Z_1 and Z_2 respectively. For the free energy of such an electrolyte the author gives:

$$F=F_o-\frac{T\kappa^3}{12\pi}+\lim_{R\to\infty}\left\{-2\pi T\int_0^R r^2 dr\sum_{\alpha\beta}\nu_\alpha\nu_\beta\left(e^{-\beta\nu_{\alpha\beta}(t)}-1\right)+\right.$$

$$\left.+\frac{T\kappa^3}{16\pi}R-\frac{\pi}{3}\beta^2e'^6(\Sigma\nu Z^3)^2\ln\kappa R\right\}+$$

$$+\pi\beta^2e'^6\left[(\Sigma\nu Z^3)^2\frac{1}{3}(C-\ln 3)-\Sigma\nu Z^2\Sigma\nu Z^4\right];$$

$$\kappa=\sqrt{4\pi\beta e'^2\sum_\alpha\nu_\alpha Z_\alpha^2}$$

(F_o = free energy of the perfect gas, κ - a quantity which is inversely proportional to the Debye (Debay) radius, ν_α and Z_α - density and charge respectively of the particles of the kind

The Free Energy of Strong Electrolytes SOV/56-36-3-56/71

$\alpha,\beta=1/T$, T - the absolute temperature, and C - the Euler (Eyler) constant. Summation is carried out with respect to the kinds of particles. The author finally thanks Academician L. D. Landau for valuable remarks during discussions. There are 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: November 25, 1958

Card 3/3

21(7)

AUTHORS: Vedenov, A. A., Larkin, A. I. SOV/56-36-4-27/[illegible]

TITLE: The State Equation of a Plasma (Uravneniye sostoyaniya plazmy)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 4, pp 1133-1142 (USSR)

ABSTRACT: A considerable number of papers has already dealt with the problem of the equation of state of a particle system with Coulomb interaction. A general formula for the virtual coefficients is not applicable in this case. The Coulomb forces are found to be remote action forces and therefore limitation by pair interactions is impossible already in the first term of an expansion in series of thermodynamic quantities according to the gas density n. By employing the method of the selfconsistent field Debye and Hückel (Ref 1) found the first term of an expansion of free energy according to the density n of the interacting particles, which is proportional $n^{3/2}$. Glauberman and Yukhnovskiy (Ref 2) endeavored to calculate the following terms, but, as they used an unsuitable method, they obtained incorrect results.

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The State Equation of a Plasma SOV/56-36-4-27/70

For the purpose of calculating the first terms of the expansion according to n the authors of the present paper used a graphical method which is analogous to that used by Feynman in quantum electrodynamics. First, the diagram technique used is discussed for a system of interacting particles in thermodynamic equilibrium for close-range action forces. In the following the technique of summating graphs in the case of Coulomb interaction is discussed. For the free energy F of a completely ionized gas an expansion according to n is obtained in the form $F = F_{ideal} + An^{3/2} + Bn^2 \ln n + Cn^2$. The second term is identical with the Debye-Hückel term. Expressions are given for the coefficients of expansion. The authors finally thank L. D. Landau and V. M. Galitskiy for discussions. There are 5 figures and 4 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

Card 2/3

24(8)

AUTHOR: Vedenov, A. A.

SOV/20-125-4-18/74

TITLE: A New Method in Classical Statistical Physics
(Novyy metod v klassicheskoy statisticheskoy fizike)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 4,
pp 757-760 (USSR)

ABSTRACT: The author first gives a short report on earlier papers dealing with this subject. The present paper develops a new method of determining the thermodynamical potentials of the system of interacting particles in classical statistical physics. The author, above all, recalls the known relation which expresses the variation ΔF of free energy, which is due to the interaction, by the correlation function in pairs $K(\vec{x})$. K may be expressed in form of an infinite sum of terms of different order of n with respect to the potential V; to these terms there belong certain coefficients. To each summand a graph is then assigned, which contains l points ($l \leqslant N$), which correspond to the coordinates of the particles belonging to the summands. The construction of these summands is described

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in short. The correlation function in pairs K is equal to the sum of the contributions made by individual possible graphs, in which case a factor is added to each diagram. The general formula for these factors is written down. The author then passes on to using Fourier components, and he employs the diagram technique in momentum representation. The author shows that by means of this method it is possible to calculate the second virial coefficient for a gas of particles with short-range forces. In this case the small parameter is the ratio of the effective radius r_0 to the average distance $R = \nu^{-1/3}$ between the particles. Formally, also the density ν may be used as a small parameter. A formula for the total contribution of the graphs with the smallest possible number of points (1= 2) is written down. For the correlation function in pairs the expression $K(\vec{x}) = \exp(-\beta V(\vec{x}))$ is found, and also a formula for ΔF is written down. In a similar manner also the expressions for the higher virial coefficients can be derived. Next, the case of forces with remote effect (Coulomb interaction) is investigated. The

graphs corresponding to this are given, and a formula for the total contribution of these graphs is written down. The generalization of the discussed technique of graphs for multi-component systems is trivial. In a two-component system (consisting of charged particles) it is sufficient to introduce two types of points and three types of lines in the graphs. An expression for the correlation function corresponding to this case is written down. In conclusion, the here discussed method of determining the next-higher correction to correlation functions in pairs is employed in a system with Coulomb interaction. Also the correlation function corresponding to this case is explicitly written down. The author thanks Academician M. A. Leontovich for discussing the present paper. There are 3 figures and 4 references, 3 of which are Soviet.

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

PRESENTED: November 27, 1958, by M. A. Leontovich, Academician

SUBMITTED: November 24, 1958

22293

S/053/61/073/004/006/007
B125/B201

24.2120 also 3617, 3817

AUTHORS: Vedenov, A. A., Velikhov, Ye. P., Sagdeyev, R. Z.

TITLE: The stability of plasma

PERIODICAL: Uspekhi fizicheskikh nauk, v. 73, no. 4, 1961, 701-766

TEXT: The authors of the present paper report on the basic physical results of the theory of stability, and illustrate the subject by physical considerations, without making an analysis of the mathematical means. The problem of the stability has been practically studied to some completeness only where small disturbances are concerned. The linear theory does not, in principle, distinguish between metastable and stable conditions, and is therefore unsuited in the case where a steady state is separated by a barrier from another one. This problem already leads to the nonlinear theory of stability. With the exception of some special cases, there is as yet no nonlinear theory of stability. The "supercritical" theory of stability, which has been successfully developed in the recent past, deals with the effect of perturbations on an average background, and the development of small perturbations on this background. This method

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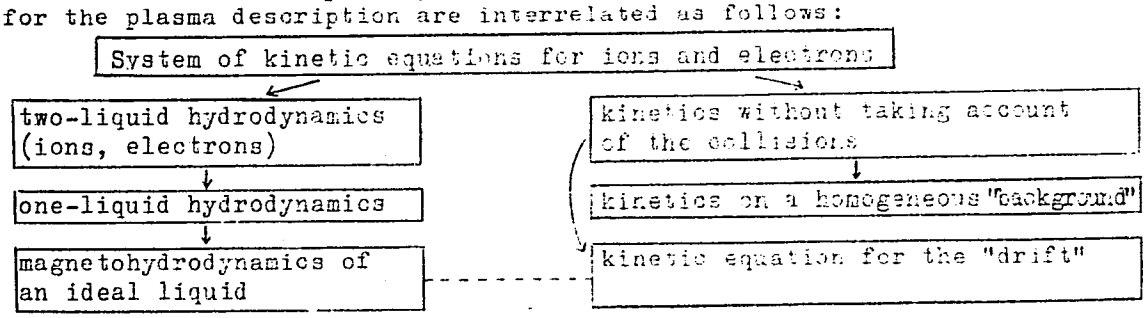
The stability of plasma

is suitable if the critical conditions of stability are exceeded to a slight extent. Of some significance in terms of physics are (1) the aperiodic instability, where the deviation from the position of equilibrium increases monotonically in the progress of time; (2) oscillations with growing amplitude. The mathematical conditions for the aperiodicity or for an oscillation instability read: $\mathrm{Re}\,\omega = 0$ and $\mathrm{Re}\,\omega \neq 0$, respectively. [Abstracter's note: because of the length of the paper, only its articulation and the principal equations can be given here.] The methods for the plasma description are interrelated as follows:



