together with a short discussion. T. E.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

TKATSCHENKO, K. T.
A. E. MALINOVSKI, Physikal. Z. Sowjetunion 1935, 8, 536-540

TKATSCHENKO, K. T.
A. E. KALINOWSKI, Phys. Zeits. d. Sowjetunion 6, 6, pp. 54[illegible]-556, 1934

TKATSCHENKO, K.T.,
A. S. MALINOWSKI, Phys. Zeits. d. Sowjetunion, 5. 3. pp.
446-452, 1934.

TKATSCHENKO, K.T.,
A. E. MALINOWSKI, Phys. Zeits. d. Sowjetunion, 8.5. pp 536-540, 1935.

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX 3RD AND 4TH ORDERS

B-3-1

BC

Influence of various tree species on soils. M. R. Thatcheshenko (Pedology, 1939, No. 10, 3—16). S. and P. (m)

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS — PROCESSES AND PROPERTIES INDEX — 3RD AND 4TH ORDERS

Bc

B-I-8

Low-temperature, two-stage, catalytic oxidation of ammonia. D. A. [illegible] and N. M. [illegible] (J. Appl. Chem. Russ., 1938, 11, 731—[illegible]).—The NH_3-air mixture is passed through Pt gauze, and the resulting gas (temp. 500°) is passed through a [illegible]; 96—98% oxidation [illegible]. The advantages claimed over the usual process are economy of Pt, owing to the lower contact temp., possibility of replacing Pt-Rh by Pt gauze, and abolition of the necessity for preheating the gas mixture. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

COMMON ELEMENTS — MATERIALS INDEX — COMMON VARIABLES INDEX — AUTHOR INDEX

[illegible], [illegible]
[illegible], [illegible], 1959, 8, 730

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

[illegible] O. P. Semenova and P. N. Tkatschenko (Bull. Acad. Sci. U.R.S.S., Sér. phys., 1941, 5, 226—237).—Apparatus and spectrum lines for the determination of Cu (0·1—20%) and Zn (0·5—40%) in ores, concentrates, and wastes are described. The powdered materials are dropped at uniform rate into an arc between horizontal C electrodes. Errors amount to ~10% for Cu concns. of 0·1—5% and 5—7% for higher concns.; errors are higher with Zn.

R. C. P.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX 3RD AND 4TH ORDERS

B-I 8

BC

Preparation of sodium nitrate from sodium chloride and ammonium nitrate. G. I. GORSCHTEIN and E. D. TKATSCHENKO (J. Chem. Ind. Russ., 1936, 13, 1045—1047).—It is concluded from solubility data for the system NH_4NO_3-NaCl-H_2O that NH_4Cl and $NaNO_3$ may be obtained by cyclic recrystallisation at 16—100° in 28%, and at 0—100° in 8—10%, yield. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

TKATCHENKO, L. P.
I. S. [illegible]TOV, Zhur Khim Prom, 1933, 10, n. 10, 53-55

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

TKATSHENKO, G. V.

G. V. Tkatshenko and P. M. Khomikovskiy

"The Mechanism of Emulsion Polymerization. Polymerization of 1.1-Dichloro-ethylene in Emulsifier-Solutions", Colloid Journal 13, 217-225, June 1951, Moscow

ABSTRACT AVAILABLE

D-50054

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

A-1

BC

Influence of surface-active substances on the velocity of evaporation of carbon dioxide from supersaturated solutions. N. A. HELD and A. D. [TKATSCHEW?] (Compt. rend. Acad. Sci. U.R.S.S., 1933, [illegible]).—Surface films of isoamyl, n-butyl, and n-heptyl alcohols and o-$C_6H_4Me\cdot NH_2$ each produce a retardation of the evaporation of CO_2 from its supersaturated solution, the effect being greatest with concns. corresponding with a unimol. surface layer. The effect is greatest with isoamyl alcohol. With higher concns. the evaporation is less retarded, and may even be accelerated by the film. The phenomena are explained on the basis of the resistance of the film itself, and the effect on the stirring of the surface layer of the aq. solution by the motions in the film.

J. W. S.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

[illegible], A. D.
L. I. [illegible], Z. [illegible], 19[illegible], 69, 400-4[illegible]1

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

PASSINSKIY, G.M., inzh. (Leningrad); TKALICH, M.B. (Leningrad)

Protecting radiators from freezing in air conditioning systems. (MIRA 18:2)
Vod. i san. tekh. no.2:12-13 F '64

TKALICH, S.M.; MINEYEV, I.K., glavnyy red.; RYABENKO, V.Ye., zam. glavnogo red.; TUMOL'SKIY, L.M., zam. glavnogo red.; KUR'YANOV, F.K., otv. zav vypusk; BASSOLITSYN, Ye.P., red.; BLINNIKOV, I.I., red.; DAUKSHO, Yu.Ye., red.; DZINKAS, Yu.K., red.; ZHARKOV, M.A., red.; ZAVALISHIN, M.A., red.; MANDEL'BAUM, M.M., red.; MATS, V.D., red.; MALETOV, P.I. red.; NOMOKONOVA, N., red.; NOSEK, A.V., red.; SERD, A.I., red.; SEMENYUK, V.D., red.; TAYEVSKIY, V.M., red.; TIKHONOV, V.L., red.; TROFIMUK, I.N., red.; TOMILOVSKAYA, M.V., red.; FOMIN, N.I., red.; SHAMES, P.I., red.; TROSHANIN, Ye.I., tekhn. red.

