ACCESSION NR: AT4041748 S/2561/64/000/016/0013/0026

AUTHOR: Maksimov, I. V.

TITLE: Free oscillations of the axis of rotation of the earth and the Icelandic low

SOURCE: Leningrad. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. Problemy* Arktiki i Antarktiki; sbornik statey, no. 16, 1964, 13-26

TOPIC TAGS: meteorology, atmospheric pressure, pole tide, long-range weather forecasting, atmospheric pressure gradient, atmospheric general circulation, earth rotation axis, Icelandic low

ABSTRACT: The free oscillations of the earth's axis of rotation are the cause of the development of a forced wave (the "pole tide") in the world ocean. Variations in the earth's centrifugal force thus induced also give rise to a "pole tide" in the earth's atmosphere. This latter problem has been studied using the mean monthly values of atmospheric pressure at stations situated in the zone of the Icelandic low and the computed gradient between Iceland and the Azores, the latter characterizing the total strength of meridional circulation in the northern part of the Atlantic Ocean. The characteristic of free oscillations used was the projection of the radius vector of the earth's pole on the 0-180° axis. The method used for com-

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ACCESSION NR: AT4041748

putation of the nutational component in changes of atmospheric pressure and pressure gradients and the determination of the mean characteristic of motion of the earth's pole is described, i.e. computation of the ordinates of the 14-month "polar tide" wave as a mean for 21 years. Curves have been constructed showing that "the free oscillations of the earth's axis of rotation and the polar tide created by them are capable of appreciably accentuating the activity of the Icelandic low and simultaneously affecting the meridional transport of air masses in the Atlantic zone, changing the mean value of the pressure gradient in the northern part of the Atlantic Ocean. (Comparison of motions of the earth's pole and 14-month changes of atmospheric pressure in the Azores show there is no corresponding appreciable change in the intensity of the Azores high.) The radius vector of the pole of the earth's rotation can pass through the Greenwich meridian and through the 180th meridian in different years and in different months. The nutational accentuation of the Icelandic low and of meridional atmospheric circulation in the Atlantic Ocean in different years therefore has different climatic significance. For example, the nutational accentuation of the Icelandic low in winter can create a strengthening of the Icelandic low in certain years and in other years will cause its attenuation. In certain years, the pole tide wave is the cause of the development of cold winters in the European territory of the Soviet Union while in other years, by causing an increase in the cyclonic activity of the Icelandic low, it is responsible

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ACCESSION NR: AT4041748

for the formation of mild or warm winters. Changes in the meridional transport of air masses in the North Atlantic, of a nutational character, and nutational changes in the activity of the Icelandic low, constitute 8-9% of the maximum value of the changes in the indices of activity of the Icelandic low and the indicies of meridional circulation in the Atlantic Ocean. Despite the significance of this factor, practical meteorology neglects to take it into account. For the time being no method has been developed for predicting changes of this factor to permit proper allowance for it in long-range weather forecasts. Forecasting of the nutational accentuation of the Icelandic low is possible by forecasting the time of the passage of the radius vector of the earth's pole through the Greenwich meridian. The author demonstrates that the cold and rainy summer of 1962 and the cold winter of 1963 were of nutational origin and were associated with the pressure wave created in the atmosphere of the middle latitudes by free oscillations of the earth's axis of rotation. The conditions prevailing in 1962 and 1963 are opposite of those which will prevail in 1965 and 1966. In the summer of 1965 the Icelandic low should have weakened activity, resulting in a warm dry summer. In the winter of 1966 the activity of the Icelandic low will intensify, and western and eastern Europe therefore will have a mild or warm winter. Orig. art. has: 6 figures and 3 tables.

ASSOCIATION: Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut (Arctic and Antarctic Scientific Research Institute)

Card 3/4

ACCESSION NR: AT4041748

SUBMITTED: 19Apr63 ENCL: 00

SUB CODE: ES NO REF SOV: 009 OTHER: 005

Card 4/4

MAKSIMOV, I.V. (Leningrad); SMIRNOV, N.P. (Leningrad)

Study of the causes of variations in the activity of the Gulf Stream over a period of several years. Okeanologiia 5 no.2:210-221 '65. (MIRA 18:6)

MUKSIMOV, I.V.; SMIRNOV, N.P.

Origin of the semiannual rhythm in the activity of ocean currents.
Izv. AN SSSR. Fiz. atm. i okeana 1 no.1 [illegible]
(MIRA 18:10)

MAKSIMOV, Iv.

Zakharin-Head zones of the larynx and their use for the therapy of some laryngeal syndromes. Nauch. tr. vissh. med. inst. Sofia 41 no.8:115-124 '62.

1. Predstavena ot prof. G. IAnkov.
(LARYNX)

ACC NR: AT6036531 SOURCE CODE: UR/0000/66/000/000/0122/0123

AUTHOR: Glazkova, V. A.; Maksimov, I. V.; Chernyakov, I. N.

ORG: none

TITLE: Dynamics of blood oxygen saturation in man during excess pressure breathing at high altitudes /Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966./

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 122-123

TOPIC TAGS: high altitude physiology, blood chemistry, human physiology, hypoxia, oxyhemography, blood oxygen saturation

ABSTRACT: Blood oxygen saturation during excess pressure breathing (150 and 180 mm Hg) at altitudes of 30000 m and higher with counterpressure altitude compensation was studied in man by the oxyhemograph method. Saturation level obtained during pure oxygen breathing on the ground was taken as 98 to 100%.

Above 12000 m, blood oxygenation depends on absolute intrapulmonary pressure which in turn determines alveolar pO_2. At an intrapulmonary pressure $\simeq$ 150 mm Hg (alveolar $pO_2 \simeq 60$ mm Hg), blood oxygen satura-

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tion varied between 84% and 88% at all altitudes from 12000--38000 m. At a higher intrapulmonary pressure of 180 mm Hg (alveolar $pO_2 \simeq$ 90 mm Hg), oxyhemoglobin rose to 90% -- 95%.

Breathing air at 3000 m gives an alveolar pO_2 about equal to that obtained by breathing oxygen without excess pressure at 12000 m with an absolute intrapulmonary pressure of 150 mm Hg at altitudes above 12000 m. Nonetheless, blood oxygen saturation was lower (76% to 78%) while breathing air at 3000 m than while breathing oxygen at 12000 m and above (84% and 86%, respectively). It is suggested that the exclusion of nitrogen from the alveoli during oxygen breathing at 12000 m and above improves oxygenation of the blood.

Conversation or counting aloud produced a 3% to 5% increase in blood oxygen saturation provided speech activity did not interfere with respiration rhythm and provided the subject did not speak too softly and slowly. This increase is due to hyperventilation accompanying active speech and not to enhanced cerebral blood circulation due to mental effort.

During light physical exercise, saturation plunged to 74% to 78%, the rate of decrease depending on intensity of the exercise and impairment of external respiration.

ACC NR: AT6036531

On longer exposure to the maximum altitude, oxyhemoglobin gradually decreased by 4% to 6% though the absolute intrapulmonary pressure did not change. This decrease is not yet explained.

In two cases in which presyncope states developed, oxyhemoglobin fell gradually to 70% or 60%, then increased sharply to 95% or 96%. These disturbances were evidently due not to hypoxic hypoxia, but to circulatory hypoxia.

Recordings of linear blood flow velocity and the endurance of voluntary apnea showed these indices also to depend on oxyhemoglobin percents. [W. A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 3/3

MAKSIMOV, Iv.

On the problem of activity of a myoneural nature in vibratory motion of the vocal cords in phonation. Khirurgiia 16 no.1: 34-38 '63.

1. Vissh meditsinski institut - Sofiia. Katedra po ushni, nosni i gurleni bolesti. Zav. katedrata: prof. G. Ankov.
(VOCAL CORDS) (MYONEURAL JUNCTION)

L 04731-67 EWT(m)/EWP(t)/ETI IJP(c) DS/JD/JG/RM

ACC NR: AP6027011 SOURCE CODE: UR/0080/66/039/005/1179/1182

AUTHOR: Pakholkov, V. S.; Maksimov, I. Ye. 40 B

ORG: none

TITLE: Separation of niobium and tantalum in HCl-HF and H_2SO_4-HF solutions with the help of strongly basic anionite AV-17

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 5, 1966, 1179-1182

TOPIC TAGS: niobium compound, tantalum compound, sorption, chemical separation, ion exchange, ion exchange resin

ABSTRACT: The sorption of Nb and Ta from HF solutions in the presence of HCl, H_2SO_4, NH_4Cl or $(NH_4)_2SO_4$ and the separation of Nb and Ta by anionites was investigated. Addition of HCl, H_2SO_4 or their ammonium salts to solutions of Nb and Ta in 1 M HF suppresses the sorption of Nb without significantly affecting sorption of Ta by the strongly basic anionite AV-17. Sorption of Ta reaches a maximum in 0.1-0.3 N HCl for weaker base anionites EDE-10P or AN-2F, but remains constant in higher acid concentrations for AV-17. Maximum sorption is effected when the Ta:HCl concentrations are 1:5-L;6. Complete separation of Nb and Ta, as determined by reaction with Rhodamine B, is attained by utilizing the

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ACC NR: AP6027011

differences in sorption of these elements from solutions of 1 M HF and 4-5 N HCl (or H_2SO_4) by strongly basic anionites AV-17 or AMP in the chloride form. Orig. art. has: 4 figures and 2 tables.

SUB CODE: 07 / SUBM DATE: 080ct64/ ORIG REF: 008/ OTH REF: 001

Card 2/2

86723

S/026/60/000/010/009/013
A166/A026

9,5110
9,5100 (a/so

AUTHOR: Maksimov, K.A. (Moscow)

TITLE: Cooling by Magnetization

PERIODICAL: Priroda, 1960, No. 10, pp. 77-78

TEXT: The article explains the apparent anomaly discovered by the English scientist V.P. Wolf, that paramagnetic salt can be cooled not by demagnetization, but by a rapid increase in the intensity of the magnetic field to the order of 20,000 ersteds. A prerequisite for this is that those atoms of the paramagnetic salt whose spin is perpendicular to the magnetic field have the least energy. If the magnetic field is rapidly increased, the "population density" (i.e., the number of atoms in the higher states) of the excited levels has no time to change to any great extent as the field increases. Since the "population density" of the levels is preserved, the relation of the temperatures to the difference in energies between the ground level and the first excited level must also remain as it was. However, since this difference decreases with an increase in the magnetic field, the temperature must decrease accordingly. This method will enable scientists to study matter at very low temperatures and simultaneously under very

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86713
S/026/60/000/010/009/013
A166/A026

Cooling by Magnetization

strong magnetic fields, which was previously impossible under the old method of demagnetization cooling. There are 2 figures and 4 Soviet refernces.