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The stability of plasma

The system of equations of ideal magnetohydrodynamics for an ideal plasma (zero dissipation and vanishing dissipation) reads:

$$\frac{\partial \varrho}{\partial t} + \operatorname{div} \varrho \mathbf{v} = 0, \tag{3,1}$$

$$\frac{\partial \mathbf{v}}{\partial t} + (\mathbf{v}, \nabla)\mathbf{v} = -\frac{1}{\varrho}\nabla p + \frac{1}{4\pi\varrho c}[\operatorname{rot} \mathbf{H}, \mathbf{H}], \tag{3,2}$$

$$\frac{\partial \mathbf{H}}{\partial t} = \operatorname{rot}[\mathbf{v}, \mathbf{H}], \tag{3,3}$$

$$p = p(\varrho). \tag{3,4}$$

When considering dissipative effects, the term $\eta\Delta\vec{v} + \left(\frac{\eta}{3} + \zeta\right) \operatorname{grad} \operatorname{div} \vec{v}$ appears additionally on the right-hand side of (3.2), where η and ζ denote the viscosity coefficients. In addition, $\frac{c^2}{4\pi\sigma}\Delta\vec{H}$ appears on the right-hand side of (3.3). The place of (3.4) is taken by the two equations $p = p(\varrho, T)$ and

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The stability of plasma.

$$\frac{\partial}{\partial t}\left\{\rho\left(\frac{v^2}{2}+c_vT\right)+\frac{H^2}{8\pi}\right\}=$$

$$=-\operatorname{div}\left\{\rho v\left(\frac{v^2}{2}+c_pT\right)+\frac{c}{4\pi}[E,\ H]-(v\hat{\sigma}')-\varkappa\nabla T\right\}.$$

3.4a

где

$$\sigma'_{ik}=\eta\left(\frac{\partial v_i}{\partial x_k}+\frac{\partial v_k}{\partial x_i}-\frac{2}{3}\delta_{ik}\frac{\partial v_l}{\partial x_l}\right)+\zeta\delta_{ik}\frac{\partial v_l}{\partial x_l},$$

where $\varkappa$ denotes the heat conductivity. In the case of a homogeneous or almost homogeneous background one obtains:

$$\left.\begin{aligned}&\frac{\partial f}{\partial t}+(v\nabla)f+\left\{\frac{eE}{m}+\frac{e}{mc}[v,H]\right\}\frac{\partial f}{\partial v}=0,\\&\operatorname{div}E=4\pi e\left(\int f_i\,dv-\int f_e\,dv\right),\quad \operatorname{div}H=0,\\&\operatorname{rot}H=\frac{4\pi}{c}e\left(\int f_i v\,dv-\int f_e v\,dv\right)+\frac{1}{c}\frac{\partial E}{\partial t},\quad \operatorname{rot}E=-\frac{1}{c}\frac{\partial H}{\partial t}.\end{aligned}\right\}\quad(3.1);$$

this system is also based upon the kinetic equations without taking account of collisions. In the "drift" approximation, $f_{dr}(v_\parallel, \mu, \vec{r}, t)$ can be introduced instead of the distribution function $f(\vec{v}, \vec{r}, t)$. The corresponding

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kinetic equation has the form

$$\frac{\partial f_{\alpha p}}{\partial t} + \operatorname{div}_r\left(\frac{dr}{dt}, f_{\alpha p}\right) + \frac{\partial}{\partial v_{\parallel}} \frac{\partial v_{\parallel}}{\partial t} f_{\alpha p} = 0. \qquad (3.\text{II}).$$

II. Aperiodic plasma instability: 4. Ideal plasma. 4a. Energy principle; a slight displacement of the plasma from the position of equilibrium satisfies the equation of motion (4a,1). Here, ξ denotes the displacement from position of equilibrium. 4b. Stability of the plasma boundary (reference is made to an instability indicated by L. A. Artsimovich), convective instability, stability of a cylindrical pinch, stability of a rotating inhomogeneous plasma in a magnetic field, aperiodic instability of a non-Maxwellian plasma, stability of a plasma kept back by the pressure of a high-frequency electromagnetic field, aperiodic instability of a plasma taking dissipative processes into account, stability of the rotation of a plasma, stability of a pinch. III. Oscillation instability of a plasma. Instability of beams in the plasma, instability of two beams, absolute and "drift instability" of beams, stability of ion beams in a plasma, effect of a magnetic field upon the instability of beams, macroscopic instability of a "non-Maxwellian" plasma, cyclotron resonance,

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The stability of plasma

mistuning (raskachka) of oscillations in a plasma in the presence of a relative motion of ions and electrons, microscopic instabilities of an inhomogeneous plasma, stability of plasma flows in a magnetic field, stability of plane flows, stability of flows in perpendicular to the field, stability of a rotating plasma, "oscillation convection" in a plasma, instability of the positive column of a gas discharge in a magnetic field. IV. Problems of the nonlinear theory of instability. This chapter deals with the quasilinear treatment of the "supercritical" state of the plasma, which is then used to study the behavior of the plasma near the limit of stability, the steady convection in a plasma and the "anomalous diffusion", the quasilinear approximation in the study of oscillation instabilities in a diluted plasma, the developed instability. Appendix I deals with the stability of the beams in a plasma, appendix II with the stability of a rotating plasma, namely, the homogeneous rotation of a plasma and the rotation of a plasma under the action of an electric field in a cylindrical condenser, appendix III with the stability of the positive column, and appendix IV with the ionic sound in an inhomogeneous plasma. There are 32 figures, 1 table, and 50 references: 30 Soviet-bloc. The two references to English-language publications read as follows:

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S/053/61/073/004/006/007
B125/B201

The stability of plasma

B. B. Kadomtsev, A. Nedospasov, J. Plasma Phys. (1961) (being printed);
Y. Nakagava, Phys. Fluids, 3, 82, 87 (1960).

X

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VEDENOV, A.A.; VELIKHOV, Ye.P.

Development of the electrostatic instability of a plasma in a high magnetic field. Dokl. AN SSSR 146 no.1:65-68 S '62. (MIRA 15:9)

1. Predstavleno akademikom M.A. Leontovichem.
(Plasma (Ionized gases)) (Magnetic fields)

VELENOV, A. A.

Dissertation defended for the degree of Doctor of Physicomathematical Sciences at the Institute of Physical Problems imeni S. I. Vavilov in 1962:

"Problems of the Theory of Weakly Turbulent Plasma."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

38986
S/089/62/013/001/001/012
B102/B104

24.6714

AUTHOR: Vedenov, A. A.

TITLE: Quasilinear plasma theory (theory of a slightly turbulent plasma)

PERIODICAL: Atomnaya energiya, v. 13, no. 1, 1962, 5-24

TEXT: A quasilinear plasma theory is developed to describe the resonance interaction between particle and wave. This theory holds if the plasma oscillation energy is notably lower than the thermal energy of all particles and notably higher than the thermal noise energy of the plasma waves. It is based on decomposing the particle distribution function f which enters the self-consistent field equations

$$\frac{\partial f_\alpha}{\partial t}+\mathbf{v}\frac{\partial f_\alpha}{\partial \mathbf{x}}+\frac{e_\alpha}{m_\alpha}\left(\mathbf{E}+\frac{\mathbf{v}}{c}\times\mathbf{H}\right)\frac{\partial f_\alpha}{\partial \mathbf{v}}=0, \quad (1)$$

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Quasilinear plasma theory...