[Biogeochemical anomalies and their interpretation.] Biogeokhimicheskie anomalii i ikh interpretatsiia. Irkutsk, 1961. 39 p. (Materialy po geologii i poleznym iskopaemym Irkutskoi oblasti no.3). (MIRA 17:1)

TKALICH, V.S.

Focusing in a linear accelerator by means of traveling waves [with summary in English]. Ukr. fiz. zhur. 2 no.4:299-302 O-D '57. (MIRA 11:3)

1. Fiziko-tekhnichniy institut AN URSR.
(Particle accelerators)

AUTHOR: TKALICH, V.S.

PA - 2996

TITLE: On the Possibility of Focussing in a Linear Sccelerator by Means of a Travelling Wave. (O vozmoshnosti fokusirovki lineynom uskoritele begushchey volnoy, Russian)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 32, Nr 3, pp 625-626 (U.S.S.R.)
Received: 6 / 1957 Reviewed: 7 / 1957

ABSTRACT: By a modification of the method of radial- and phase stabilization by the introduction of periodic inhomogeneities into the wave conductor (cf. V.MYRON, L.GOOD, Phys.Rev. 92, 538, 1953) the possibility of a stabilization of the motion of heavy particles by means of a focussing travelling wave of an additional generator is here theoretically discussed. The nonrelativistic equations of motion are first solved for synchronic particles by successive approximations. Next, small disturbances of the motion are examined and the conditions for simultaneous radial- and phase stability are derived. By the addition of nonlinear terms expressions for the angular capture domain and the permitted dispersion of velocities are obtained. (6 Citations from Works Published).

ASSOCIATION: Physical-Technical Institute of the Academy of Science of the Ukrainian SSR

PRESENTED BY:
SUBMITTED: 20.12.1956
AVAILABLE: Library of Congress
Card 1/1

SOV/57-58-8-28/37

AUTHORS: Stepanov, K. N., Tkalich, V. S.

TITLE: On Electron Plasma Vibrations in External Electric and Magnetic Fields (O kolebaniyakh elektronnoy plazmy vo vneshnikh elektricheskom i magnitnom polyakh)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Nr 8, pp. 1789 - 1800 (USSR)

ABSTRACT: This paper gives an account of the study of the propagation of electromagnetic waves in a plasma placed in cross-wise arranged electric and magnetic fields. The thermal motion of the electrons is taken into consideration and the behaviour of the plasma waves is studied in detail. The fundamental equations are laid down and formula (19) for the dispersion is deduced. Several limiting cases involved in this equation are examined. Formulae (39) - (42) are deduced. They take account of the influence of the collision of the electrons with heavy particles per gap width (na shirinu razryvov). In the final part the vortex field is also considered (rot E $\neq$ 0) and the dispersion relation (46) for this case is obtained. The refraction index of the plasma waves is computed from (46).

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SOV/57-58-8-28/37

On Electron Plasma Vibrations in External Electric and Magnetic Fields

All solutions of (46) in the entire frequency range, for which (46) is valid, can only be obtained, if $E_0 = 0$. A. I. Akhiyezer suggested the problem and supervised the work, Ya. B. Faynberg and A. G. Sitenko discussed the results with the authors. There are 9 references, 8 of which are Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR, Khar'kov (Physical and Technical Institute, AS USSR, Khar'kov)

SUBMITTED: April 27, 1957

Card 2/2

TRALICH, V. S.

PHASE I BOOK EXPLOITATION SOV/3762

Konferentsiya po magnitnoy gidrodinamike. Riga, 1958.

Voprosy magnitnoy gidrodinamiki i dinamiki plazmy; trudy Konferentsii. (Problems in Magnetohydrodynamics and Plasma Dynamics; Transactions of a Conference) Riga, Izd-vo AN Latviyskoy SSR, 1959. 343 p. Errata slip inserted. 1,000 copies printed.

Sponsoring Agency: Akademiya nauk Latviyskoy SSR. Institut fiziki.

Editorial Board: D.A. Frank-Kamenetskiy, Doctor of Physics and Mathematics, Professor; A.I. Vol'dek, Doctor of Technical Sciences, Professor; I.M. Kirko, Doctor of Physics and Mathematics; V.Ya. Veldre, Candidate of Physics and Mathematics; V.G. Vitol, Candidate of Physics and Mathematics; Yu.M. Kruzin'; and V.Ya. Kravchenko.