Card 2/2

MAKSIMOV, K. K.

"Influence of the Density of Air on the Reading of Wild's Wind-Vane and the Fuss Anemometer," No 1, pp 22-27.
(Meteorologiya i Gidrologiya, No 6 Nov/Dec 1947)

SO: U-3218,3 Apr 1953

MAKSIMOV, K. K.

22377-Maksimov, K. K. Godovoy I Sutochnyy Khod Davleniya Atmosfery Na Stantsii Tyan'-Shan.' Trudy Tsentr. Aerol. Observatorii, Vyp. 4, 1949, S. 175-80

Su: Letopis' No. 30 1949

ACC NR: AP6029010 SOURCE CODE: UR/0375/66/000/006/0068/0073

AUTHOR: Maksimov, K. M. (Engineer; Captain Lieutenant)

ORG: None

TITLE: The construction of composite grid nomograms

SOURCE: Morskoy sbornik, no. 6, 1966, 68-73

TOPIC TAGS: mathematic method, applied mathematics, target tracking, target acquisition, military tactic

ABSTRACT: Calculations in connection with tactical operations often require solutions to equations with many variables. In such cases, composite grid nomograms are highly useful and convenient devices for making the computations. Nomograms can be constructed for equations which appear in the first canonical form. The formula used for determining the probability of locating a target in a given area is one which can be reduced to a nomogram. The advantage of composite grid nomograms is the great amount of information they contain in the form of solutions or answers. The process of constructing them is described in detail. Although nomogram construction is a fairly complicated procedure, they provide a quick and easy way to make calculations in a tactical environment. Orig. art. has: 17 formulas and 7 figures.

SUB CODE: 12,15/SUBM DATE: None

Card 1/1

MAKSIMOV, K. T.

AID - P-186

Subject : USSR/Engineering

Card : 1/1

Author : Maksimov, K. T.

Title : Troublesome Problems in Development of Turbo-Drilling

Periodical : Neft. khoz., v. 32, #2, 13-15, F 1954

Abstract : Major inconveniences in the turbo-drilling arrangement of types T-19-10", T-14M - 9 3/4", T12M-2-10" and of similar types are related to the absence of suitable tools for assembly and catching of the broken shaft. Various preventing measures are recommended.

Institution : All-Union Scientific Research Institution of Oil Well Drilling (VNIIburneft)

Submitted : No date

MAKSIMOV, L.

Mysterious neighbor of the earth. Kryl. rod. 14 no.2:14-16 F '63. (MIRA 16:4)

(Mars(Planet))

MAKSIMOV, L.; KUTSYY, P.

The "Kuban" State Farm on the new road. Zemledelie 25 no.2:3-10 F '63. (MIRA 16:5)

1. Direktor ordena Lenina sovkhoza "Kuban'", Krasnodarskiy kray (for Maksimov). 2. Glavnyy agronom ordena Lenina sovkhoza "Kuban'", Krasnodarskiy kray (for Kutsyy).

(Agriculture)

MAKSIMOV, L. (Sverdlovsk)

Flame on a roll table. Izobr.i rats. no.5 (201):9-10 '63. (MIRA 16:7)

(Rolling (Metalwork))

MAKSIMOV, I.; SAVIN, V.

Sport of the young and brave. Kryl. rod. 13 no.3:4-6 Mr '62. (MIRA 18:5)

1. Pervyy sekretar' TSentral'nogo komiteta Leninskogo kommunisticheskogo soyuza molodezhi Belorussii (for Maksimov). 2. Predsedatel' respublikanskogo komiteta Vsesoyuznogo dobrovol'nogo obshchestva sodeystviya armii, aviatsii i flotu Belorusskoy SSR (for Savin).

MAKSIMOV, L. [Maksymov, L.], inzh.; BLUVSHTEYN, D., inzh.

Work practices of a machine maintenance and repair station.
Mekh. sil'. hosp. 14 no.3:26-29 Mr '63. (MIRA 17:1)

1. Vinnitskoye oblastnoye ob"yedineniye "Sil' gosptekhnika."

Maksimov Leonid

4-11-19/34

AUTHOR: Maksimov, Leonid

TITLE: Biographies of Our Days (Biografii nashikh dney) The Road of a Scientist (Put' uchenogo)

PERIODICAL: Znaniye - Sila, 1957, # 11, p 24-26 (USSR)

ABSTRACT: The article is a biography of the Soviet scientist Vladimir Iosifovich Veksler, a well known physicist, who discovered the phenomenon of the so-called phase self-adjustment by which the energy of the accelerating particles can theoretically be increased infinitely. When hearing about it the Americans quickly altered their giant cyclotron and already in 1946 obtained on it energies of approximately 200 million electron-volt. In the summer of 1955, at the Geneva International Conference for the peaceful utilization of atomic energy the Associate Member of the USSR Academy of Sciences and Director of the Laboratory for Physics of High Energies (Laboratoriya fiziki vysokikh energiy) V.I. Veksler said that in the Soviet Union a unique atomic machine will soon start operating intended for the acceleration of protons up to 10 billion electron-volt. The names of the professors Dobrotin, Cherenkov, Groshev, Vernov, Tamm, Mandel'shtam, Papaleksi and Landau appear also in the article.

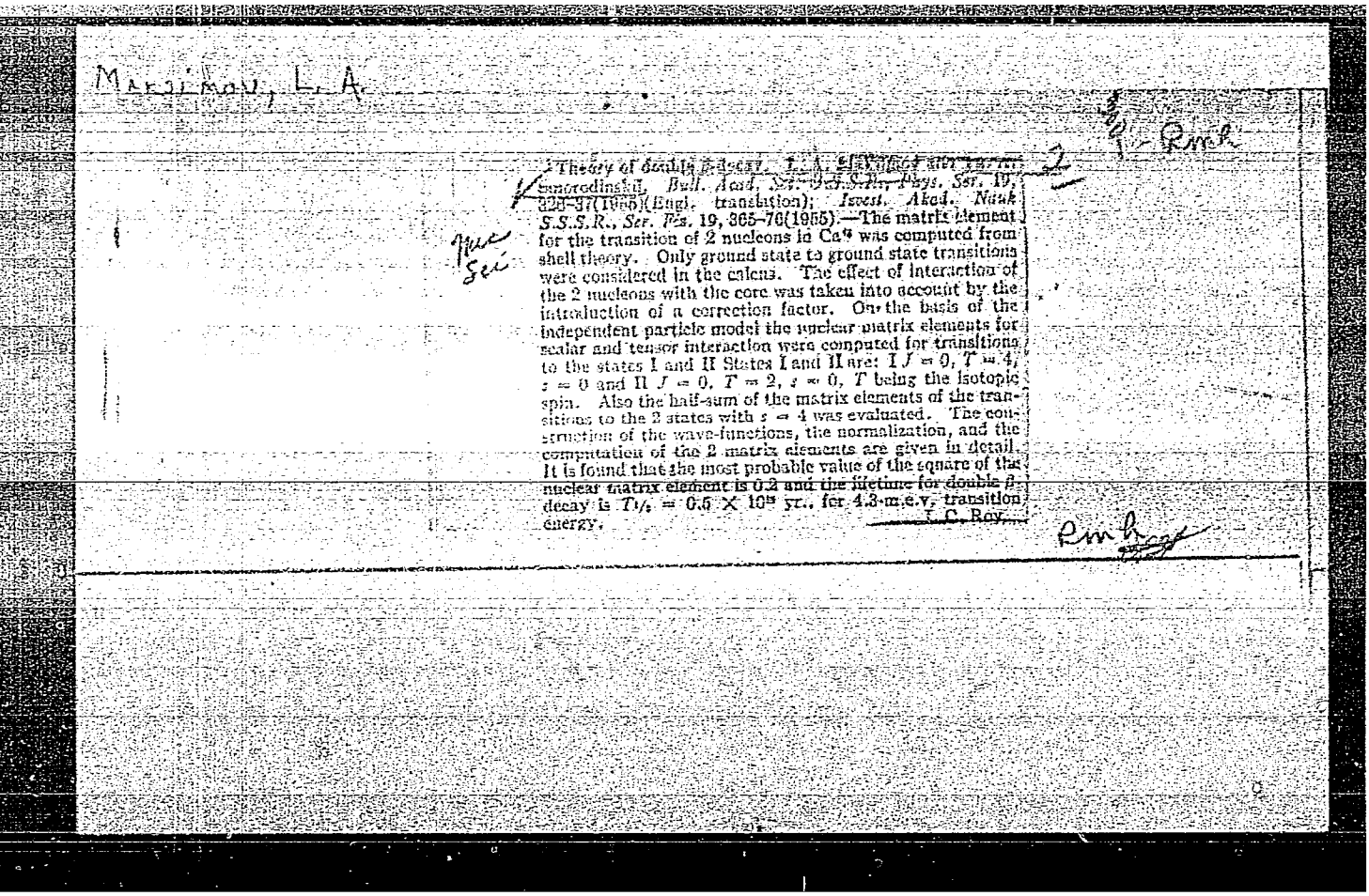
Card 1/2

Biographies of Our Days. The Road of a Scientist. 4-11-19/34

There is 1 photo.