$$\frac{\partial \mathbf{E}}{\partial x} = 4\pi \sum_{\alpha} e_\alpha \int f_\alpha \, dv; \quad \nabla \times \mathbf{E} = -c^{-1} \frac{\partial \overline{\mathbf{H}}}{\partial t}; \quad (2)$$

$$\nabla \times \mathbf{H} = 4\pi c^{-1} \sum_{\alpha} e_\alpha \int \mathbf{v} f_\alpha \, dv + c^{-1} \frac{\partial \mathbf{E}}{\partial t}.$$

of a completely ionized rarefied plasma into a rapidly oscillating (f^1) and a slowly variable part (f^0), the influence exerted by the former on the latter being taken into account. $|f^1| \ll f^0$, $\varepsilon \gg nT/N_D$; ε is the energy density of the plasma waves, nT/N_D is the energy density of the Coulomb interaction, n the plasma density. The two components of f are given by

$$f^1 = \sum_{\mathbf{k}} f_{\mathbf{k}} e^{i(\mathbf{kx} - \omega_{\mathbf{k}} t)}, \quad f_{\mathbf{k}} = \frac{\frac{e}{m} \mathbf{E}_{\mathbf{k}}}{-i(\omega_{\mathbf{k}} - \mathbf{kv})} \frac{\partial f^0}{\partial \mathbf{v}}. \quad (7)$$

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Quasilinear plasma theory...

and

$$\frac{\partial e_k}{\partial t} = 2\gamma_k e_k, \qquad (8)$$

$$\gamma_k = \frac{\pi\omega_0^2}{2}\int dv \frac{k}{k^2}\frac{\partial f^0}{\partial v}\delta(\omega_k - kv). \qquad (8a)$$

$$\frac{\partial f^0}{\partial t} = \frac{\partial}{\partial v} D \frac{\partial f^0}{\partial v}, \qquad (9)$$

$$D(v) = \frac{8\pi^3 e^2}{m^2}\sum_k e_k \delta(\omega_k - kv). \qquad (9a)$$

Thus the behavior of the slow component is described by a diffusion equation, that of the fast component by equations of the linear theory. (8)-(9) is a closed set of equations of the quasilinear theory for the spectral density $e_{\vec{k}} = |E_{\vec{k}}^2|/8\pi$. This system is extended by expressing its equations in terms of the production and absorption of the collective

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Quasilinear plasma theory...

oscillation quanta by the particles, and of the particle displacements in the phase space. Thereby (85) (95) are obtained; N_q is the wave density in the phase space, ε_k is the kinetic energy of the particle with the wave vector $\vec{k}$, $\omega_{\vec{q}}$ is the energy of the $\vec{q}$ wave, $\omega_{k,k-q}=e^2\omega_0 4\pi^2/q^2$; $N_q=2\varepsilon_q/\hbar\omega_0$

$$\frac{\partial N_q}{\partial t}=N_q\sum_k \psi_{k+q,\,q}\,. \quad (86) \qquad \frac{\partial f_k}{\partial t}=\sum_q N_q(\psi_{k+q,\,q}-\psi_{k,\,q}), \quad (95)$$

$$\psi_{k,\,q}=(f_k-f_{k-q})\,\omega_{k,\,k-q}\,\delta(\varepsilon_k-\varepsilon_{k-q}-\hbar\omega_q)$$

ω_0 is the plasma frequency . The application of this theory to problems of special concern is considered, e.g., quasilinear relaxation of collective plasma oscillations or formation of disturbances in the initially unstable plasma. The phase space region, wherein f is constant (the f plateau) is studied. The interaction of a charged-particle beam penetrating the plasma is dealt with and the results provide a basis for examining the relaxation of a state with f plateau under the action of particle collision. The absorption of plasma waves with amplitudes greatly exceeding the thermal noise level is studied. Further, the author deals (a) with the excitation of non-equilibrium oscillations when an electric current passes through the

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Quasilinear plasma theory...

plasma, (b) with plasma diffusion in the direction transverse to a magnetic field subject to the chaotic fields of these non-equilibrium oscillations, and (c) with the threshold absorption of waves having amplitudes which exceed a certain critical value. In conclusion the results are discussed and some problems particularly amenable to solution by the quasilinear theory are stated. There are 7 figures.

SUBMITTED: January 26, 1962

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39676
S/056/62/043/001/046/056
B102/B104

24.5100

AUTHOR: Vedenov, A. A.

TITLE: Kinetic transitions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 1(7), 1962, 333-335

TEXT: When a thermodynamic force X (gradient of the electric field, of the chemical potential, of temperature etc) acts upon, a system which is in thermodynamic equilibrium a current J occurs which is proportional to this force. If X exceeds a critical value X_c, the system may become unstable and new degrees of freedom are excited therein, giving rise to an inner periodic motion. J(X) is discontinuous, exhibiting a salient point in X_c. The behavior of J(X) in X_c is studied more accurately. The first derivative has a finite discontinuity:

$$(J)_{X_c+0} - (J)_{X_c-0} = \Delta J = 0 \qquad (1)$$

$$(\partial J / \partial X)_{X_c+0} - (\partial J / \partial X)_{X_c-0} = \Delta (\partial J / \partial X) \neq 0, \infty. \qquad (2).$$

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S/056/62/043/001/046/056
B102/B104

Kinetic transitions

The value of X_c depends on outer parameters, denoted by α. (1) differentiated with respect to α gives

$$\Delta\,(\partial J / \partial \alpha)_X = -\,(dX_c/d\alpha)\,\Delta\,(\partial J/\partial X)_\alpha; \qquad (3);$$

hence, also $\partial J/\partial \alpha$ has a discontinuity in X_c. (3) can be used to study the transition. Similar relations hold likewise when two thermodynamic forces X_1, X_2 are acting. Convection of a viscous conducting liquid, placed between two horizontal plates in an outer magnetic field and heated from below, is considered.

ASSOCIATION: Moskovskiy fiziko-tekhnicheskiy institut (Moscow Physico-technical Institute)

SUBMITTED: April 21, 1962

Card 2/2

L0425
S/056/62/043/003/034/063
B108/B102

24, 2120

AUTHORS: Vedenov, A. A., Velikhov, Ye. P.

TITLE: Quasilinear approximation in the kinetics of a rarefied plasma

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 3(9), 1962, 963 - 967

TEXT: The processes in a real plasma can be divided into fast and slow. By averaging over the fast oscillations it is possible to write equations which describe the slow changes occurring in the mean quantities. This method can be applied only if the resonance interaction between waves and particles is slower than the variation of the self-consistent field acting on the particles. The processes in a uniform electron plasma without a magnetic field are investigated by this method. Wave-wave and particle-particle interactions are neglected. For describing relaxation processes the linear theory has to be supplemented by terms accounting for the effect of the waves on the particle distribution in phase space. These conditions in a rarefied plasma lead to the following quasilinear set of equations:

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$$\frac{1}{\varepsilon_k}\frac{d\varepsilon_k}{dt} = \pi\frac{\omega_p^2}{k^2}\int k\frac{\partial f_0}{\partial v}\delta(\omega_p - kv)\,dv. \qquad (9),$$

$$\frac{\partial f_0}{\partial t} = \frac{\partial}{\partial v}\frac{8\pi e^2}{m^2}\sum_k \varepsilon_k\delta(\omega_p - kv)\frac{\partial f_0}{\partial v}. \qquad (11).$$

$\varepsilon_k = |E_k|^2$. f_0 is the slowly varying part of the particle distribution function. These equations hold for sufficiently great t. Eq. (9) accounts for rise and attenuation of plasma waves, Eq. (11) for the diffusion of particles in velocity space owing to these waves. Neither of these equations, however, is suited for studying instabilities of a monoenergetic beam in a plasma.

SUBMITTED: March 24, 1962

VEDENOV, A.A.; VELIKHOV, Ye.P.

Instability of the drift of carriers in solids and coherent phonon radiation. Zhur. eksp. i teor. fiz. 43 no.3:1110-1112 '62. (MIRA 15:10)
(Electrons) (Ultrasonic waves) (Crystal lattices)

42704
S/020/62/147/002/010/021
B102/B186

AUTHOR: Vedenov, A. A.