Ed.: A. Teytel'baum; Tech. Ed.: A. Klyavinya.

PURPOSE: This book is intended for physicists working in the field of magneto-hydrodynamics and plasma dynamics.

COVERAGE: This volume contains the transactions of a conference held in Riga, June 1958, on problems in applied and theoretical magnetohydrodynamics. The objects of the conference were the investigation of the basic trends in theoretical and applied magnetohydrodynamics, establishing contact between the people doing research in different branches of magnetohydrodynamics, and promoting the participation of theoretical physicists in problems in applied magnetohydrodynamics. More than 160 persons from different parts of the Soviet Union took part in the conference, and 55 papers were read. Similar conferences are to be held regularly in the future; the next such conference is scheduled to be held in Riga in June 1960. In this present collection of the transactions of the conference, most of the papers and comments on papers are presented by the authors themselves in an abridged form. The book is divided into two parts: the first part deals with problems in theoretical magnetohydrodynamics and plasma dynamics, and consists of 35 articles on such aspects of the problem as the application of magnetohydrodynamics in astrophysics (D.A. Frank-Kamenetskiy), magnetohydrodynamics and the investigation of cosmic-ray variations (L.I. Dorman), acceleration of plasma in a magnetic field (G.V. Gordeyev and A.I. Gubanov), stability of shock waves and magnetohydrodynamics (A.I. Akhiyezer). The second part, consisting of 33 articles, deals with problems of experimental magnetohydrodynamics, including the application of physical simulation for investigation of electromagnetic processes in liquid metals (I.M. Kirko) and the development of electromagnetic pumps (P.G. Kirillov), at the Institute of Physics of the Academy of Sciences, Latvian SSR. Several articles are devoted to induction pumps, electromagnetic crucibles, electromagnetic stirrers for molten metals, and their application in the metallurgical industry including schematic diagrams of their power-supply systems. References are given at the end of most of the articles.

PROBLEMS IN EXPERIMENTAL MAGNETOHYDRODYNAMICS

Card 8/12

SOV/179-59-4-18/40

10(4)

AUTHOR: Tkalich, V. S. (Sukhumi)

TITLE: Investigation of the System of Equations of Magnetic Hydromechanics

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye, 1959, Nr 4, pp 134-135 (USSR)

ABSTRACT: The system of equations of ideal magnetic hydromechanics (hydromechanics of incompressible liquids) is first written down in the absolute Gaussian unit system (Ref 1). For the steady case $\partial/\partial t = 0$, the system can be written down in form of (1) after integration of the induction equation. This system is studied in any orthogonal coordinate system (q_1, q_2, q_3). The investigation is restricted to $\partial/\partial q_3 = 0$, and the method by I. S. Gromeka (Refs 3,4) is generalized for this case. The general solutions of the first two equations (1) have the form of (2). Formula (2) is substituted into the third component of the induction equation, $\partial\Phi/\partial q_3$ is assumed to be equal to 0 (Φ is the electrostatic potential), and a Jacobian equation (Ref 5) is obtained, the general solution

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Investigation of the System of Equations of Magnetic Hydromechanics

of which has the form of (3). When the cross derivations of function Φ are set equal to each other, an equation is obtained which gives a further Jacobian equation by means of (2). The third component of the equation of motion has a similar form. The total solution of this system is (4). These equations (4) constitute a system of equations which are linear with respect to H and V. If the determinant of the system is not equal to zero, the system can be solved with respect to H and V, and the formulas (5) are obtained. By use of (2) the two first components of the equation of motion (1) can be represented in form of (6). This formula is equivalent to Pfaff's equation. H and V are eliminated, and formula (7) is obtained by means of (5). On the assumption of (8), formula (7) can be simplified to formula (9). The general solution of (9) is equation (10). If the conditions of (11) are applicable, formula (10) becomes linear.- P. Ya. Kochina discussed the results of the investigation with the author. N. V. Saltanov and T. R. Soldatenkov showed continuous interest in the present investigation. There are 6 Soviet references.

SUBMITTED: December 29, 1958

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67600

SOV/179-59-5-21/41

10.4000

AUTHOR: Tkalich, V. S. (Sukhumi)

TITLE: Transformation of a System of Equations for the Hydrodynamic Approximation of Plasma

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1959, Nr 5, pp 122-123 (USSR)

ABSTRACT: The plasma of N types of ions considered in a stationary Maxwell system $\partial/\partial t = 0$ is defined by Eq (1), where φ is the electrostatic potential. The general solution can be presented in the form of Eq (2), where ψ and ψ_k - stream functions, h_3 - the third Lame coefficient; $H = h_3 H_3$, $V_k = h_3 v_{k3}$. If Eq (2) is substituted in the equation of ion motion, Eq (1) (k-type), then the formula

$$J(\psi_k, \alpha_k \psi + V_k) = 0$$

can be obtained, the solution of which can be shown as Eq (3). Thus, the magnitude of H can be defined as Eq (4). By excluding V_k from the third equation of Eq (3), the expression Eq (5) can be obtained from which the formula (6) is derived for the first two

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SOV/179-59-5-21/41

Transformation of a System of Equations for the Hydrodynamic Approximation of Plasma

components of the equation of ion motion (k-type):

$$\nabla^* w_k = (v_k \times vot\ v_k)^* + a_k (v_k \times H)^*,$$

The system of equations (5) and (6) can be shown in the linear form as Eq (7), which, together with Eqs (2) to (4), determines the magnetic field and the velocity. Acknowledgments are expressed to N.V.Saltanov for his advice.
There are 4 Soviet references.