AVAILABLE: Library of Congress

Card 2/2

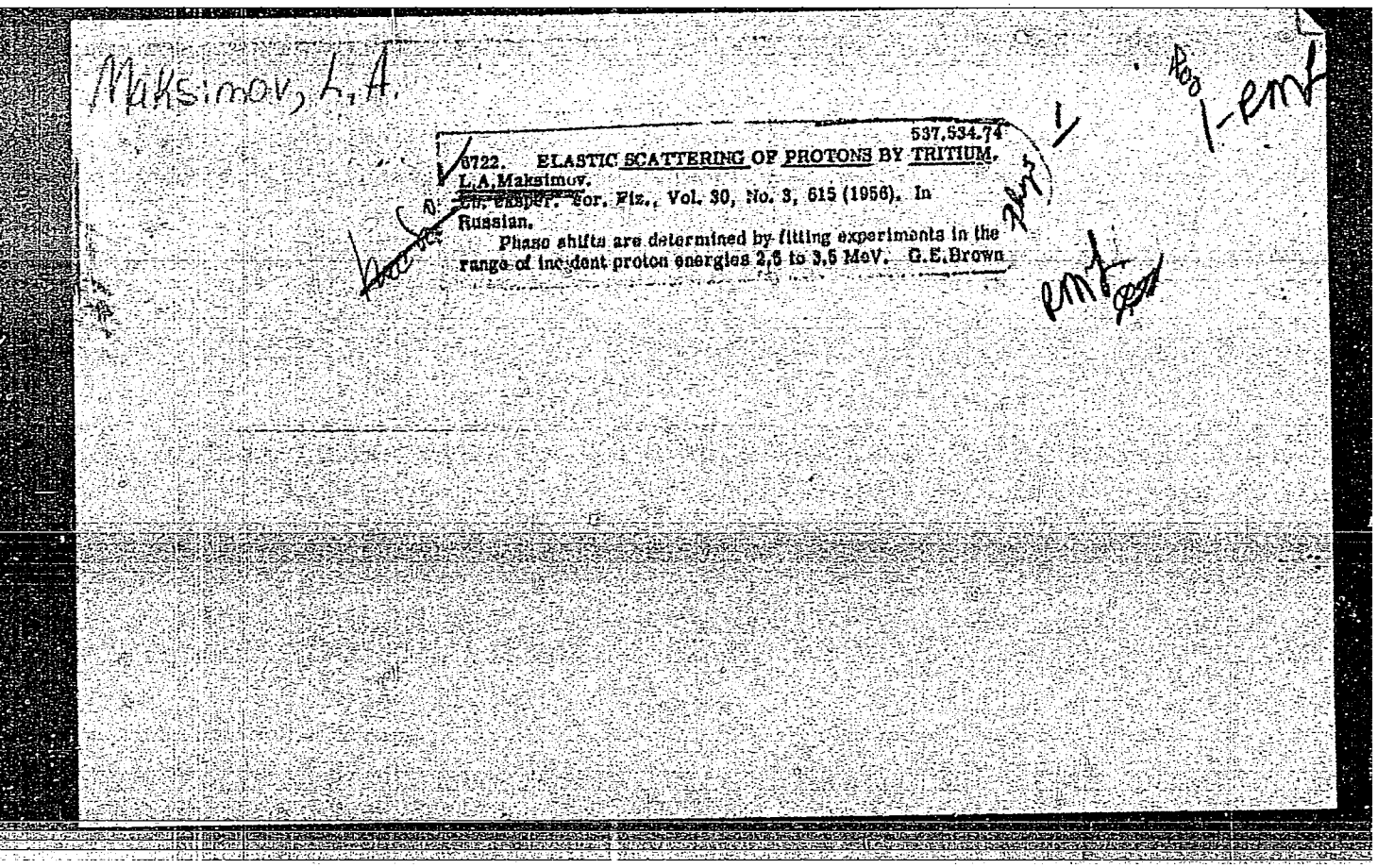


Markov, L. A.

Theory of double β-decay. I, II. [Effect of virtual transitions.] Komarodinskiĭ, *Bull. Acad. Sci. U.S.S.R., Phys. Ser.* 19, 329–37(1956)(Eng. translation); *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 19, 365–76(1955).—The matrix element for the transition of 2 nucleons in Ca^{48} was computed from shell theory. Only ground state to ground state transitions were considered in the calcns. The effect of interaction of the 2 nucleons with the core was taken into account by the introduction of a correction factor. On the basis of the independent particle model the nuclear matrix elements for scalar and tensor interaction were computed for transitions to the states I and II States I and II are: I $J = 0$, $T = 4$, $s = 0$ and II $J = 0$, $T = 2$, $s = 0$, T being the isotopic spin. Also the half-sum of the matrix elements of the transitions to the 2 states with $s = 4$ was evaluated. The construction of the wave-functions, the normalization, and the computation of the 2 matrix elements are given in detail. It is found that the most probable value of the square of the nuclear matrix element is 0.2 and the lifetime for double β-decay is $T_{1/2} = 0.5 \times 10^{25}$ yr., for 4.3-m.e.v. transition energy. I. C. Roy

MAKSIMOV, L.A.; SMORODINSKIY, Ya.A.

On the theory of double beta-decay. Izv.AN SSSR.Ser.fiz.19 no.3:365-376 My-Je '55. (MLRA 9:1)
(Moscow--Spectrum analysis--Congresses)



Maksimov, L.A.

537.534.74

6722. ELASTIC SCATTERING OF PROTONS BY TRITIUM.
L.A.Maksimov.
Zh. eksper. teor. Fiz., Vol. 30, No. 3, 615 (1956). In Russian.
Phase shifts are determined by fitting experiments in the range of incident proton energies 2.5 to 3.5 MeV. G.E.Brown

MAKSIMOV, L.A., Cand Phys Math Sci -- (diss) "On the theory of quantum fields with indefinite metrics." Mos, 195?, ? pp (Mos Engineering Physics Inst) 100 copies (KL, 34-59, 111)

MAKS IMOV [redacted]

Quantum mechanics. IUn.tekh. no.6:54-59 Je '57. (MLRA 10:7)
(Quantum theory)

GOL'MAN, L., kand.tekhn.nauk; MAKSIMOV, L., inzh.

Super pressures today and tomorrow. Izobr.i rats. no.12:32-33 D '58. (MIRA 11:12)

(High pressure research)

24(5)
AUTHOR: Maksimov, L. A. SOV/56-36-1-19/62

TITLE: Comments on the Paper by Heisenberg on Lee's Model (Zamechaniya k rabote Gayzenberga o modeli Li)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 1, pp 140-144 (USSR)

ABSTRACT: A paper by Heisenberg (Gaizenberg) (Ref 1) shows the following: In the special case in which a non-physical discrete state with negative norm fuses with the discrete state with positive norm it is possible, successively, to eliminate transitions into the non-physical state and thereby to warrant unitarity of the S-matrix of the scattering of the physical states. The author of the present paper shows that the condition of fusion of discrete states is not necessary, at least not in Lee's model. The author uses Heisenberg's method of denotation and results. In Lee's model 3 real particles are introduced, which are in interaction according to the scheme $V \rightleftarrows N + \theta$. Here all states are subdivided into the sectors $(N + z\theta, V + (z - 1)\theta)$, which do not go over into one another, and therefore each sector can be investigated separately. The author shows that, by imposing certain conditions upon the initial state of the

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system, the following is possible: From a theory containing states with negative norm, it would be possible to derive sensible physical results. First, the scattering of a θ-particle of a V-particle is investigated. (Sector $(N + 2\theta, V + \theta)$). This is sensible as long as a discrete state of the V-particle with positive norm exists for these two discrete states. For the Schrödinger equation a solution ansatz is written down. Next, an equation is given for the function $\varphi(\vec{k})$, which describes the scattering of the θ-particle in momentum representation, after which the general solution of this equation is given. The first two terms in this solution describe stationary S-waves, but the last term describes the diverging waves of the system $V + \theta$ in the physical and in the "unreal" state. The above solution can be physically interpreted only if the transitions of the system from the physical into the non-physical states are lacking. In exactly the same manner as in the preceding chapter the following possibility is shown: By the addition of a certain amplitude of non-physical states to the initial state of the system $(V + (z - 1)\theta, N + z\theta)$ it is possible to cause no scattered wave of the "unreal" state to exist. This apparently

warrants the probability that the system is in a physical state, i. e. unitarity of the physical S-matrix. By repetition of the calculations carried out by Heisenberg the following interesting result is obtained: There is no scattering of the wave of "unreal" states, if not the amplitude of the initial wave of the "unreal" states but only its integral has a definite value. The problem of selecting the ground states of the system is thoroughly examined. In conclusion, the author discusses a more general form of conditions to be imposed upon the non-physical states. The author thanks Professor Ya. A. Smorodinskiy for discussing results and for his valuable advice in connection with this work. There are 3 references, 1 of which is Soviet.

SUBMITTED: June 7, 1958

24(5)

AUTHOR: Maksimov, L. A.

SOV/56-36-2-17/63

TITLE: On the Scattering Matrix in an Indefinite Metric
(O matritse rasseyaniya v indefinitnoy metrike)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 2, pp 465-473 (USSR)

ABSTRACT: Heisenberg (Gayzenberg) showed by the example of the Lee (Li) model (Ref 1) that the theory with an indefinite metric may lead to physically sensible results if the amplitudes of the non-physical state are added to the initial state of the physical system. Bogolyubov, Medvedev, and Polivanov (Ref 2) put this idea into practice but not in a very satisfactory manner. The author of this paper employs a method that avoids existing difficulties. Investigation is carried out in the threedimensional Euclidian space. The threedimensional continuum is, with the exception of the xy-plane, denoted as the non-physical space (Hilbert(Gil'bert)space II) and the xy-plane as the physical space (Hilbert space I). The totality of physical states is represented by the totality of vectors in the xy-plane. The S-matrix in the three-dimensional space is represented by the rotation of an arbitrary vector round an axis.

If this axis is vertical to the xy-plane, the system illustrates the quantum theory with definite metric. In the present paper a method is suggested which, in the theory with indefinite metric, excludes all non-physical states from the initial and end state of the system. Figures 1 - 3 show the position of S and of the vectors a, b and a' b' with respect to the xy-plane. First, the transformation of the S-matrix of a state subspace with given vectors is investigated. It holds that $S' = USU^+$. With the aid of the U-matrix, the Lee model with 3 particles interacting according to the scheme $V \rightleftharpoons N + \theta$ is then investigated. The author further investigates a model in which a spinor field (electron) interacts with a real scalar field (scalar photon): $L = g: \psi(x) \varphi(x) \psi(x)$. Two possibilities exist for S': $S'(g) = U^+S(g)U$ and $S'(g) = U^+(g)S(g)U(g)$.
In conclusion, the author thanks Professor Ya. A. Smorodinskiy for discussing results and for his advice. There are 3 figures and 5 references, 3 of which are Soviet.