TITLE: Quasilinear equations for a quantized plasma

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 147, no. 2, 1962, 334-337

TEXT: The author adapts his quasilinear theory of a weakly turbulent plasma to a quantized plasma. The relations derived are important for investigating the behavior of a weakly turbulent carrier plasma in a solid. The method of derivation is the same as is used for a classical plasma. Starting from the self-consistent field equations and assuming

$f_{xp} = \sum_{\xi} e^{-i\xi p} \rho(x-\xi/2, x+\xi/2)$ for the density matrix in Wigner representation, one obtains

$$\frac{\partial f_{xp}}{\partial t} = \frac{1}{i}\sum_{\xi} e^{-i\xi p}\left[\nabla_x \nabla_\xi + e\varphi\left(x+\frac{\xi}{2}\right) - e\varphi\left(x-\frac{\xi}{2}\right)\right]\sum_q e^{i\xi q} f_{xq} =$$

$$= -p\frac{\partial f_{xp}}{\partial x} + \frac{1}{i}\sum_{\xi q}\left[e\varphi\left(x+\frac{\xi}{2}\right) - e\varphi\left(x-\frac{\xi}{2}\right)\right] e^{i\xi(q-p)} f_{xq}. \quad (1)$$

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$$\Delta_x \varphi = 4\pi n e \left(\sum_p f_{xp} - 1 \right) \qquad (2).$$

For the system considered the dispersion law $\varepsilon_p = p^2/2$ is assumed to be valid ($\hbar = m = 1$) when longitudinal oscillations of an electron plasma exist over the positive space-charge background. These equations are replaced by a system of equations of quantum distribution functions $f^0 = \langle f_{xp} \rangle$ averaged over a period which is great with respect to the plasma oscillation period, the oscillating terms of (1) and (2) are separated and spatial Fourier components are introduced. After some further steps

$$\frac{d}{dt} \omega_k^2 |\varphi_k^2| = 4\pi n e^2 |\varphi_k^2| \omega_k \sum_p \frac{(kp)^2}{k^2} (f^0_{p+k/2} - f^0_{p-k/2}) \pi \delta (\omega_k - kp). \qquad (8)$$

$$\frac{df_p^0}{dt} = + \pi e^2 \sum_k |\varphi_k|^2 \left\{ (f^0_{p+k} - f^0_p) \delta \left(\omega_k - k \left(p + \frac{k}{2} \right) \right) - \right.$$
$$\left. - (f^0_p - f^0_{p-k}) \delta \left(\omega_k - k \left(p - \frac{k}{2} \right) \right) \right\}. \qquad (9)$$

is obtained. It is assumed that the functions $|\psi_k(t)|$ and $f^0(t)$, which vary slowly with time, are constant. Eqs. (8), (9) represent a closed system of quasilinear equations, a kind of kinetic equations for an almost ideal system of waves (bosons) and particles (fermions), on condition that the only processes occurring in the system are emissions or absorptions of these waves and particles. The variation in the number F_p of particles in the momentum space due to the above-mentioned processes is then

$$\frac{\partial F_p}{\partial t} = \sum_k' W_{p,\,p+k} N_k \left\{(F_{p+k} - F_p)\,\delta\left(\omega_k - k\left(p + \frac{k}{2}\right)\right) - \right. \tag{10}$$

$$\left. - (F_p - F_{p-k})\,\delta\left(\omega_k - k\left(p - \frac{k}{2}\right)\right)\right\}.$$

where $W_{p',p} = W_{p,p'}$ is the probability of an absorption accompanied by a transition of the particle from p to p'; ω_k is the wave energy. For the wave density (N_k) variation due to these processes one has

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Quasilinear equations for a ...

$$\partial N_k/\partial t = N_k \sum_p W_{p+k/2,p-k/2}(F_{p+k/2}-F_{p-k/2})\delta(\omega_k-kp) \qquad (11).$$

(10), (11) and (8), (9) agree, if

$$W_{p,p'} = 4\pi^2 e^2 \frac{\omega_{p-p'}}{|p-p'|^2}, \qquad N_k = \frac{k^2|\varphi_k^2|}{4\pi\omega_k}.$$

Of course the energy and momentum conservation laws are satisfied.

PRESENTED: June 21, 1962, by M. A. Leontovich, Academician

SUBMITTED: April 10, 1962

Card 4/4

ACCESSION NR: AR4014754 S/0058/63/000/012/G017/G017

SOURCE: RZh. Fizika, Abs. 12G121

AUTHOR: Vedenov, A. A.

TITLE: Thermodynamics of plasma

CITED SOURCE: Sb. Vopr. teorii plazmy*. Vy*p. 1. M., Gosatomizdat, 1963, 273-285

TOPIC TAGS: plasma, thermodynamics, plasma thermodynamics, Coulomb interaction, statistical thermodynamics, Coulomb force, Coulomb scattering, thermodynamic potential

TRANSLATION: Topics are considered in the statistical thermodynamics of a plasma, defined as a system of particles with Coulomb interaction. The task of statistical thermodynamics is to calculate the thermodynamic functions of a system of interacting particles in

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ACCESSION NR: AR4014754

thermal equilibrium. Only weakly non-ideal gas systems with Coulomb forces are investigated. In this case the small parameter of the problem is the ratio f/r of the average amplitude of Coulomb scattering $f \sim e^2/E$ (E -- average plasma particle energy) to the average distance between particles $r \sim n^{-1/3}$ (n -- plasma particle density). The thermodynamic potential of the plasma can be expanded in powers of this small parameter. The principal terms of this "virial" expansion are considered.

DATE ACQ: 24Jan64 SUB CODE: PH ENCL: 00

Card 2/2

ACCESSION NR: AT4019713 S/3041/63/000/003/0203/0244

AUTHOR: Vedenov, A. A.

TITLE: Introduction to the theory of a weakly turbulent plasma

SOURCE: Voprosy* teorii plazmy*, no. 3, 1963, 203-244

TOPIC TAGS: plasma, turbulent plasma, weakly turbulent plasma, particle and wave interaction, plasma oscillation, thermal noise, particle distribution function, diffusion equation, plasmon, turbulent heating, plasmon-plasmon interaction, three plasmon process

ABSTRACT: A quasilinear theory is developed to describe the dynamics of the interaction between resonant particles and waves in a plasma. The analysis is confined to the case when the energy concentrated in the collective degrees of freedom -- plasma oscillations -- is much lower than the energy of random motion of all the particles and at the same time is much larger than the energy of

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ACCESSION NR: AT4019713

the thermal noise on the collective degree of freedom. The method consists essentially of breaking down the resonant-particle distribution function into two parts, one rapidly oscillating and the other slowly varying, and taking account of the effect of the mean square of the oscillating part on the slowly-varying part (a method close to the Van der Pol method of nonlinear mechanics). It is shown that the behavior of the slow part of the distribution function is described by the diffusion equation in phase space, while the growth or damping rate of the fast oscillations (plasma oscillations) is determined by the formulas of the linear theory, in which the non-oscillating part of the distribution functions varies slowly with time. The section headings are: Interactions of plasmons with particles. Fundamental equations of quasilinear theory. Relaxation of plasma oscillations. Development of perturbations in an unstable plasma. Interaction between a beam and a plasma. Effect of threshold absorption of waves in a plasma and turbulent heating. Plasmon-plasmon interaction. Three-plasmon processes. Higher-

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ACCESSION NR: AT4019713

order processes. Literature. Orig. art. has: 11 figures and 67 formulas.

ASSOCIATION: None

SUBMITTED: 00	DATE ACQ: 12Mar64	ENCL: 00
SUB CODE: PH	NR REF SOV: 021	OTHER: 007

Card 3/3

VEDENOV, A.A.; PONOMARENKO, Yu.B.

Appearance of turbulence. Zhur.eksp.i teor.fiz. 45 no.6:2247-2250 De '64.

1. Moskovskiy fiziko-tekhnicheskiy institut.

(MIRA 17:10)

ACCESSION NR: AP5002307

AUTHOR: Vedenov, A. A.