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SUBMITTED: December 29, 1958

Card 2/2

69305

S/179/60/000/01/030/034
E032/E514

10.2000A

AUTHOR: Tkalich, V.S. (Sukhumi)

TITLE: A Study of the Equation of Magnetic Hydromechanics in the Two-Parameter Case

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1960, Nr 1, pp 182-183 (USSR)

ABSTRACT: The present paper is a continuation of previous work reported by the author in Ref 1. The notation employed is defined in that paper, where it was shown that in the steady state the system of equations of ideal magnetic hydromechanics is given by Eq (1) of the present paper. The analysis of these equations given in Ref 1 is continued in the present note, using the method of I. S. Gromeka (Refs 1-6). The analysis is carried out in an arbitrary orthogonal system of coordinates (q_1, q_2, q_3) assuming that the quantities $\underline{H}$, $\underline{v}$, Φ, and w are independent of q_3. The two-parameter solenoidal fields $\underline{H}$ and $\underline{v}$ were shown in Ref 1 to be

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S/179/60/000/01/030/034
E032/E514

A Study of the Equation of Magnetic Hydromechanics in the Two-Parameter Case

given by Eq (2), where H and V are given by Eq (3) and Ψ, Ψ_o, α, β are all arbitrary functions of ξ and the latter quantity is an arbitrary function of q_1 and q_2. Substituting Eq (2) into Eq (1), one finds that the electrostatic potential is a function of the parameter ξ. Moreover, the arbitrary function β can be expressed in terms of the electrostatic potential Φ in the form $\beta = cd\Phi/d\xi$. Thus, all the equations in Eq (1) can be integrated in a closed form except for the first two components of the equation of motion (Eq 5). If the determinant of the system given by Eq (3) has a non-zero value, then the parameter ξ is conveniently chosen to be of the form given by Eq (6). The quantities H and V are then given by Eq (7). Integration of the equation of motion (Eq 5) yields the solution given by Eq (8), which can also be rewritten in the form given by Eq (10). If w is of the form defined by Eq (11), where a, a_o and a_1 are arbitrary constants, then the basic equation (Eq 10)

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A Study of the Equation of Magnetic Hydromechanics in the Two-Parameter Case

becomes linear. The analysis is then continued for the special case of a cylindrical system of coordinates and assuming that the functional relationship $J(\xi, r) = 0$ exists. An expression is derived for the total pressure $P(r)$. A further special case discussed is that in which the determinant of Eq (3) is equal to zero. Acknowledgments are made to N. V. Saltanov and Ye.F. Tkalich for valuable discussions.
There are 8 references, 7 of which are Soviet and 1 English.

SUBMITTED: October 23, 1959

TKALICH, V.S. (Sukhumi); TKALICH Ye.F. (Sukhumi)

Helical motions in the multicomponent magnetohydrodynamics. Izv.AN SSSR. Otd.tekh.nauk.Mekh.i mashinostr. no.5:184-186 S-O '60. (MIRA 13:9)

(Magnetohydrodynamics)

6' 8600 (3201, 1099, 1162)
6110 also 1144, 1063, 1147
9300

86813
S/185/60/005/001/013/018
A151/A029

AUTHORS: Tkalich, V.S.; Pakhomov, V.I.

TITLE: Elastic Waves in a Thin Toroidal Tube Filled With a Liquid

PERIODICAL: Ukrayins'kyy Fizychnyy Zhurnal, 1960, Vol. 5, No. 1, pp. 115 - 117

TEXT: The generation of homogeneous acoustic fields in a liquid is of great importance for certain technical purposes (Ref. 1). A homogeneous acoustic field (according to period) can be generated in a resonator which is shaped like a toroidal tube filled with a liquid. In such a system, a wave can be established which runs along the tube's axis (Ref. 2). Mathematically and by considering the potential of the liquid's velocity, the deformation vector in a hard body, the velocity of the sound in the liquid (c), the longitudinal (c_e) and transverse (c_t) sound velocities in the liquid, the normal tension component on the inner surface of the tube, as well as a number of other factors, the authors derive a formula by which the phase speed can be calculated:

$$[illegible] = \frac{b(3 - 4a) + (1 - a)(1 + d) \pm \sqrt{[b(3 - 4a) + (1 - a)(d - 1)]^2 + d(1 - 2a)^2}}{\frac{d}{2} + 2b(1 - a)} \qquad (8)$$