SUBMITTED: June 7, 1958

42[illegible]

AUTHORS [illegible]

[illegible]

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TEXT [illegible]

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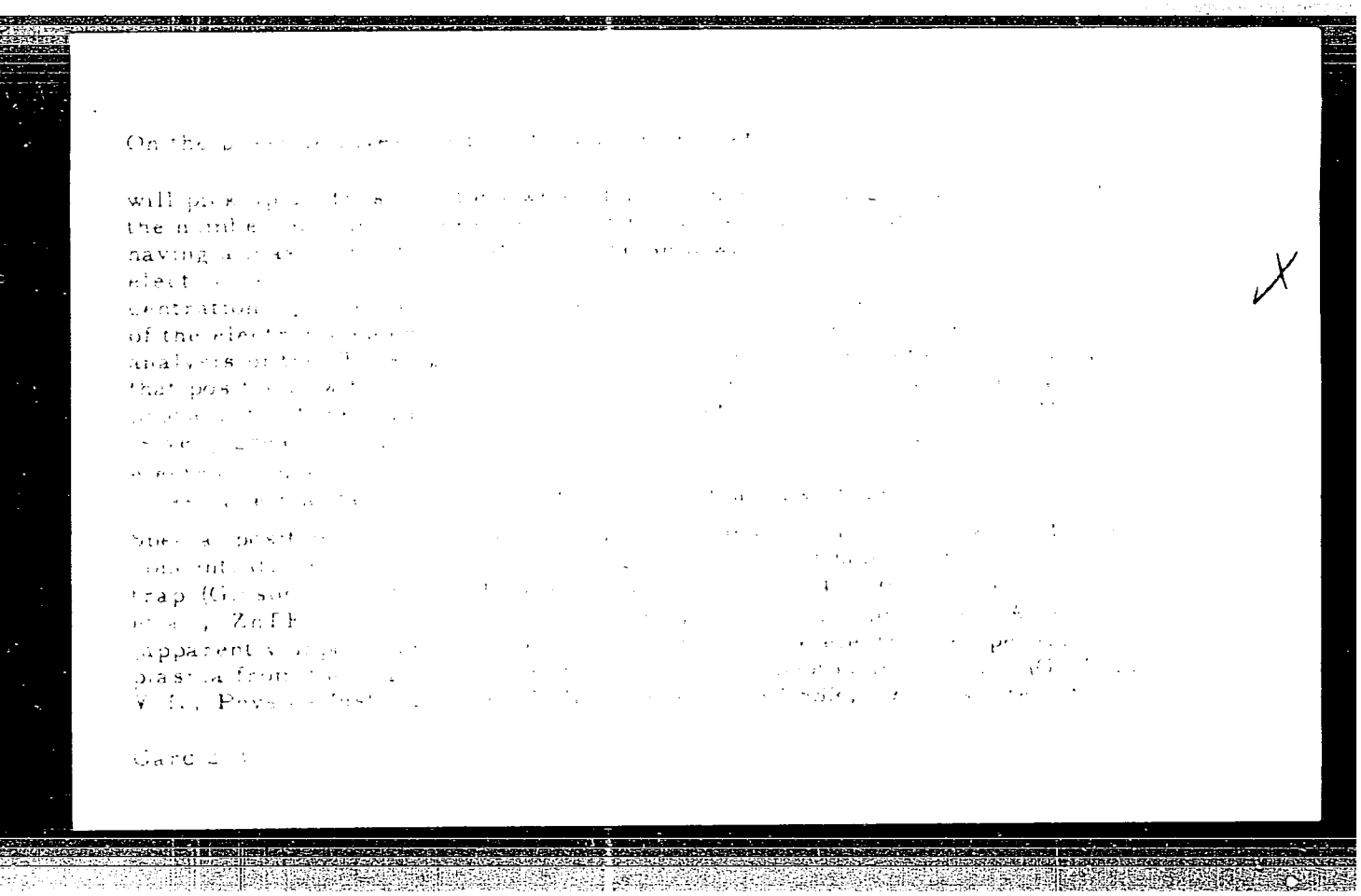

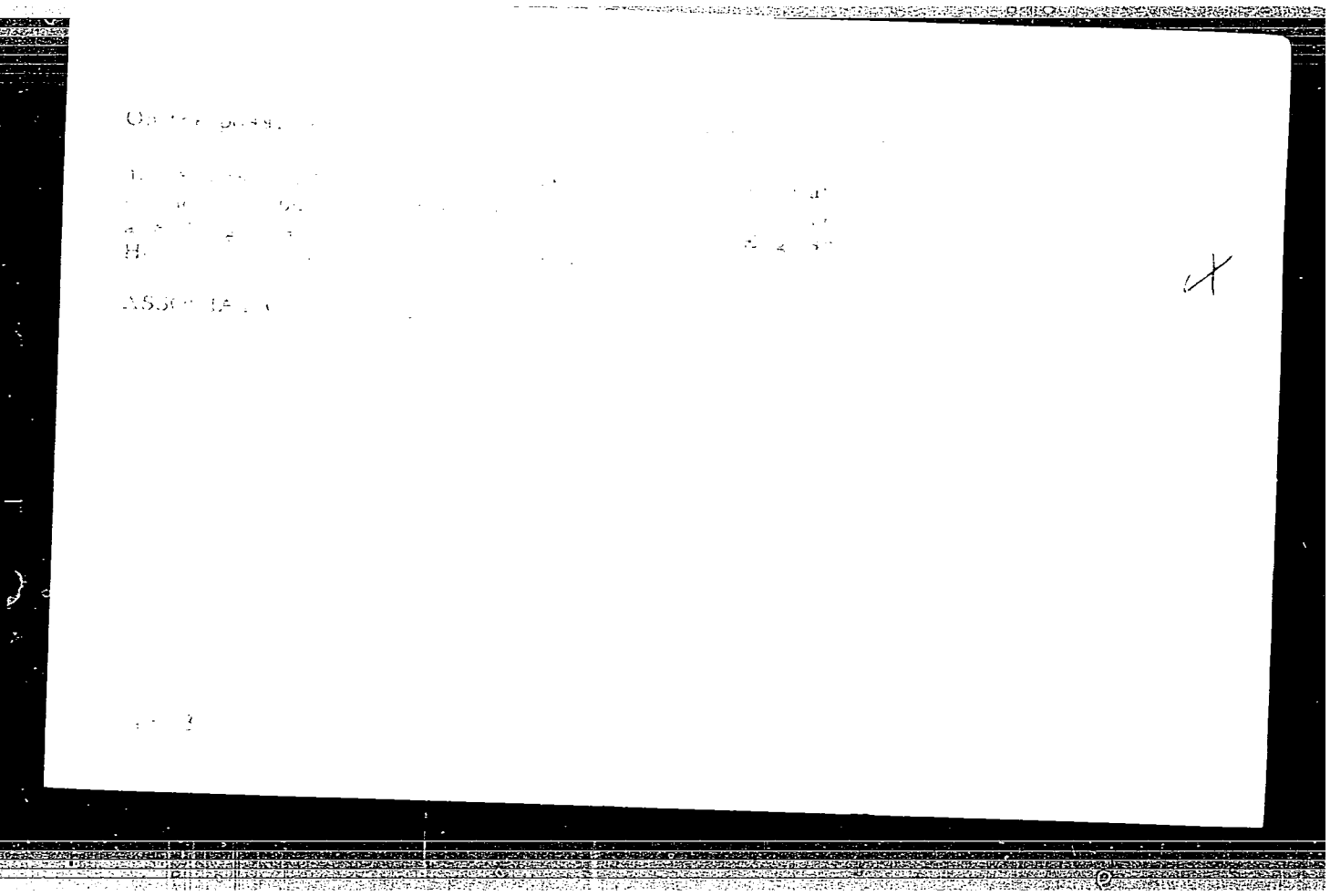

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B125/B102

24.2200 (1160, 1395, 1144)

AUTHORS: Kagan, Yu., Maksimov, L.

TITLE: Transfer phenomena in a paramagnetic gas

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 3(9), 1961, 842-852

TEXT: Based on a study of the kinetic equation for molecules with rotational degrees of freedom, a theory for the transfer phenomena in a paramagnetic neutral gas, which is located in a magnetic field, has been developed. With the help of this theory it is possible to derive all fundamental rules. The present study is limited to linear, diatomic molecules at temperatures, where the rotational motion can be treated with classical mechanics and where no vibrational degrees of freedom have been excited. For such a case, the kinetic equation reads as follows:

$$\frac{\partial f}{\partial t} + \vec{v}\nabla f + \frac{\partial}{\partial \vec{M}}(f\dot{\vec{M}}) = \left[\frac{\partial f}{\partial t}\right]_{st} \quad (2.1).$$

$\dot{\vec{M}} = [\vec{\mu}\vec{H}]$ (2.2), where $\vec{\mu}$ denotes the magnetic moment of the molecule. The

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magnetic moment is obtained as a mean value of the undisturbed state of the molecule: $\vec{\mu} = \hat{\vec{\mu}} = \gamma \vec{M}$ (2.3), where $\gamma = \mu_0 g/\hbar$ (2.4). μ_0 denotes the Bohr magneton, g the gyromagnetic ratio, and $\vec{M}$ the total momentum of the molecule. For the molecules considered the energy of the interaction between spin and axis (for sufficiently high temperatures) is small with respect to the rotational energy. Then, for $M \gg \hbar$ the following relation holds: $\gamma \cong 2\mu_0 \sigma/M$ (2.5) with $\sigma = -S, -S+1, \ldots, S$. S denotes the spin of the molecule. The kinetic equation (2.1) furnishes, in first approximation, $f = f^{(0)}[1 + \chi]$ (2.8), and maintaining the first non-vanishing terms,

$$f^{(0)}\left\{\left(\frac{\varepsilon}{kT} - \frac{7}{2}\right) u \nabla \ln T + \frac{m}{2kT}\left(u_i u_k - \frac{1}{3}\delta_{ik} u^2\right) \times \right.$$
$$\times \left(\frac{\partial v_{0k}}{\partial x_i} + \frac{\partial v_{0i}}{\partial x_k} - \frac{2}{3}\delta_{ik}\frac{\partial v_{0l}}{\partial x_l}\right) + \left(\frac{mu^2}{3kT} - \frac{2}{5}\frac{\varepsilon}{kT}\right)\left.\frac{\partial v_{0i}}{\partial x_i}\right\} +$$
$$+ \gamma [\mathbf{MH}] \frac{\partial \chi}{\partial \mathbf{M}} f^{(0)} = J_{cr}(\chi),$$
$$J_{cr}(\chi) = \int f^{(0)} f_1^{(0)} (\chi' + \chi_1' - \chi - \chi_1) W d\Gamma_1' d\Gamma'' d\Gamma_1''. \qquad (2.13)$$