TITLE: Solid state plasma

SOURCE: Uspekhi fizicheskikh nauk, v. 84, no. 4, 1964, 533-555

TOPIC TAGS: solid state plasma, plasma oscillations, metal plasma, semiconductor plasma, semimetal plasma, plasma flow, plasma turbulence, plasma lattice interaction

ABSTRACT: This review article analyzes the properties of solid-state plasma as functions of the host crystal lattice and of the interaction between the charges and the lattice, as well as phenomena occurring when the plasma in the solid constitutes a subsystem which reacts weakly with the lattice. Expressions are given for the frequency and amplitude of plasma oscillations in metals, semimetals, and semiconductors. This is followed by an analysis of the flow of a charge plasma in a metal of variable cross section, leading to the occurrence of the so-called configurational emf, and flow of neutral plasma in a semiconductor

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L 21744-65

ACCESSION NR: AP5002307

placed in an external magnetic field, leading to a plasma magnetic moment. The stability of laminar flow of solid-state plasma is discussed briefly. Effects connected with the interaction between solid-state plasma and the crystal lattice are discussed. These include changes in the sound speed, attenuation or amplification of the sound by interaction with plasma, and appearance of additional anomalies on the dispersion curves. Turbulence of solid-state plasma is briefly discussed. Some theoretical and experimental problems which need be clarified to understand the properties of solid-state plasma are mentioned in the conclusion. Orig. art has: 14 figures and 36 formulas.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: SS, ME

NR REF SOV: 014 OTHER: 045

Card 2/2

L 19263-65 EWT(1)/EWG(k)/EPA(s)-2/EPA(w)-2/EEC(t)/T/EEC(b)-2/EPA-m-2

AUTHOR: Vedenov, A. A.; Rudakov, L. I.

TITLE: Wave interaction in continuous media

SOURCE: AN SSSR. Doklady, v. 159, no. 4, 1964, 767-770

TOPIC TAGS: plasma hydrodynamics, plasmon, plasma electron temperature, plasma instability

ABSTRACT: The authors show that interactions occurring in continuous media between collective oscillations belonging to different vibrational branches, and as a rule differing greatly in frequency, can be described with the aid of a self-consistent system of equations comprising the kinetic equation for the [illegible] the coordinates and wave vectors), and equations of the hydrodynamic types for the variations of the density, velocity, and pressure of the material. This system of equations can be used to investigate processes whose periods and wavelengths greatly exceed the period and wavelength of the high frequency oscillations. The equations contain only average characteristics of the high frequency

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L 18263-65
ACCESSION NR: AP5000908

waves, which under these conditions can be regarded as quasiparticles. The resultant self-consistent system, which describes the interaction between the high frequency oscillations (quasiparticles) and the field of the low-frequency waves, is used to calculate several effects in an isotropic plasma with hot electrons. This includes the damping of the ionic-sound wave in a gas of Langmuir plasmons, the instability of a cold gas of Langmuir plasmons, the criterion for instability of a hot plasmon gas, and the interaction of plasmons with a random field of ionic-sound waves. "We thank D. D. Ryutov for useful discussions." This report was presented by M. A. Leontovich. Orig. art. has: 20 formulas.

ASSOCIATION: None

SUBMITTED: 12May64 ENCL: 00

SUB CODE: ME NR REF SOV: 001 OTHER: 000

Card 2/2

VEDENOV, A.A.

[Theory of turbulent plasma] Teoriia turbulentnoi plazmy. Moskva, AN SSSR, 1965. 114 p. (MIRA 18:10)

VEDENOV, A.G.

Cooperation between the (Leningrad Kirov) works and scientific institutes in the drive for technical progress. Zav.lab. 21 no.10:1147-1148 '55. (MLRA 9:1)

1.Glavnyy metallurg Leningradskogo Kirovskogo zavoda.
(Research, Industrial)

VEDENOV, A.N.; TELESHEV, A.N., redaktor; KARANDASHEV, V.D., khudozhestvennyy redaktor; ALEKSANDROV, V.I., tekhnicheskiy redaktor.

[Photography with a roll-film camera] Fotos"emka plenochnoi kameroi. Pod red. V.V.Pus'kova. Moskva, Iskusstvo, 1954. 173 p.(MLRA 8:1)
(Photography)

Vedenov, Alekseĭ N.

VEDENOV, Alekseĭ Nikolayevich; LEBEDEV, P.B., red.; TAIROVA, M.V., tekhn.red.

[Aid for the rural amateur photographer] V pomoshch' sel'skomu fotoliubiteliu. Moskva, Izd-vo "Sovetskaia Rossiia," 1957. 199 p. (MIRA 11:3)
(Photography)

VEDENOV, Aleksey Nikolayevich; VOROZHBIT, A.A., nauchnyy red.; BARKOVSKIY, I.V., red.; LEVONEVSKAYA, L.G., tekhn.red.

[Taking pictures with miniature cameras; manual] Maloformatnaia fotografiia; rukovodstvo-spravochnik. Leningrad, Lenizdat, 1959. 687 p. (MIRA 12:12)
(Miniature cameras) (Photography--Handbooks, manuals, etc.)

VEDENOV, A.V.

Personality as a subject of psychological science. Vop.psikhol. no.1:19-33 Ja-F '56. (MLRA 9:5)

1. Institut psikhologii Akademii pedagogicheskikh nauk RSFSR, Moskva.

(Personality)

VEDENOV, A.V.

"Psychology of personality" by A.G. Kovalev, Reviewed by A.V. Vedenov. Vop. psikhol. 10 no.1:179-182 Ja-F'64 (MIRA 17:3)

VEDENOV, A.V.

Communist education and the science of psychology. Vop. psikhol no.4:7-20 Jl-Ag '63. (MIRA 17:1)

1. Institut psikhologii Akademii pedagogcheskikh nauk RSFSR, Moskva.

VEDENOV, ALEKSANDR VASIL'YEVICH

.R93498

VOSPITANIYE VOLI SHKOL'NIKA V PROTSESSE UCHEBNOY DEYATEL'NOSTI. MOSKVA, IZD-VO AKADEMII PEDAGOGICHESKIKH NAUK RSFSR, 1957.
95 P.PEDAGOGICHESKAYA BIBLIOTEKA UCHITELYA)
AT HEAD OF TITLE: AKADEMIYA PEDAGOGICHESKIKH NAUK RSFSR. INSTITUT PSIKHOLOGII.
BIBLIOGRAPHICAL FOOTNOTES.

RUSSIA

VEDENOV, A.V.

Role of internal contradictions and of the means of overcoming them in the development of personality [with summary in English]. Vop.psikhol. 5 no.1:51-63 Ja-F '59. (MIRA 12:4)

1. Institut psikhologii APN RSFSR, Moskva.
(Maturation (Psychology))

GORLOVSKIY, I.A.; AYZENBERG, Ye. S. [deceased]; VEDENOV, G.N.; ZHIGAREV, S.K.; SHAPIRO, I.S.; EPSHTEYN, S.Z.

Technology of the production of ultramarine. Lakokras. mat. i ikh prim. no.3:20-25 '61. (MIRA 14:6)
(Ultramarine)

VEDENOV, M.F.

E. Haeckel's fight for Darwinism. Biol.v shkole 6:65-69 N-D '58. (MIRA 11:11)

(Haeckel, Ernst, 1834-1919)

VEDENOV, Mikhail Fedorovich; SUKHOV, A.D., red.; ATROSHCHENKO, L.Ye., tekhn.red.

[Ernst Haeckel as a fighter for Darwinism] Ernst Gekkel' - borets za darvinizm. Moskva, Izd-vo "Znanie," 1959. 30 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.8. Biologiia i meditsina, no.11) (MIRA 12:8)

(Haeckel, Ernst, 1834-1919) (Evolution)

VEDENOV, Mikhail Fedorovich; PLATONOV, G.V., doktor fil. nauk, otv. red.; KONDAKOV, N.I., red.izd-va; SIMKINA, G.S., tekhn. red.

[Ernst Haeckel's struggle for materialism in biology] Bor'ba E.Gekkelia za materializm v biologii. Moskva, Izd-vo AN SSSR, 1963. 222 p. (MIRA 16:10)
(Haeckel, Ernst, 1834-1919)
(Biology--Philosophy)

FRANK, G.M., otv. red.; KUZIN, A.M., otv. red.; KUZNETSOV, I.V., doktor filos. nauk, red.; LIVSHITS, N.N., doktor biol. nauk, red.; VEDENOV, M.F., kand. filos. nauk, red.; SHATALOV, A.T., mlad. nauchn. sotr., nauchn. red.; KREMYANSKIY, V.I., mlad. nauchn. sotr., nauchn. red.