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A151/A029

Elastic Waves in a Thin Toroidal Tube Filled With a Liquid

where $a = (\frac{c_t}{c_e})^2$, $b = (\frac{c_t}{c})^2$, $d = 2\frac{\rho r_v}{\rho_0 \Delta r}$. The phase speed calculated according to the above formula (for the minus symbol) coincides with the results of the calculation and the experiment (Ref. 4) in the case of small frequencies. The radicant expression in the formula is a positive value. It has been established that there are always two different undamped waves, which correspond to two solutions (8) of the own frequencies' equation (7). The relationship of the energy flow in the wall of the tube to the energy flow in the liquid q at $d \gg 1$ is expressed in the following way:

$$q = \frac{a\,(\Omega^2 b - 1)}{2\,d} \cdot \frac{a^2 + (1 - a)^2}{(1 - a)(1 - 2a)^2}. \qquad (9)$$

Therefore, if the phase speed is close to the sound velocity in the liquid, then the greated part of the energy is concentrated in the liquid. Thus, the homogeneity of the acoustic field in a liquid is attained (on the average according to period) owing to the thinness of the tube. In closing, the authors express their gratitude to K.D. Syel'nykov, O.I. Akhiyezer, V.S. Humenyuk, H.Ya. Lyubars'kyy and M.A. Khyzhnyak for valuable discussions. There are 4 references: 3 Soviet and 1 English.

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86813

S/185/60/005/001/013/018
A151/A029

Elastic Waves in a Thin Toroidal Tube Filled With a Liquid

ASSOCIATION: Fizyko-tekhnichnyy instytut AN URSR (Physico-Technical Institute, AS UkrSSR)

SUBMITTED: October 17, 1959

Card 3/3

84735

S/057/60/030/010/017/019
B013/B063

2407, 2207, 2307, 2507 only

10.8000

AUTHORS: Saltanov, N. V., Tkalich, V. S.

TITLE: Magnetohydrodynamic Waves of Finite Amplitude

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 10, pp. 1253 - 1255

TEXT: From the set of equations (1) for an ideal, incompressible fluid of ideal conductivity the authors derived equation (7), $\left[\left(\frac{\partial}{\partial t} + v_0 \frac{\partial}{\partial r}\right)^2 - v_\alpha^2 \frac{\partial^2}{\partial r^2}\right]\vec{\psi} = 0;\ v_\alpha^2 = H_0^2/4\pi\varrho$, on the condition that all physical quantities depend on time and one coordinate. The general solution (Ref. 4) of equation (7) is given by $\vec{\psi} = \vec{\psi}_+(r - \int v_0 dt + v_\alpha t) + \vec{\psi}_-(r - \int v_0 dt - v_\alpha t)$ (8), where the vectors $\vec{\psi}_+$ and $\vec{\psi}_-$ are arbitrary functions of their arguments. Equation (9), $\vec{h} = \vec{\psi}_+' + \vec{\psi}_-'$, $\vec{v} = (1/\sqrt{4\pi\varrho})(\vec{\psi}_+' - \vec{\psi}_-')$, holds for the fields $\vec{h}$ and $\vec{v}$. This solution describes the sum of two waves

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propagating along a constant magnetic field in opposite directions. The conducting fluid is assumed to propagate along the field at a velocity $v_0(t)$. The latter is an arbitrary time function. In this wave, the vector of the variable part of the magnetic field strength is arbitrarily polarized. The following relations hold for $v_0 = 0$:

$$\left.\begin{aligned} \vec{\psi} &= \vec{\psi}_+(r + v_\alpha t) + \vec{\psi}_-(r - v_\alpha t) \\ \vec{h} &= \vec{\psi}'_+ + \vec{\psi}'_-, \quad \vec{v} = (1/\sqrt{4\pi\varrho})\,(\vec{\psi}'_+ - \vec{\psi}'_-) \end{aligned}\right\} \qquad (10)$$

In waves having the form of (10), the vectors $\vec{h}$ and $\vec{v}$, in general, are not parallel. As a result, there is one component of the alternating field in the direction of a constant magnetic field (contrary to the Alfvèn and Valen waves). The authors thank Ye. F. Tkalich for discussions. There are 4 Soviet references.

SUBMITTED: April 8, 1960

Card 2/2

Tkalich, V.S

S/056/60/039/01/12/029
B006/B070

AUTHOR: Tkalich, V. S.