Card 2/6

is obtained. In general, the collision probability W is unknown. For a small non-sphericity the following relation holds approximately:

$$W d\Gamma'' d\Gamma_1'' = \omega g d\sigma, \qquad (2.14)$$

$$\omega = 1 + \lambda [P_2(\cos \hat{g}\hat{M}) + P_2(\cos \hat{g}\hat{M}_1) + P_2(\cos \hat{g}'\hat{M}) + P_2(\cos \hat{g}'\hat{M}_1)],$$

where $\vec{g}$ and $\vec{g}'$ denote the relative velocities before and after a collision, $d\sigma$ the differential elastic scattering cross section, neglecting the non-sphericity. P_2 represents a Legendre polynomial. The thermal conductivity tensor for the general case is given by:

$$\varkappa_{ik} = k(2kT/m)\left(\frac{5}{4}\overline{T}^{1010}_{ki} + \frac{1}{2}\overline{T}^{1001}_{ki}\right), \quad \overline{T} = \frac{1}{2S+1}\sum_{\sigma} T(\sigma) \qquad (3.4).$$

When limiting oneself to the terms with $p = 1$ and $q \leq 2$, the kinetic equation $-u_i(u^2 + M^2 - 7/2)f^{(0)} + \gamma f^{(0)}[\vec{M}\vec{H}]\partial\chi_i/\partial\vec{M} = J_{st}(\chi_i)$ will have the approximate solution

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$$\chi_i = T^1_{ik}\psi^1_k + T^2_{ik}\psi^2_k + T^3_{iklm}\psi^3_{klm}, \qquad (3.5)$$

$$\psi^1_k = u_k(u^3 - {}^3/_2), \quad \psi^2_k = u_k(M^2 - 1), \quad \psi^3_{klm} = u_k(M_l M_m - {}^1/_3\delta_{lm} M^2), \qquad (3.6)$$

$$T^1 = T^{1010}, \quad T^2 = T^{1001}, \quad T^3 = T^{1200}. \qquad (3.7)$$

The coefficients of (3.5) are given in a mathematical appendix. The thermal conductivity of a paramagnetic gas located in a magnetic field becomes anisotropic, i.e., the thermal conductivity will depend on the orientation of the magnetic field with respect to the temperature gradient. If the angles between H and ∇T are different from 0° or 90°, then the heat flux will have a component normal to the temperature gradient. The Senftleben effect is completely determined by the following expressions:

$$Y^+_{ilk} = (c'_1\delta_{ik} + c'_2 H_i H_k/H^2)\,X_s, \qquad (3.24)$$

$$c'_1 = -\frac{3\eta^2(3+4\eta^2)}{(1+\eta^2)(1+4\eta^2)}, \quad c'_2 = \frac{\eta^2(7+4\eta^2)}{(1+\eta^2)(1+4\eta^2)}. \qquad (3.25)$$

$$\Delta\varkappa_{ik} = \varkappa_{ik} - (\varkappa_{ik})_{H=0} = \varkappa_0 \frac{\psi}{2S+1} \sum_0 \left(c_1' \delta_{ik} + c_2' \frac{H_i H_k}{H^2} \right), \qquad (3.26)$$

and

$$\psi = \frac{(A^{23})^2}{A^{22} A^{33}} \left\{ 1 + 5 \frac{A^{23}}{A^{11} + B^{22}} \left[1 - \frac{10}{3} \frac{(A^{23})^2}{A^{22} A^{33}} \right] \right\}^{-1} \qquad (3.27)$$

At a fixed temperature, the Senftleben effect is only a function of the ratio H/p; this agrees with basic experimental results. The temperature dependence is closely related to the shape of the scattering cross section of molecules. For the change of the thermal conductivity coefficient, and any values of η, the following holds:

$$\Delta\varkappa_\perp/\varkappa_0 < 0, \quad \Delta\varkappa_\parallel/\varkappa_0 < 0 \qquad (4.3)$$

for an $\vec{H}$ which is parallel or normal to ∇T; if the values of η are sufficiently high, one obtains $(\Delta\varkappa_\parallel/\Delta\varkappa_\perp)_\infty = 2/3$ (4.5); this agrees very well with the experimental results of Senftleben. There are 8 references: 2 Soviet and 6 non-Soviet. The reference to the English-language publication reads as follows: J. O. Hirschfelder, C. F. Curtiss,

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28758 S/056/61/041/003/011/020
B125/B102

Transfer phenomena in a paramagnetic gas

R. B. Bird. Molecular Theory of Cases and Liquids.

SUBMITTED: April 3, 1961

Card 6/6

L 38531-65 EPA(s)-2/EWT(1) Pt-10 LJP(c) GG

ACCESSION NR: AP5005297 S/0181/65/007/002/0530/0538

AUTHOR: Kagan, Yu.; Maksimov, L. A.

TITLE: Contribution to the theory of the anomalous Hall effect in ferromagnets

SOURCE: Fizika tverdogo tela, v. 7, no. 2, 1965, 530-538

TOPIC TAGS: ferromagnet, spin orbit interaction, conduction electron, spin system, Hall effect, density matrix

ABSTRACT: The authors examine the anomalous Hall effect due to unpolarized conduction electrons, under the assumption that the spin-orbit interaction is due to the interaction between the conduction-electron orbits and the polarized moments of the internal shells, and that the scattering takes place on the spin inhomogeneities (in the general case also on the impurities). The density-matrix method is used, with allowance for inelastic scattering processes. At zero temperature, the anomalous Hall constant tends to a constant value, and a term proportional to T^4, due to the interaction with the spin waves, appears with increasing temperature. This term begins to predominate in sufficiently pure samples even at low temper-

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L 38531-65

ACCESSION NR: AP5005297

atures. With further increase in temperature, the Hall constant begins to increase more slowly, like T^2, the transition between the two dependences being connected with the character of the Fermi surface. Although the results concerning the temperature dependence of the anomalous Hall effect are fairly unambiguous, the numerical values are subject to an uncertainty connected with lack of knowledge of the true value of the matrix element of the spin-orbit interaction and to the uncertainty in the true spectra of the excitations and their interrelation. The character of the obtained temperature dependence of the anomalous Hall effect is in good agreement with the experimental results over the entire range of temperatures.

"The authors are grateful to Academician I. K. Kikoin and T. N. Igosheva for numerous discussions." Orig. art. has: 24 formulas.

ASSOCIATION: None

SUBMITTED: 09Jun64 ENCL: 00 SUB CODE: EM,SS

NR REF SOV: 010 OTHER: 008

Card 2/2 mg

L 52963-65 EWT(1)/EPA(s)-2/EEC(t) Pt-7/Pl-4 IJP(c) GG

ACCESSION NR: AP5010517 UR/0056/65/048/004/1184/1193

27
24
B

AUTHOR: Kozlov, A. N.; Maksimov, L. A.

TITLE: Metal--dielectric phase transition period. Divalent crystals.

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 4, 1965, 1184-1193

TOPIC TAGS: metal dielectric transition, divalent crystal, electron hole pairing, exciton, second order phase transition

ABSTRACT: The effect of the correlational interband interaction of electrons in the form of Coulomb interaction between electrons and holes, on the electron spectrum of a divalent crystal is investigated in arbitrary temperature. It is shown that at temperatures below some critical value the existence of bound electron-hole pairs of the Mott exciton type is possible. At the critical temperature, a second-order phase transition takes place, accompanied by a realignment of the electron spectrum from the type corresponding to a metal or dielectric to the type corresponding to a superconductor. For non-zero change in the quasi-momentum, the system becomes superfluid. The superfluidity does not lead to superconductivity, because

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ACCESSION NR: AP5010517

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of neutrality of the electron-hole pairs but can manifest itself in the existence of "super-thermal-conductivity." The dependence of the transition temperature and of the change in quasi-momentum on the relative position of the bands in the non-realigned spectrum is obtained. It is shown that when the change in quasi-momentum is not equal to zero, the system is antiferromagnetic if the pairing occurs in the triplet state, the period of the magnetic structure being determined by the distance between the extrema of the bands in reciprocal space. Factors which may hinder pairing of the electrons with holes are considered. "The authors thank Yu. Kagan for continuous interest in the work and also R. Arkhipov and A. Larkin for useful discussions." Orig. art. has: 3 figures and 20 formulas.

ASSOCIATION: None

SUBMITTED: 26Nov64 ENCL: 00 SUB CODE: SS

NR REF SOV: 005 OTHER: 001

Card 2/2

L 12784-66 EWT(1)/EWA(m)-2 IJP(c) AT

ACC NR: AP5026622 SOURCE CODE: UR/0056/65/049/004/1284/1292

44,55 44,55

AUTHORS: Kozlov, A. N.; Maksimov, L. A.

44
41
B

ORG: None

TITLE: Collective excitations in a semimetal

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 4, 1965, 1284-1292

TOPIC TAGS: semiconductivity, Coulomb excitation, electron interaction, band spectrum

ABSTRACT: This is a continuation of earlier work by the authors (ZhETF 48, 1184, 1965) dealing with the Coulomb interaction of electrons in 44,55 closely lying energy bands. In the present article, the authors investigate the collective excitations in a two-band electronic system with Coulomb interaction in the presence of bound electron-hole pairs. The analysis method employed is that of V. G. Vaks, V. M. Galitskiy, and A. I. Larkin (ZhETF v. 41, 1655, 1961), and the analysis is confined to excitations with zero spin for the case when the pairing occurs in the singlet state. The case of intersecting bands, which is formally similar to the case of superconductivity, is considered. An acoustic branch,

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L 12784-66

ACC NR: AP5026622

3

which is not suppressed by the plasma oscillations (as is the case in a superconductor), but exists simultaneously with the plasma branch, is obtained when only the proper Coulomb interaction matrix elements of the interaction are taken into account. When allowance is made for the exchange matrix elements, which have a short-range character, a gap appears in the acoustic branch. The excitation energy, with moments close to zero, is found to be close to double the gap width for zero momentum transfer, and is quadratic in the coupling constant. Authors thank A. I. Larkin for useful discussions. Orig. art. has: 48 formulas.