[The essence of life] O sushchnosti zhizni. Moskva, Nauka, 1964. 350 p. (MIRA 17:8)

1. Akademiya nauk SSSR. Nauchnyy sovet po filosofskim voprosam yestestvoznaniya. 2. Institut filosofii AN SSSR (for Kremyanskiy, Shatalov). 3. Chlen-korrespondent AN SSSR (for Frank, Kuzin).

ASEYEV, A.A.; VEDENSKAYA, I.E.; MARKOV, K.K., doktor geogr. nauk, otv. red.; SPRYGINA, L.I., red. izd-va; RYLINA, Yu.V., tekhn. red.

[Relief development of the Meshchera Lowland]Razvitie rel'efa Meshcherskoi nizmennosti. Moskva, Izd-vo Akad. nauk SSSR, 1962. 126 p. (MIRA 16:2)
(Meshchera--Landforms)

AUTHOR: Vedenskaya, I.E. 10-58-3-26/29

TITLE: The Permanent Interdepartmental Geomorphological Commission (V postoyannoy mezhvedomstvennoy geomorfologicheskoy komissii)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geograficheskaya, 1958, Nr 3, pp 156-158

ABSTRACT: In April 1956 the USSR Ministry for Geology and Conservation of Mineral Resources founded a permanent interdepartmental geomorphological commission in Leningrad. Its 30 members represented various geological, geographical, geodetic, etc., institutions. S.S. Shul'ts was chosen head of the commission and S.A. Epshteyn was appointed learned secretary; B.A. Fedorovich is leading the Moscow branch. At the end of January the commission gathered in Moscow to discuss a directive, composed by S.V. Epshteyn, on the organization and performance of a geomorphological survey for maps of the scale 1:100,000 and 1:200,000. The commission decided that in the future every expedition should include a geomorphological expert for Quaternary geology and geomorphological mapping. Furthermore, the commission instructed Z.A. Svarichevskaya and A.I. Spiridonov to edit a geomorphological glossary, and decided to take the necessary steps to ensure

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The Permanent Interdepartmental Geomorphological Commission 10-58-3-26/29

the publication of a geographical dictionary compiled by I.S. Shchukin.

AVAILABLE: Library of Congress

Card 2/2 1. Geology - USSR 2. Minerals - Conservation - USSR

VEDENSKAYA, I.E.

Main forms of the morphosculpture widespread in the U.S.S.R. Izv. AN SSSR. Ser. geog. no.5:64-72 S-O '63. (MIRA 16:10)

1. Institut geografii AN SSSR.

VEDENSKIY, A.

Moving pictures in Education

Documentary films shown to school children., Kinomekhanik, no. 10, 1951.

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

VEDENSKIY, A.

Moving Pictures, Documentary

Documentary films shown to school children., Kinomekhanik, no. 19, 1951.

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

VEDENSKIY, A.N.; KOROSTOVISEVA, N.V., kand.med.nauk (Leningrad, ul. Tekstil'shchikov, d.5, kv.38)

Homo - and autoplasty of the portal vein. Vest. khir. 91 no.7:33-40 Jl '63 (MIRA 16:12)

1. Iz laboratorii konservirovaniya i peresadki tkaney i organov (zav. - prof. N.G.Kartashevskiy), laboratorii eksperimental'noy patologii (nauchnyy rukovoditel' - prof. I.R.Petrov) i khirurgicheskoy kliniki Leningradskogo ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skogo instituta perelivaniya krovi (nauchnyy rukovoditel' - prof. A.N. Filatov).

AUTHOR: Vedenskiy, A. N.

TITLE: Methods of major vein autoplasty

CITED SOURCE: Sb. nauchn. tr. Leningr. n.-i. in-t perelivaniya krovi, vyp. 14, 1963, 508-515

TOPIC TAGS: transplantation, vein

TRANSLATION: Segments 15 cm long were excised from the external jugular vein of various animals. After treatment, the ends were joined together by a Donotskiy ring or circular suture. The opposite poles of a round autotransplant were [illegible] to pass through at the ends. After treatment, the sides of the collaterals and

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L 48560-65

ACCESSION NR: AP5011806

main [illegible] one another were dissected and the sharp corners were trimmed. [illegible] is made it possible [illegible] off large veins. N. S.

SUB CODE: LS ENCL: 00

Card 2/2

[illegible] Pg-5 DD

ACCESSION NR: [illegible] 28/MC25/MC25

SOURCE: Ref. zh. Biologiya. Svodnyy tom, Abs. 8M187

AUTHOR: Vedenskiy, A. N.

TITLE: Inferior vena cava plastic surgery

CITED SOURCE: Sb. nauchn. tr. Leningr. n.-i. in-t perelivaniya krovi, vyp. 14, 1963, 516-523

TOPIC TAGS: plastic surgery, transplantation, blood, thrombus, prosthesis

TRANSLATION: The suitability of terilen, ivalon, and dacron vascular prostheses and banked human homotransplants [illegible] in experiments on 25 dogs. The first [illegible] remain unobstructed for a long time (1[illegible] days). A. S.

SUB CODE: LS ENCL: 00

Card 1/1

VEDENSKIY, A. P.

21930 VEDENSKIY, A. P. Zametki o rybakh i rybnom promysle na Kurilo-Kuril skikh o trovakh. Ryb. khoz-vo, 1949, No. 7, s, 32-39.--Bibliogr: 5 nazv.

SO: Letopis' Zhurnal'nykh Statey, No. 29, Moskva, 1949.

VEDENSKIY, A. P.

Vedenskiy, A. P. - "Experience in seeking grounds of 'mintay' on the basis of floating roe", Izvestiya Tikhookean. nauch.-issled. in-ta ryb. khoz-va i okeanografii, Vol. XXIX, 1949, p. 35-49.

SO: U-4110, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 19, 1949).

YAZNIKIY, A. P.

"The Biology of the Mackeral of the Sea of Japan." Candidate Biol Sci, Far Eastern Affiliate, Acad Sci USSR, Vladivostok, 1953. (ZhBiol, No 1, Sep 54)

SO: Sum 432, 29 Mar 55

VEDENSKIY, O.N.

Measures taken to prevent the thinning of diesel lubricants. Elek. i tepl. tiaga 7 no.11:23 N '63. (MIRA 17:2)

1. Starshiy inzh. sluzhby lokomotivnogo khozyaystva Sredneaziatskoy dorogi.

VEDENSKIY, O.N.; DMITRIYEV, N.I.; KOROLEV, V.A.; TURGUNOV, D.T.; MEL'NIKOV, V.Ye., red.; MEDVEDEV, G.G., inzh., retsenzent; MURAV'YEVA, N.D., tekhn. red.

[Maintenance and repair of TGM3 diesel locomotives in the depot] Remont teplovozov TGM3 v depo. Moskva, "Transport," 1964. 107 p. (MIRA 17:3)

VEDENSKIY, O.N.

Use of an epoxy paste in the repair of cylinder blocks. Elek. i tepl. tiaga 7 no.6:11 Je '63. (MIRA 16:9)

1. Inzhener sluzhby lokomotivnogo i energeticheskogo khozyaystva Srednеaziatskoy dorogi.
(Diesel locomotives—Maintenance and repair)

STARKOV, Gennadiy Leonidovich; VEDENSKIY, S.S., red.; LYUDKOVSKAYA, N.I., tekhn.red.

[How to preserve and improve vision; talks with an ophthalmologist] Kak sokhranit' i uluchshit' zrenie; besedy glaznogo vracha. Izd.2. Moskva, Gos.izd-vo med.lit-ry Medgiz, 1958. 51 p. (MIRA 12:9)
(EYE--CARE AND HYGIENE)

VEDENSKIY, VIKTOR ALEKSANDROVICH

PHASE I BOOK EXPLOITATION 477

Shuvalov, Yuliy Avraamovich and Vedenskiy, Viktor Aleksandrovich
Metallorezhushchiye stanki; kinematicheskiye i gidravlicheskiye skhemy (Metal-cutting Machine Tools; Kinematic and Hydraulic Diagrams) Moscow, Mashgiz, 1958. 242 p. 25,000 copies printed.