TITLE: Waves of Finite Amplitude in a Multi-component Conducting Medium

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 1 (7), pp. 73-77

TEXT: The purpose, for which the present work was undertaken, was to reduce the system of equations which in hydrodynamical approximation describes a non-perfect plasma (which consists of N kinds of ions each of which may be considered to be an incompressible fluid) to a linear system. With this reduction the assumption that the signal be small is avoided. The propagation of waves with finite amplitude is investigated for the case when the neutral plasma is situated in a constant homogeneous magnetic field. Some conditions for the applicability of the hydrodynamical approximation to a plasma are mentioned. Thus, for example, to satisfy the condition of incompressibility, the plasma temperature should be so high that the thermal velocity substantially exceeds the

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Waves of Finite Amplitude in a Multi-component Conducting Medium

S/056/60/039/01/12/029
B006/B070

translational velocity. Results obtained for a two-component plasma (particularly the phase velocity) are compared with the results of other authors (S. I. Braginskiy, Ref. 3, S. I. Syrovatskiy, Ref. 15). In conclusion, the choice of appropriate boundary value conditions is considered. The author thanks N. V. Saltanov and Ye. F. Tkalich for discussions. There are 15 references: 12 Soviet, 2 American, and 1 Svedish.

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SUBMITTED: October 22, 1959

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TKALICH, V. S.

Cand Phys-Math Sci - (diss) "Several non-linear problems of plasma dynamics." Sukhumi, 1961. 12 pp; (Physics-Technical Inst Academy of Sciences Georgian SSR); 250 copies; price not given; (KL, 10-61 sup, 205)

S/179/61/000/002/012/017
E081/E141

AUTHORS: Tkalich, V.S., and Tkalich, Ye.F. (Sukhumi)

TITLE: The correspondence between stationary flow in hydrodynamics and magneto-hydrodynamics

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1961, No.2, pp. 115-116

TEXT: The paper is a continuation of previous work by V.S. Tkalich (Ref.4: Sbornik voprosu magnitnoy gidrodinamiki i dinamiki plazmy, Riga, 1959, p. 191; Ref.5: the present journal, 1960, No.1). The system of vector equations for the ideal magneto-hydrodynamics of an incompressible fluid are quoted from H.Alfvén (Cosmic Electrodynamics, IL, 1952). If the electric field vanishes, then in the stationary state ($\partial / \partial t = 0$) the equations reduce to :

$$\operatorname{div} H = 0, \qquad \operatorname{div} V = 0, \qquad V = \varphi H$$
$$\nabla w = V \times \operatorname{rot} V - \frac{1}{4\pi\rho} H \times \operatorname{rot} H, \qquad w \equiv \frac{1}{2} V^2 + \frac{p}{\rho} + f \qquad (1)$$

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where $\varphi = \varphi(r)$ is a function of the coordinates. (Abstractor's note: φ is the only quantity in Eq.(1) defined in the paper). If $4\pi\rho\varphi^2 \neq 1$ the equations reduce to the simpler form (Eq.3) by introducing:

$$s \equiv \mathrm{sign}\,(4\pi\rho\varphi^2 - 1), \qquad \xi \equiv \pm\sqrt{s\left(\varphi^2 - \frac{1}{4\pi\rho}\right)}, \qquad U \equiv \xi H \tag{2}$$

$$\nabla (sw) = U \times \mathrm{rot}\, U, \qquad \mathrm{div}\, U = 0, \qquad (U\nabla)\,\xi = 0 \tag{3}$$

The first two equations in (3) coincide with the system of equations of stationary hydrodynamics, except that differing symbols are used. The solutions of these equations enable comparisons to be made of the kinetic and magnetic energies of the field and the solutions are compared with those obtained earlier by other workers. Acknowledgements are expressed to N.V.Saltanov for his participation in the discussions.
There are 6 Soviet references.
SUBMITTED: October 11, 1960
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S/179/61/000/005/004/022
E031/E426

24.2254

AUTHOR: Tkalich, V.S. (Sukhumi)

TITLE: On unsteady motion in non-ideal magnetic hydromechanics

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye. v.5, 1961, 22-29

TEXT: The fundamental equations are transformed by the introduction of a curvilinear coordinate system, and the discussion limited to the case when the physical quantities and the Lamé coefficients are independent of the third coordinate. A system of four scalar equations is obtained from which can be determined the stream functions, and the three components of the velocity and magnetic fields. If the coordinate system is cartesian, two non-linear equations are obtained for the stream functions, the remaining quantities are obtained by solving these equations and substituting in the other equations. A number of exact solutions are given for special cases which include steady motion, inviscid fluid and the absence of transverse components of the magnetic field. Acknowledgments are expressed to Ye.F.Tkalich for discussion. I.S.Gromek and S.A.Regirer are mentioned in the

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article for their contributions in this field. There are 27 references: 14 Soviet-bloc and 13 non-Soviet-bloc. The four most recent references to English language publications read as follows:

Ref.8: Williams W.E. J. Fluid. Mech., 1960, v.8, no.3;
Ref.9: Shmoys J., Mishkin E. Phys. of Fluids, 1960, v.3, no.4;
Ref.22: Long R.R. J. Fluid. Mech., 1960, v.7, no.1;
Ref.23: Kapur J.N. Appl. Scient. Res., 1960, v.A9, no.2-3.