44,55

SUB CODE: 20/ SUBM DATE: 11May65/ NR REF SOV: 003

HW

Card 2/2

L 16098-66 EWT(1)/EWA(1) WW

ACC NR: AP6004930 SOURCE CODE: UR/0056/66/050/001/0131/0134

37
36
B

AUTHORS: Kozlov, A. N.; Maksimov, L. A.

ORG: none

21,44,55

TITLE: On the possibility of 'superthermal conductivity' in semiconductors

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 1, 1966, 131-134

TOPIC TAGS: semiconductor conductivity, Coulomb interaction

ABSTRACT: This is a continuation of earlier work by the authors (ZhETF v. 48, 1184, 1965), where the change in the energy spectrum due to Coulomb interaction between electrons and holes at low temperatures was discussed. It is shown in the present paper that undamped energy flow may exist in a two-band system with pairing as a result of superfluidity of the Bose condensate in which the bound electron-hole pairs are precipitated. A proof is presented of the Landau criterion for superfluidity in the case of crystal periodicity. The superfluid

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L 16098-66
ACC NR: AP6004930

motion is stable with respect to Umklapp processes and scattering by impurities. The feasibility of simple experiments aimed at observing superthermal conductivity for narrow-gap semiconductors is discussed briefly. Superfluidity may also be the cause of the change of certain semiconductors (titanium and vanadium oxides or InSb) into the metallic state at increased temperatures or pressures. Superthermal conductivity may also be manifest by vanishing of weak antiferromagnetism. Authors thank I. Ye. Dzyaloshinskiy for discussions leading to the writing of this article. Orig. art. has: 15 formulas. [02]

SUB CODE: 20/ SUBM DATE: 25Jun65/ ORIG REF: 003/ OTH REF: 002

ATD PRESS: 4203

Card 2/2 SM

EWT(m)/EWP(w)/EWP(t)/ETI IJP(c) JD/JH
ACC NR: AP6027781 SOURCE CODE:UR/0126/66/022/001/0007/0017

AUTHOR: Barabanov, A. F.; Maksimov, L. A.

ORG: none

TITLE: Calculating the electrical resistance of aluminum

SOURCE: Fizika metallov i metallovedeniye, v. 22, no. 1, 1966, 7-17

TOPIC TAGS: electric resistance, aluminum, conduction electron, phonon, mathematic analysis

ABSTRACT: Starting with a system of non-interacting quasiparticles -- electrons and phonons, which are described by the hamiltonian $\hat{H}_0$ and in which any distribution with the density matrix

$$\hat{\rho}^0 = \hat{\rho}^{00}(1 + \hat{F}); \quad (1)$$

$$\hat{\rho}^{00} = Z_0^{-1} \exp\left(-\frac{\hat{H}_0}{T}\right), \quad (2)$$

is steady-state if the operator $\hat{F}$ satisfies the conditions

UDC: 539.292:537.211

$$\hat{F} = \hat{F}^{+}; \quad [\hat{F}\hat{H}_0] = 0; \quad \langle \hat{F} \rangle = \mathrm{Sp}\,\hat{\rho}^{00}\hat{F} = 0. \qquad (3)$$

(in this particular case $\hat{F} = c\hat{p}$ ($\hat{p}$ is the electron momentum operator, with the density matrix $\hat{\rho}_0$ describing a state with electric current proportional to the vector **c**. On this basis formulas for electrical resistance and electron-phonon interaction are derived, with special reference to the electrical resistance of aluminum at six values of temperature within the 64-205°K range. The calculations pertain to a true Fermi surface of aluminum and real wave functions of conduction electrons. By contrast with the studies dealing with the calculation of the kinetic coefficients of monovalent metals (see e.g. Greene, M. P., Kohn, W. Phys. Rev., 1965, 137, 2A, 513) in this case (a polyvalent metal) the matrix element of electron-phonon interaction is determined on the basis of the pseudopotential theory. Electrical resistance is found to be essentially dependent on the value of the Fourier component w(p) of the pseudopotential in the region $p \approx 2k_F$, with scattering on transverse phonons accounting for 70% of the resistance. The theoretical findings are found to be accurate within 15%. "We wish to use this opportunity to express our gratitude to Yu. M. Kagan for his unflagging interest in this project and useful discussion". Orig. art. has: 1 table, 5 figures, 27 formulas.

SUB CODE: 20, 12/ SUBM DATE: 29Sep65/ ORIG REF: 001/ OTH REF: 009

ACC NR: AP7003230 SOURCE CODE: UR/0056/66/051/006/1880/1892

AUTHOR: Mikhaylova, Yu. V.; Maksimov, L. A.

ORG: Moscow Physicotechnical Institute (Moskovskiy fiziko-tekhnicheskiy institut)

TITLE: Influence of the electric field on the transport coefficients of polar gases

SOURCE: Zh eksper i teor fiz, v. 51, no. 6, 1966, 1880-1892

TOPIC TAGS: kinetic equation, transport phenomenon, scattering cross section, temperature dependence, gas viscosity

ABSTRACT: The article deals with a kinetic equation of a gas made up of polar molecules of the symmetrical-top type or of polar diatomic molecules in the presence of a constant electric field. The kinetic equation is solved under the assumption that the polarization can be neglected and that the electric field can affect only the precession of the angular momentum. The kinetic equation is solved by a method described by one of the authors elsewhere (Maksimov, with Yu. Kagan, ZhETF v. 51, 1893, 1966 [Acc. AP7003231] and earlier). In view of lack of experimental data on the scattering cross sections of polyatomic molecules, the results are interpreted only for a few simple gas models. The heat conduction and viscosity tensors are determined and attention is called to the possible occurrence of viscous stresses in a gas in which a temperature gradient is produced. The similarity between the effect of an electric field and that of a magnetic field are discussed. The authors thank L. L. Gorelik and Yu. M. Kagan for interest in the work. Orig. art. has: 59 formulas.

SUB CODE: 20/ SUBM DATE: 05Jul66/ ORIG REF: 003/ OTH REF: 009

Card 1/1

ACC NR: AP7003231 SOURCE CODE: UR/0056/66/051/006/1893/1908

AUTHOR: Kagan, Yu.; Maksimov, L. A.

ORG: none

TITLE: Kinetic theory of gases with rotational degrees of freedom in an external field

SOURCE: Zh eksper i teor fiz, v. 51, no. 6, 1966, 1893-1908

TOPIC TAGS: transport phenomenon, magnetic field, gas kinetics, paramagnetic gas, collision cross section, gas viscosity, thermal conduction

ABSTRACT: This is a continuation of earlier work (ZhETF v. 41, 842, 1961) where the authors developed a theory of transport phenomena for a diatomic paramagnetic gas in a magnetic field. The present article is devoted to a general method for considering kinetic phenomena in polyatomic gases in the presence of either a magnetic or an electric field, inasmuch as either type of field produces qualitatively the same physical result, namely precession of the rotational molecular moment, which in turn causes an effective change in the collision cross section of the molecule. The method consists of expanding the nonequilibrium distribution function in terms of the eigenfunctions of an ideal collision operator, which takes into account only the change in translational degrees of freedom in the collisions. In this method the effect in an external field is reduced to finding the eigenfunction of the ideal collision operator and determining the matrix elements of the perturbing collision operator. The general

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ACC NR: AP7003231

method is then used to determine the influence of a magnetic field on the first and second viscosity, thermal conductivity, diffusion, and self-diffusion in paramagnetic and nonparamagnetic gases. The analysis shows that the signs of certain effects depend on the magnetic field. Consequently, the general viscosity tensor in a magnetic field has seven independent coefficients (five even and two odd) and the thermal conductivity, diffusion, and self-diffusion tensors have three independent coefficients (two even and one odd). In an electric field the number of independent coefficients is reduced, since all coefficients which are odd in the electric field vanish identically. The authors thank I. K. Kikoin, L. L. Gorelik, and V. V. Sinitsyn for a discussion of the experimental aspects of the paper. Orig. art. has: 81 formulas.

SUB CODE: 20/ SUBM DATE: 05Jul66/ ORIG REF: 007/ OTH REF: 007

Card 2/2

KAGAN, Yu.; MARSIMOV, L.A.

Theory of the anomalous Hall effect in ferromagnets. Fiz. tver. tela 7 no.2:530-538 F '65. (MIRA 18:2)

GRISKIN, Ya.P.; MAKSIMOV, L.D.

Myocardial infract in a young man. Sov.med. 23 no.8:106-109 Ag '59.
(MIRA 12:12)

(MYOCARDIAL INFRACT case report)

MAKSIMOV, L.Kh., kandidate tekhnicheskikh nauk; GONCHAROV, F.S., inzhener.

Two-level sedimentation tank with putrefaction side chambers. Sbor. trud.VNIIGS no.6:78-81 '55. (MLRA 9:7)
(Septic tanks)

[illegible], I.Kh., [illegible] Chesskikh nauk; MURAYEV, P.I., inzhener.

[illegible] nozzle for hydraulic mark-striking machinery.
[illegible]prom. [illegible] (MLRA 10:8)
(Mark making)

MAKSIMOV, L.Kh.

Hydraulic calculation of dispersing sewer outlets. Vod. i san. tekh. no.3:13-15 Mr '59. (MIRA 12:2)
(Sewer design)

MAKSIMOV, L.Kh. (Leningrad)

Choice of the criterion for hydraulic calculations of a sewerage system. Vod. i san. tekh. no.7:8-12 Jl '61. (MIRA 14:7)
(Sewerage)

AR'TYUNOV, V.P.; DOLINSKIY, Ye.F.; KOLOSOV, A.K.; MAKSIMOV, L.M.; MOLANOVA, M.F.; RUDO, N.M.; CHECHURINA, Ye.N.; SHIROKOV, K.P., SHRAMKOV, Ye.C.; YANOVSKIY, B.M.