Reviewers: Nalchan, A.G., Candidate of Technical Sciences; Ed.: Vladziyevskiy, A.P., Doctor of Technical Sciences; Managing Ed. of General Technical Literature and Catalogues: Ponomarev, K.A., Engineer; Tech. Eds.: Matveyeva, Ye. N. and El'kind, V.D.

PURPOSE: This book is a textbook for students of mechanical engineering and polytechnical vuzes.

COVERAGE: The book contains diagrams of speed and feed mechanisms and assemblies and mechanisms for special and auxiliary movement. Kinematic and hydraulic diagrams for some metal-cutting machines are presented. Technical characteristics of the most widely used modern metal-cutting machines are briefly given.

Card 1/10

VEDENSKIY, V.A.

Standardizing norms for the rigidity of machine tools. Standartizatsiia 24 no.12:11-17 D '60. (MIRA 13:11)
(Machine tools)

VEDENSKIY, V.A.

Development of rigidity standards for machine tools. Standartizatsiia 25 no.6:16-22 Je '61. (MIRA 14:6)
(Machine tools--Standards)

GUSEV, I.T.; VEDENSKIY, V.A.

Rigidity norms for circular grinding machines. Standartizatsiia 26 no.9:6-8 S '62. (MIRA 15:9)
(Grinding machines—Standards)

GUSEV, I.T.; VEDENSKIY, V.A.

Rigidity standards for surface-grinding machines. Standartizatsiia 27 no.3:24-30 Mr '63. (MIRA 16:4)
(Grinding machines--Standards)

VEDENT'YEVA, R.A.

Characteristics of the inhibition of vascular reactions in depressive states. Zhur. nerv. i psikh. 61 no. 1:99-103 '61. (MIRA 14:4)

1. Nauchno-issledovatel'skiy psikhonevrologicheskiy institut V.M. Bekhtereva (dir.-prof. V.N. Myashishchev; zav. otdelom patologii nervnoy deyatel'nosti - prof. G.Yu. Belitskiy), Leningrad.
(CARDIOVASCULAR SYSTEM) (DEPRESSION MENTAL)

VEDENT'YEVA, R.A.

Characteristics of the inhibition of vascular reactions during description of the stereotype of experimentation in dogs. Zhur. vys. nerv.deiat. 11 no.5:927-931 S-O '61. (MIRA 15:1)

1. Bekhterev Research Psychoneurological Institute, Leningrad.
(CONDITIONED RESPONSE) (BLOOD VESSELS)

VEDENYAKINA, T.; VLADIMIROVA, Ye.

Business accounting in the shop. Prom.koop.no.3:10-12 Mr '56.
(MLRA 9:7)
1.Predsedatel' pravleniya arteli "Moskoopshveybel'ye" (for Vedenyakina.2.Sekretar' byuro partorganizatsii (for Vladimirova)
(Industrial management)

VEDENYAPINA, A.S.

Some indices of the oxidation-reduction processes in patients operated on for stomach cancer under different types of anesthesia. Sov. zdrav. Kir. no.6:29-34' N-D'62. (MIRA 16:6)

1. Iz Kirgizskogo nauchno-issledovatel'skogo instituta onkologii i radiologii (dir. - prof. A.I.Sayenko).

(OXIDATION, PHYSIOLOGICAL) (STOMACH--CANCER)
(STOMACH--SURGERY) (ANESTHESIA)

VEDENYAPINA, A.S.

Chamges in venous pressure in operations for cancer of the stomach under endotracheal nitrous oxide anesthesia. Sov.zdrav.Kir. no.4:41-44 Jl-Ag '62. (MIRA 15:8)

1. Iz Kirgizskogo nauchno-issledovatel'skogo instituta onkologii i radiologii (direktor - prof. A.I.Sayenko).
(BLOOD PRESSURE) (STOMACH--CANCER) (NITROUS OXIDE)

VEDENYAPIN, A.Ya. (g. Rostov-na-Donu)

Certain concepts in a chemistry course for secondary schools. Khim.v shkole 9 no.3:67-70 My-Je '54. (MLRA 7:6)
(Chemistry--Study and teaching)

VEDENYAPIN,A.Ya.

Chemistry experiments in schools. Khim. v shkole 10 no.5:27-35 S-O '55. (MLRA 8:11)

(Chemistry--Experiments)

VEDENYAPIN, G. V.

"Some n-2 Projective Spaces." Cand Phys-Math Sci, Moscow Order of Lenin State U imeni M. V. Lomonosov, Moscow, 1954. (KL, No 7, Feb 55)

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

68019

SOV/155-58-6-20/36

~~16(1)~~ 16.5600

AUTHOR: Vedenyapin, D.V.

TITLE: On n-2 Projective Spaces

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1958, Nr 6, pp 119-126 (USSR)

ABSTRACT: The following problem is considered : Determine spaces, free of torsion, of affinitive connection which allow a mapping onto the affinitive space such that the geodesics are mapped onto curves lying in two-dimensional planes of the affinitive space. These planes are demanded to be completely geodesic, do not pass through the same point and are not parallel with the same direction, i.e. they are not subprojective in the sense of [Ref 2]. The author constructs a spece $\overline{A}_n$ with the desired properties and explicitly considers the case where $\overline{A}_n$ is a Riemannian space. As an example of a four-dimensional Riemannian space of the class A_n the author gives the space with the metric

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On n-2 Projective Spaces SOV/155-58-6-20/36

$$ds^2 = 2\,dy^1dy^3 - 2\,dy^2dy^4 + (y^4)^2(dy^3)^2$$

This space is irreducible and symmetric and has a transitive group of motion of order 8 . The author mentions P.K. Rashevskiy.
There are 9 references, 6 of which are Soviet, 1 German, 1 French, and 1 American.

ASSOCIATION: Chernovitskiy gosudaratvennyy universitet (Chernovitsy State University)

SUBMITTED: April 23, 1957 (Uspekhi matematicheskikh nauk)
October 24, 1958 (Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki)

Card 2/2

BOVDA, V.; VEDENYAPIN, G.; MOROZOV, A.; FORTUNA, V.; PIIRSOO,E. [translator]; RISTOJA, J., red.

[Checking the technical condition of a tractor diesel engine without dismantling] Traktorite diiselmootorite tehnilise seisukorra kontrollimine ilma lahti monteerimata. [By] V.Bovda ja teised. Tallinn, Eesti Riiklik Kirjastus, 1964. 57 p. [In Estonian] (MIRA 17:6)

RUDNITSKIY, N.M., kand. tekhn. nauk; VEDENYAPIN, G.A., otv.red.; KOZLOVSKIY, I.S., kand.tekhn.nauk, red.; ZIL'BERBERG, Ya.G., inzh. zamestitel' otv.red. BRILING, N.R., doktor tekhn.nauk, prof., red.; KALISH, G.G., doktor tekhn.nauk, prof., red.; PEVZNER, YA.M., doktor tekhn.nauk, prof., red.; KHRUSHCHEV, M.M.; doktor tekhn.nauk, prof., red. RAMAYVA, K.S., doktor tekhn.nauk, red.; LIPGART, A.A., prof., red.; PHYADILOV, V.I., kand. tekhn. nauk, red.; ROZANOV, V.G., kand. tekhn nauk, red.; CHISTOZVONOV, S.B., inzh., red.; AVAKIMOV, G.G., red.izd-va; SHIKIN, S.T., tekhn. red.