SUBMITTED: January 9, 1961

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31627
S/207/61/000/006/002/025
A001/A101

26.1410

AUTHORS: Tkalich, V.S., Tkalich, Ye.F. (Sukhumi)

TITLE: On non-steady screw motions in multi-component magnetic hydrodynamics

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1961, 8 - 16

TEXT: The purpose of this work was investigation of non-steady screw motions in multi-component magnetic hydrodynamics. The authors introduce in the analysis the analogs of electromagnetic potentials (φ, rotB) and total momentum (P_k) of the unit of mass of k-type ions. A definition of "screw" motions is given as motions satisfying the condition:

$$\text{rot } P_k = a_k \left(P_k - \frac{\mu e_k}{cm_k} \text{rot } B \right) \quad (1.4)$$

The present work is restricted to studying "homogeneous" screw motions in which $a_k = a_k(t)$ i.e., quantities are independent of space coordinates. Then the system of equations given is linear with respect to the functions sought for, which

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are magnetic and electric fields and velocities V_k. Solving the system the authors express magnetic field in terms of a single vector F depending on coordinates and time and electric field in terms of the gradient of an arbitrary harmonic function φ_o. If $a_k \neq 0$, momenta P_k and velocities V_k are expressed in terms of vector F. If $a_k = 0$, momentum P_k is a gradient, and such motions represent a generalization of potential motions in conventional hydrodynamics. Using harmonic-conjugated functions the authors solve the system of equations for the case of potential motions and find the vector fields of quantities E, H and V_k. The next case considered is steady motions; in case of the absence of any magnetic field, the equation of motion in the steady case is reduced to Bernoulli's equation. In the case of traveling waves, energy W_k depends on magnetic field H_o and derivatives of function F. Several extreme cases of function F presenting a special interest are analyzed. One or another form of this function is selected depending on the mutual orientation of the magnetic field vector and direction of propagation of traveling waves. For the case of waves traveling along the magnetic field H_o, which is applicable to plasma waveguides in which magnetic field is oriented along the waveguide axis, the form of F-function looks as follows:

$$F = F\,(q_1,\ q_2,\ \gamma_3 x_3 + \omega t) \qquad (5.1)$$

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As an example the authors consider propagation of axial-symmetrical waves in a cylindrical waveguide. Introducing dimensionless quantities for frequency, density and phase velocity the authors derive a dispersion equation and find the conditions under which its solution is a real quantity. There are 17 references, 16 of which are Soviet-bloc.

SUBMITTED: February 16, 1961

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SALTANOV, N.V. (Sukhumi); TKALICH, V.S. (Sukhumi)

Riemann waves. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr. no.6: 26-32 N-D '61. (MIRA 14:11)

(Magnetohydrodynamics)

28776 S/057/61/031/010/009/015
B109/B102

10.2000
24.6712

AUTHORS: Tkalich, V. S., and Saltanov, N. V.

TITLE: Waves of finite amplitude in non-ideal magnetohydrodynamics

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 10, 1961, 1231-1235

TEXT: The present paper deals with computing the properties of a wave of finite amplitude, propagating along a magnetic field, in dependence on conductivity, viscosity, and other plasma parameters. If V and H are functions of time and of a space coordinate r, the relations $H_1 = H_0/r^n$, $V_1 = v_0/r^n$ can be derived from the known basic equations

$$\left.\begin{aligned} &\frac{\partial \mathbf{H}}{\partial t} = \operatorname{rot}(\mathbf{V}\times\mathbf{H} - \nu_m \operatorname{rot}\mathbf{H}), \quad \operatorname{div}\mathbf{H} = 0, \quad \operatorname{div}\mathbf{V} = 0, \\ &\frac{\partial \mathbf{V}}{\partial t} + \nabla W = \mathbf{V}\times\operatorname{rot}\mathbf{V} - \frac{1}{4\pi\rho}\mathbf{H}\times\operatorname{rot}\mathbf{H} - \nu \operatorname{rot}\operatorname{rot}\mathbf{V}, \\ &W \equiv \frac{V^2}{2} + \frac{p}{\rho} + F. \end{aligned}\right\} \qquad (1)$$

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Waves of finite amplitude...

(H_0 denotes an arbitrary constant, $v_0 = v_0(t)$ an arbitrary function of time, n = 0 (plane symmetry) or 1 (cylinder symmetry), subscript 1 denotes the components of the vectors $\vec{V}$ and $\vec{H}$). The energy W of the unit mass of the fluid considered (without magnetic-field contribution) is assumed to be a linear function of the second and third space coordinates q_2 and q_3: $W = w(r,t) + Q_2 q_2 + Q_3 q_3$, where $Q_2(t)$, $Q_3(t)$ are arbitrary functions of time. In this case, the linear equations