E.T. Chernyshev; 50th birthday anniversary and 30th anniversary of scientific and pedagogic activities. Izm. tekh. no.3 01 My-Je '57. (MLRA 10:4)
(Chernyshev, Evgenii Titovich, 1907-)

MAKSIMOV, L.M.

Temporary stability and temperature errors of standard dynamometers. Izm.tekh. no.11:12-14 N '63. (MIRA 16:12)

L 52149-65 EWT(d)/EWP(k)/EWP(h)/EWA(d)/EWP(v)/EWP(l) Pf-4
ACCESSION NR: AP5017052 UR/0115/64/000/011/0024/0026

AUTHOR: Maksimov, L. M. 17 B

TITLE: Set of [Four] first-category reference dynamometers

SOURCE: Izmeritel'naya tekhnika, no. 11, 1964, 24-26

TOPIC TAGS: metrology, power meter, mechanic measuring tool 14

ABSTRACT: The laboratory of mechanical measurements of VNIM (All-Union Scientific Research Institute of Metrology) has completed work on four precision dynamometers (less than 0.1% error) for driving model force-measuring machines in the range from 0.5 to 100 tons force (4903 to 980,600 newtons). These instruments are now in use.

The dynamometers have a modified elastic element which provides a uniform load distribution. The optical system has a micrometer eyepiece which permits measurement of deformation. A calibration schedule and procedure is outlined for maintaining accuracy. Equations are given for deformation reproducibility and for the mean systematic errors. The lower limits of measurements and the sensitivity threshold are determined. The

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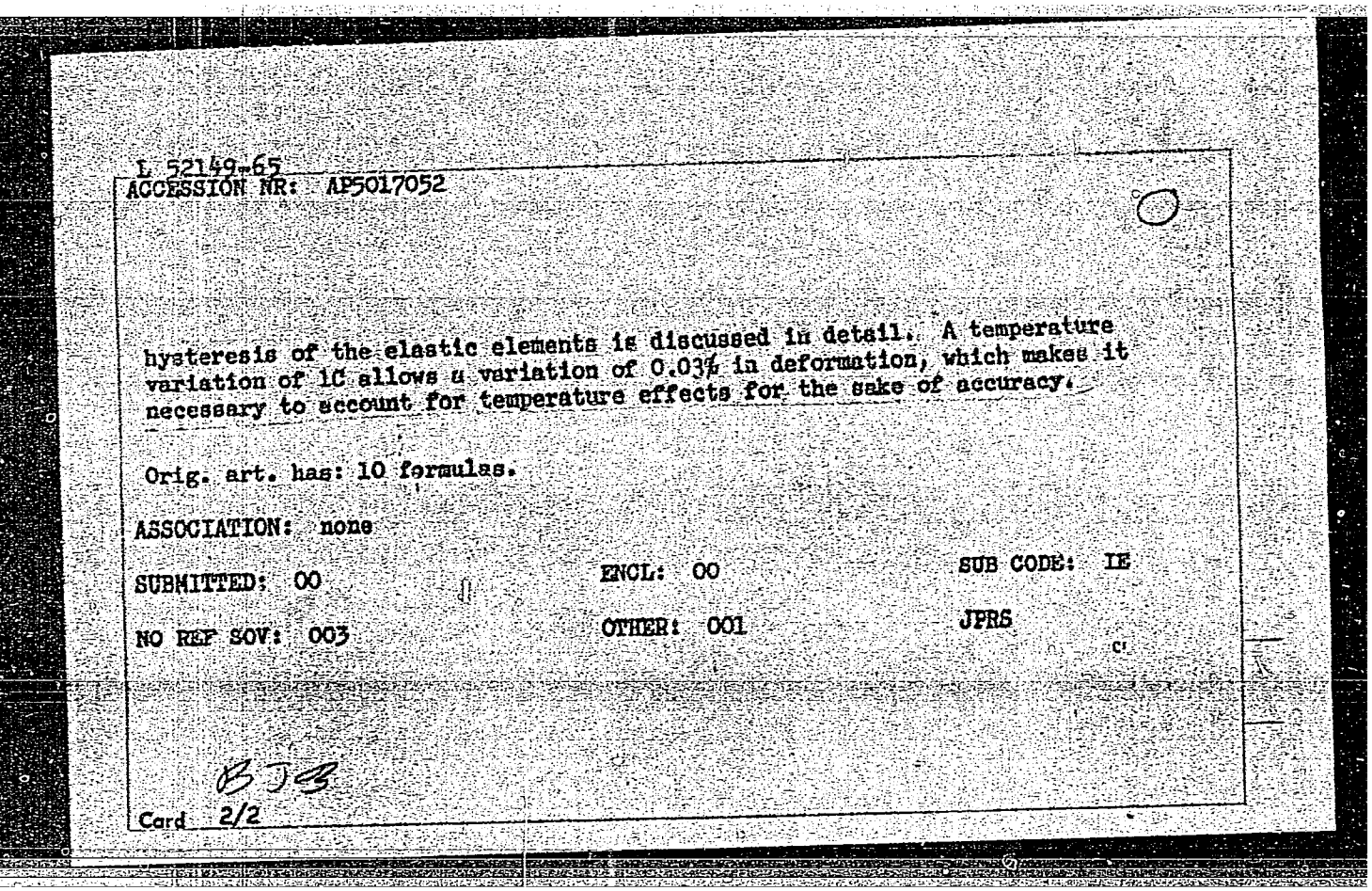

L 52149-65
ACCESSION NR: AP5017052

hysteresis of the elastic elements is discussed in detail. A temperature variation of 1C allows a variation of 0.03% in deformation, which makes it necessary to account for temperature effects for the sake of accuracy.

Orig. art. has: 10 formulas.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: IE

NO REF SOV: 003 OTHER: 001 JPRS

BJB

Card 2/2

MAKSIMOV, L.M.

Nomogram for determining temperature corrections for the readings of standard [illegible]. Izm. tekh. no.11:64 (MIRA 17:12) N '65.

BOZHICH, Sergey Petrovich; FIDMAN, B.A., doktor tekhn.nauk, retsenzent; MAKSIMOV, L.S., inzh., retsenzent; YEGOROV, S.A., doktor tekhn. nauk, nauchnyy red.; MAR'YANSKIY, L.P., red.; SOKOL'SKIY, I.F., tekhn.red.

[Statistical regularities of stationary random processes; based on the results of measuring pressure pulsation at the boundary of a turbulent flow] Nekotorye statisticheskie zakonomernosti statsionarnykh sluchainykh protsessov; po rezul'tatam izmerenii pul'satsii davleniia na granitse turbulentnogo potoka. Moskva, Vses.proektno-izyskatel'skii i nauchno-issl.in-t "Gidroproekt" im. S.IA.Zhuk, 1959. 24 p. (Tekhnicheskoe soobshchenie, no.7). (MIRA 13:9)

(Fluid dynamics) (Probabilities)

MAKSIMOV, L.S., inzh.

Experimental investigations of the effect of the work of spillways on the vibration of hydraulic units and buildings of concentrated-fall hydroelectric power stations. Trudy Gidroproekta 2:106-117 '59. (MIRA 13:7)

1. Nauchno-issledovatel'skiy sektor Vsesoyuznogo proyektno-izyskatel'skogo i nauchno-issledovatel'skogo instituta "Gidroproyekt" im. S.Ya.Zhuk.
(Hydraulic structures--vibration)

S/619/61/000/019/014/019
D039/D112

AUTHORS: Maksimov, L.S.; Tokmakov, V.A.

TITLE: Remote regulation of a long-period vibration pickup

SOURCE: Akademiya nauk SSSR. Institut fiziki Zemli. Trudy, no. 19 (186) Moscow, 1961, Seysmicheskiye pribory, 86-90

TEXT: The authors describe a remote regulator of the zero position of the pendulum of a vibration pickup used in oscillographic recording of vibrations of 1 cps and above in hydraulic-engineering structures and hydroelectric generating sets. It was developed at the Nauchno-issledovatel'skiy sektor Gidroproyekta (Scientific Research Division of the Gidroproyekt) for the purpose of ensuring faultless operation of vibration pickups installed in spillway dams and remaining inaccessible for months or even years. The regulator consists of an actuating mechanism, a signalling pickup of the pendulum position and a control panel. It operates by screwing up one of the micrometer screws of the vibration pickup by means of any remotely controlled device, upon a change in the equilibrium position of the pendulum. The

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Remote regulation ...

regulator was made for the ВДЦ-2 (VDTs-2) long-period vibration pickup designed by the Vsesoyuznyy nauchno-issledovatel'skiy institut elektro-energetiki (All-Union Scientific Research Institute of Power Engineering), the VDTs-2 so equipped, being designated the ВДЦ-2Н (VDTs-2N). The technical data of the VDTs-2N vibrograph are as follows: pendulum weight - 150g; vibration pickup weight - 3 kg; natural oscillations period of the pendulum - 1.2 sec; coil resistance - 200 ohms; natural oscillation frequency of the galvanometer - 20 cps; resistance of the galvanometer - 36 ohms; external critical resistance of the galvanometer - 1,000 ohms; operational range of the vibrograph in respect to amplitude 0 - 1,000 μ ; operational range of the vibrograph in respect to frequency 1 - 100 cps; minimum magnification - 350; dimensions of the pickup - 15 x 11 x 10 cm. The pickup's sensitivity can be varied by 2.5, 10, 20 and 50 times by means of shunts. A special shunt serves for producing the necessary damping of the pendulum. The ОТ-24-51 (OT-24-51) oscillograph equipped with highly sensitive low-frequency galvanometers having a high external critical resistance, was used in the vibration recording. In October 1958, four VDTs-2N vibration pickups equipped with remote regulators were installed in the Stalingradskaya vodoslivnaya plotina

(Stalingrad Spillway Dam), and in October 1959, another 6 pickups of this type were installed in the spillway dam of the Volzhskaya GES im. V.I. Lenina(Volzhskaya Hydroelectric Power Plant im. V.I. Lenin). It was found that the remote regulator is reliable in operation, comparatively simple to use and can be recommended for long-period vibration pickups installed in places inaccessible for a long period of time. The authors of the article and engineers V.V. Kalinin and S.N. Godatelev participated in the development of the regulator. It is also mentioned that the ВЭГИК(VEGIK), ВДЦ -1 (VDTs-1) and И -001 (I-001) vibration pickups are also used for recording vibrations of 1 cps and above in hydrotechnical structures. The latter is being serially produced at the Kishinevskiy zavod elektroizmeritel' nykh priborov (Kishinev Electrical Measuring Instruments Plant). There are 3 figures and 2 Soviet-bloc references.