[Investigating the durability of crankshafts in IAAZ diesel engines] Issledovanie vynoslivosti kolenchatykh valov dizelei IaAZ Moskva, Gos. nauchn.-tekhn. izd-vo mashinostroitel'noi lit-ry, 1957. 30 p. (Moscow. Gosudarstvennyi nauchno-issledovatel'skii avtomobil'nyi i avtomotornyi institut [Trudy], no.8a]. (MIRA 11:4)

1. Direktor Gosudarstvennogo soyuznogo ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skogo avtomobil'nogo i avtomotornogo instituta (for Vedenyapin). 2. Zamestitel' direktora po nauchnoy chasti Gosudarstvennogo soyuznogo ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skogo avtomobil'nogo i avtomotornogo instituta (for Kozlovskiy). 3. Chlen-korrespondent AN SSSR (for Briling).
(Cranks and crankshafts) (Diesel engine)

TRAKTOVENKO, I.A., kand. tekhn. nauk; VEDENYAPIN, G.A., otv. red.; KOZLOVSKIY, I.S., kand. tekhn. nauk. red.; ZIL'BERBERG, Ya.G. inzh. zamestitel' otv. red.; BRILING, N.R., doktor tekhn. nauk, prof., red.; KALISH, G.G., doktor tekhn. nauk, prof., red.; PEVZNER, Ya.M., doktor tekhn. nauk, prof., red.; KHRUSHCHEV, M.M., doktor tekhn. nauk, prof., red.; RAMAYYA, K.S., doktor tekhn. nauk, red.; LIPGART, A.A., prof., red.; PRYADILOV, V.I., kand. tekhn. nauk, red.; ROZANOV, V.G., kand. tekhn. nauk, red.; CHISTOZVONOV, S.B., inzh., red.; SHIKIN, S.T., tekhn. red.

[Investigating the effect of the cetane number of diesel fuels on the performance of engines] Issledovanie vliianiia tsetanovogo chisla topliva no rabotu dvigatelia. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroitel'noi lit-ry, 1957. 30 p. (Moscow. Gosudarstvennyi nauchno-issledovatel'skii avtomobil'nyi i avtomotornyi institut. [Trudy], no.83). (MIRA 10:12)

1. Direktor Gosudarstvennogo soyuznogo ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skogo avtomobil'nogo i avtomotornogo instituta (for Vedenyapin). 2. Zamestitel' direktora po nauchnoy rabote Gosudarstvennogo soyuznogo ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skogo avtomobil'nogo i avtomotornogo instituta (for Kozlovskiy). 3. Chlen-korrespondent AN SSSR (for Briling).
(Diesel fuel) (Diesel engine)

SKOTNIKOV, Viktor Vasil'yevich; VEDENYAPIN, G.A., red.; LIPGART, A.A., otv. red.; BORISOV, S.G., red.; BRISKIN, M.I., red.; DYBOV, O.V., red.; ZIL'BERG, Ya. G., red.; KOZLOVSKIY, I.S., red.; LOZAR', A.S., red.; LUNEV, I.S., red.; PEVZNER, Ya.M., red.; PRYADILOV, V.I., red.; RAMAYYA, K.S., red.; SAMOL', G.I., red.; SEDOVA, Ye.V., red.; KHANIN, N.S., red.; CHAPAYEV, A.A. red.; CHISTOZVONOV, S.B., red.; SHKOL'NIKOV, E.M., red.; YEGORKINA, L.I., red.izd-va; SMIRNOVA, G.V., tekhn.red.

[Intermediate transformation and temper brittleness of automobile body steels] Promezhutochnoe prevrashchenie i otpusknaia khrupkost' v konstruktsionnykh avtomobil'nykh staliakh. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit. lit-ry 1958. 74 p. (Gosudarstvennyi nauchno-issledovatel'skii avtomobil'nyi i avtomotornyi institut Trudy, no.85) (MIRA 12:2)
(Steel, Automobile--Metallography)

S/032/61/027/004/022/028
B103/B201

10.9230 also 1395, 1136

AUTHOR: Vedenyapin, G. A.

TITLE: Recording of torsional vibrations of small amplitude

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 4, 1961, 468-469

TEXT: The author describes a simple transmitter which regulates the sensitivity toward bending and torsional vibrations, and, at the same time, permits recording low-frequency vibrations at torsion angles of $1 \cdot 10^{-5}$ rad and over. This transmitter consists of two Helmholtz coils and a glass tube in-between, which constitutes part of a vacuum system. This tube contains a frame consisting of a great number of windings of a thin conductor. One terminal of this conductor is grounded, while the other is connected to the input of the amplifier via a mercury contact. The frame is tightly linked to the sample. Alternating current of a given strength is fed to the coils by a sound generator. If the plane of the frame is equal to the direction of the lines of force of the magnetic field between the coils, the emf in the frame will practically remain equal to zero. If the frame deviates from this neutral position,

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a changing emf with a frequency given by the sound generator will arise in it. The amplitude of the emf is a linear function of the torsion angle if deviations from the neutral position are small. To reduce vibration energy losses (caused by the magnetic interaction of the frame with the coils) as far as possible, it is necessary to diminish the currents flowing in the frame. For this purpose, the emf induced in the frame is fed to an amplifier with a high input impedance. The author simplifies the formula for calculating the inductivity of the coils and of the magnetic field strength in-between, neglects the small values in the addition, and obtains for the maximum value of the emf-amplitude in the frame for the case of the coils being connected in series:

$E_{max} \approx K_1 \frac{Un_2 fS}{D^2 \sqrt{\rho^2 + K_2 n_1 f^2}}$, where n_1 denotes the number of windings of a coil; n_2 is the number of windings of the frame; ρ is the resistivity of a unit of length of the coils L; K_1, K_2 are constant factors; f is the frequency of the alternating voltage fed to the coils; S is the

average area of the frame; U the voltage fed to the coils, and D the average of the coils. The author concludes that the emf in the frame, hence also the change of this emf when vibrations arise, will be the larger, the larger U, n_2, and S, and the smaller D, ρ, and n_1. The emf of E_{max} is hardly changed by a frequency change of voltage f. The parameters of the coils are chosen such that the sound generator has a normal load with any chosen f. It is suitable to choose f = 3 - 4 kc/sec. An example is given of a theoretical calculation of the abovementioned values which are in good agreement with measured ones. The connection of low-frequency filters to the amplifier, which are adjusted to the fixed frequency f, is recommended. Noises can thus be attenuated. The author's transmitter is said to be superior to similar devices by L. I. Bayda (Ref. 3: Elektricheskiye izmereniya, Gosenergoizdat, 460, 1950) and Yu. D. Chistyakov (Ref. 4: Zav. labor. XXII, 7, 1956). Its readings are not affected by an inaccurate centering of the frame, and its range of application is considerably extended. Valuable advice has been obtained from O. T. Malyuchkov, Candidate of Technical Sciences.

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[Abstracter's note: It has not been possible to attach the figure to this abstract, because it happens to be the rear side of another figure which has been attached to the preceding abstract]. There are 1 figure and 4 Soviet-bloc references.

ASSOCIATION: Moskovskiy institut stali im. I. V. Stalina (Moscow Steel Institute imeni I. V. Stalin)

VEDENYAPIN, G. V.,ed.

The Siberian kolkhozes. Redaktsiia Vedeniapina i Vazanova. Novosibirsk, Knigosoiuz, 1929. 108 p.

VEDENYAPIN, G. V.

VEDENYAPIN, G.V.; GUREVICH, A.M.

[Operation of the DT-54 tractor] Ekspluatatsiia traktora DT-54. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1953. 221 p. (MLRA 7:6)
(Tractors)

BUDKO, A. I.; VEDENYAPIN, G. V.; SAFRAZBEKYAN, O. A.; LIKHACHEV, V. S.

Agricultural Machinery

Considering G. B. Klimov's article "Evaluation of the work capacity of agricultural machinery by usage coefficients." Sel'khozmashina No. 3, 1953.

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

Name: VEDENYAPIN, Georgiy Vladimirovich

Dissertation: Scientific bases and methods of construction of systems of technical care for tractors

Degree: Doc Tech Sci

Affiliation: Stalingrad Agr Inst

Defense Date, Place: 2 March 55, Council of the Moscow Inst of Mechanization and Electrification of Agr imeni Molotov

Certification Date: 12 May 56

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VEDENYAPIN, G.V.

Establishing maximum values for wear and disadjustments. Sel'khoz-mashina no.2:23-24 F '56. (MLRA 9:5)
(Mechanical wear)