$$\left.\begin{aligned} &\left(D_{2m} + \frac{\partial}{\partial r}\frac{v_0}{r^n}\right)H_2 = \frac{\partial}{\partial r}\frac{H_0}{r^n}V_2; \quad \left(D_2 + \frac{v_0}{r^n}\frac{1}{r^n}\frac{\partial}{\partial r}r^n\right)V_2 = \\ &\qquad = \frac{H_0}{4\pi\rho}\frac{1}{r^{2n}}\frac{\partial}{\partial r}r^n H_2 - \frac{Q_2}{r^n}, \\ &D_{2m} \equiv \frac{\partial}{\partial t} - \nu_m \frac{\partial}{\partial r}\frac{1}{r^n}\frac{\partial}{\partial r}r^n; \quad D_2 \equiv \frac{\partial}{\partial t} - \nu\frac{\partial}{\partial r}\frac{1}{r^n}\frac{\partial}{\partial r}r^n, \end{aligned}\right\} \quad (3)$$

$$\left.\begin{aligned} &\left(D_{3m} + \frac{v_0}{r^n}\frac{\partial}{\partial r}\right)H_3 = \frac{H_0}{r^n}\frac{\partial V_3}{\partial r}; \quad \left(D_3 + \frac{v_0}{r^n}\frac{\partial}{\partial r}\right)V_3 = \\ &\qquad = \frac{H_0}{4\pi\rho r^n}\frac{\partial H_3}{\partial r} - Q_3, \\ &D_{3m} \equiv \frac{\partial}{\partial t} - \nu_m \frac{1}{r^n}\frac{\partial}{\partial r}r^n\frac{\partial}{\partial r}; \quad D_3 \equiv \frac{\partial}{\partial t} - \nu\frac{1}{r^n}\frac{\partial}{\partial r}r^n\frac{\partial}{\partial r}. \end{aligned}\right\} \quad (4)$$

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hold for the second and third components of $\vec{H}$ and $\vec{V}$. By adequate specializations the results obtained are identical with those obtained by S. A. Regirer (DAN SSSR, 127, 983, 1959; IFZh, 2, no. 8, 1959), Ya. S. Uflyand (ZhTF, XXX, 799, 1960) and I. B. Chekmarev (ZhTF, XXX, 338, 1960; ZhTF, XXX, 920, 1960). Upon introducing the vector potential $\vec{a} \equiv (A_2, A_3)$ in (3), (4), the equation

$$\left.\begin{array}{l}\left[\left(\frac{\partial}{\partial t}+v_0\frac{\partial}{\partial r}-\nu\frac{\partial^2}{\partial r^2}\right)\left(\frac{\partial}{\partial t}+v_0\frac{\partial}{\partial r}-\nu_m\frac{\partial^2}{\partial r^2}\right)-\frac{H_0^2}{4\pi\rho}\frac{\partial^2}{\partial r^2}\right]\mathbf{a}=\\ =H_0\mathbf{e}\times\mathbf{Q}+\mathbf{C}',\ \mathbf{Q}\equiv(Q_2,\ Q_3),\ \ \mathbf{C}\equiv(C_2,\ C_3),\end{array}\right\} \quad (9)$$

is obtained for $\vec{a}$, where $\vec{e}$ is the unit vector in the direction of r. Special cases: (A) $v_0 = \nu = \nu_m = \vec{Q} = \vec{C} = 0$. Then,

$$\left.\begin{array}{l}A_2=\frac{h_{03}}{k}\sin(kr)\sin(\omega t+\varphi_3),\ \ A_3=-\frac{h_{02}}{k}\sin(kr)\sin(\omega t+\varphi_2),\\ \omega=\frac{skH_0}{\sqrt{4\pi\rho}},\ \ (s=\pm1),\end{array}\right\} \quad (11)$$

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will be a solution of (9), where h_{o2}, h_{o3}, φ_2, φ_3 are arbitrary constants. From the vector potential one obtains as usually $\vec{H}$, $\vec{V}$, and $\vec{E}$:

$$\left.\begin{aligned} H_e &= h_{0e}\cos(kr)\sin(\omega t+\varphi_e), \\ V_e &= \frac{s h_{0e}}{\sqrt{4\pi\rho}}\sin(kr)\cos(\omega t+\varphi_e), \quad (e=2,\ 3). \end{aligned}\right\} \qquad (12)$$

$\vec{E} = -[\vec{V}\cdot\vec{H}]/c$. If there is a fluid layer of the thickness L between two layers of ideal conductance at r = 0 and r = L, the dispersion equation $\omega = sm\pi H_o/L\sqrt{4\pi\varrho}$ is obtained for this layer from the conditions of continuity, m being an integral number. (B) $\vec{Q} = \vec{C} = 0$: the solution of (9) is

$$A_e = a_{oe}\exp ik(r + \int v_1 dt),$$

$$v_1 = -v_o + \frac{ik(\nu + \nu_m)}{2} + \frac{sH_o}{\sqrt{4\pi\varrho}}\sqrt{1 - \frac{\pi\varrho k^2(\nu - \nu_m)^2}{H_o^2}} \qquad (14),$$

where a_{oe} is an arbitrary complex constant, and k denotes the wave number

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