MAKSIMOV, L.S., geofizik; GONCHAROV, L.A., geofizik

Natural oscillations of a spillway dam created by the impact of waves. Gidr. stroi. 32 no.10:40-41 O '61. (MIRA 14:10)
(Dams)

ACCESSION NR: AP4030339 S/0049/64/000/003/0370/0373

AUTHORS: Maksimov, L. S.; Tokmakov, V. A.

TITLE: Use of a modified SPM-16 seismic detector for recording displacements of oscillatory movements

SOURCE: AN SSSR. Izv. Ser. geofiz., no. 3, 1964, 370-373

TOPIC TAGS: seismic detector, SPM-16, oscillation, oscillatory movement, frequency range, overdamping, vibrograph, equilibrium position, stabilizer, natural frequency, oscillograph, magnification

ABSTRACT: The authors undertook this work because of the need to study dynamic processes in the frequency range 10-100 c p s. The desired modification was obtained by 1) lowering the natural frequency of the oscillator receiver (the SPM-16 seismic detector) from 34 to 10 c p s or lower, 2) selecting a galvanometer that operates in an overdamped state, which fulfills the function of integrating cells in the given frequency range, and 3) computing the resistance of the frequency correction that brings about optimal damping of the receiver and possibly greater damping of the galvanometer at a rather high magnification of the vibrograph (on the order of 1000) and a minimal coupling factor. The authors conclude that the

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ACCESSION NR: AP4030339

resulting vibrograph has the following desirable qualities: 1) limiting frequency and no complicating measurements of power supply for pickup, magnifier, stabilizer, or other elements; 2) rather high magnification, on the order of 1000 in the operating frequency range (12-200 c p s); 3) stability of the equilibrium position of the suspended pickup system, which excludes the necessity of any arrangement for stopping or regulating the position of equilibrium; and 4) the basic components (seismic detector, oscillograph) are manufactured by industrial organizations, and this makes the instrument relatively inexpensive while allowing a certain uniformity in type of detector and galvanometer. The authors note in conclusion that other seismic detectors (such as the SPED-56) may be used in the vibrograph, if the natural frequency is reduced; or special low-frequency detectors may be used (the NS-III or NS-IVm). Orig. art. has: 4 figures and 12 formulas.

ASSOCIATION: Nauchno-issledovatel'skiy sektor "Gidroproyekta" (Scientific Research Sector of "Gidroproyekt")

SUBMITTED: 15Apr63 DATE ACQ: 29Apr64 ENCL: 00

SUB CODE: AS NO REF SOV: 004 OTHER: 000

Card 2/2

NAYDENKO, I.S., kand.tekhn.nauk; MAKSIMOV, L.T., inzh.

Automatization of the operation of mine hoisting machinery with asynchronous drive. Ugol' Ukr. 5 no.9:39-40 S '61. (MIRA 14:9)

1. Dongiprouglemash.
(Hoisting machinery)

LYUBLINSKIY, K.I., inzh.; MAKSIMOV, L.T., inzh.

Spring drive for mine-hoist brakes. Bezop.truda v prom. 7 no.3:8-11 Mr '63. (MIRA 16:3)

1. Dongiprouglemash.

(Mine hoisting--Safety appliances)

FEDOROV, Mikhail Mikhaylovich. Prinimal uchastiye MAKSIMOV, L.T., inzh.; D'YAKOVA, G.B., red.izd-va; OVSEYENKO, V.G., tekhn. red.; SHKLYAR, S.Ya., tekhn. red.

[Adjusting hoists during installation] Naladka montiruemykh pod"emnykh mashin. Moskva, Gosgortekhizdat, 1963. 343 p. (MIRA 16:4)

(Mine hoisting)

28(1) PHASE I BOOK EXPLOITATION SOV/3253

Maksimov, Leonid Yur'yevich

Rasskaz ob avtomatakh (A Story About Automatic Machines) Moscow, Izd-vo "Znaniye", 1959. 45 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya X, 1959, No. 10) 58,000 copies printed.

Sponsoring Agency: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy.

Ed.: L. I. Lanina; Tech. Ed.: Ye. V. Savchenko.

PURPOSE: This booklet is intended to acquaint the young reader with automatic machinery and control.

COVERAGE: The book deals with the origin and development of cybernetics. Such automatic machinery as copying machines and computers, machines with feedback control and self-adjusting devices, automatic lines with transfer

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A Story About Automatic Machines SOV/3253

machines, and completely mechanized plants are discussed. No personalities are mentioned. There are 13 references, all Soviet.

TABLE OF CONTENTS:

Card 2/3

ROZANOV, B.V.; GOL'MAN, L.D.; MAKSIMOV, L.Yu.

Selecting optimum pressure for hydraulic and pneumatic cylinders. Kuz.-shtam.proizv. 1 no.1:22-24 Ja '59. (MIRA 12:10)
(Power presses--Hydraulic driving)
(Power presses--Pneumatic driving)

ROZANOV, B.V.; GOL'MAN, L.D.; MAKSIMOV, L.Yu.

Stress analysis of hydraulic press cylinders. Kuz.-shtam. proizv. 1 no.7:19-25 Jl '59. (MIRA 12:10)
(Hydraulic presses)

VLADZIYEVSKIY, Aleksandr Pavlovich; MAKSIMOV, Leonid Yur'yevich; POZHIDAYEVA, M.G., red.; ROZEN, E.A., tekhn.red.

[Accomplished by the intelligence of men and the power of machines] Razumom cheloveka, energiei mashiny. Moskva, Izd-vo "Sovetskaia Rossiia," 1960. 71 p. (MIRA 14:4)

(Technological innovations)

L 19191-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/HW
ACCESSION NR: AR3004200 S/0276/63/000/005/V006/V005

56
55

SOURCE: Rzh. Tekhnologiya mashinostroyeniya, Abs. 5V22

AUTHOR: Maksimov, L. Yu.; Gol'man, L. D.

TITLE: On the problem of the multilayer cylinders of hydraulic presses

CITED SOURCE: Tr. Vses. n.-i. proyektno-konstrukt. in-ta metallurg. Mashinostr., sb. 1, 1960, 172-178

TOPIC TAGS: multilayer cylinder, hydraulic press, cylinder strength, high-powered press

TRANSLATION: The expediency is studied of application of multilayer cylinders to hydraulic presses. The results obtained by authors in the solution of the multilayer container problem are discussed. At given strength properties of material and the number of layers, there exists an optimum pressure of liquid at which the outer cylinder radius is minimum. When the number of layers increases the optimum pressure increases. At the infinitely large number of layers the pressure exceeds twice the optimum pressure of a solid cylinder. Application of pressures about 30% lower than optimal leads to a substantial weight decrease with a slight

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ACCESSION NR: AR3004200

increase in dimensions. Dimensions and weight of a solid and multilayer cylinder are compared for the following cases: at equal developed stress and pressure at optimum value for a solid cylinder; at equal stress and pressure optimal for a given number of layers; at various pressures in the cylinder. It was established that the use of multilayered cylinders instead of solid ones does not give appreciable results. The gain in dimensions of a 3-layered cylinder, when compared with a solid one, amounts to 13%, at practically no gain in weight. The expediency of production of multilayer cylinders for uniquely high-powered presses is discussed. Technological and shipping possibilities are taken as basis of it. The outlook is outlined for application of high resistant steel tapes for cylinder reinforcing. One figure, 3 references. S. Topaler.

DATE ACQ: 21Jun63 SUB CODE: IE, MA ENCL: 00

Card 2/2

ACCESSION NR: AP4019025 S/0182/64/000/002/0026/0031

AUTHOR: Maksimov, L. Yu.

TITLE: Methods of improving the containers for the pressing of thin-walled parts

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 2, 1964, 26-31

TOPIC TAGS: metal working, stamping machine container, stamping machine, pressing machine, stamping machine capacity

ABSTRACT: Studies carried out by the VNIIMETMASh, Uralmashzavod, NKMZ and other facilities in the Soviet Union have shown that the capacity of stamping machines depends largely on the properties of their containers. The pressure in these machines often reaches 80-90 kg/m^2 in a temperature interval of 350-500 C. Steel, titanium, and other metals and alloys would require containers working under even worse conditions, with specific pressures of up to 200 kg/m^2 at temperatures up to 500-600 C. On the basis of existing formulas and practical experience, it has been shown that containers consisting of several layers of optimal design significantly increase the allowable specific pressure. The inner layers should have a higher thermal resistance, even though their strength may be lower than that of the outer. The most promising type of design is the one worked out at the VNIIMETMASh where a continuous metal band consisting of tack-welded

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ACCESSION NR: AP4019025

sections made of different materials is used. It is suggested that in the near future large containers may be made which tolerate specific pressures up to 120 kg/m^2. Orig. art. has: 5 figures, 2 tables and 20 equations.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 27Mar64	ENCL: 00
SUB CODE: MD, ML	NO REF SOV: 003	OTHER: 000

Card 2/2

MAKSIMOV, L.Yu., inzh.

Efficient design of cylindrical parts subjected to high internal pressures. Vest. mashinostr. 44 no.5:9-13 My '64. (MIRA 17:6)

L 33966-65 EWT(d)/EWT(m)/EWA(d)/EWP(v)/EWP(t)/EWP(k)/EWT(h)/EWP(b)/EWP(l)/EWA(c)
Pf-4 JD/HW 30
ACCESSION NR: AR5005708 S/0276/64/000/010/V004/V004 B

SOURCE: Ref. zh. Tekhnol. mashinostr. Sv. t., Abs. 10V23

AUTHOR: Rozanov, B.V.; Shofman, L.A.; Gol'man, L.D.; Maksimov, L.Yu.; Rozhkov, V.M.; Andreyev, A.S.; Shcheglov, V.F.; Tokarskiy, A.P.

TITLE: Development of powerful forging presses and new pressure metalworking methods

CITED SOURCE: Tr. Vses. no.-i. i proyektno-konstrukt. in-ta metallurg. mashinostr., sb. 12, 1964, 353-391

TOPIC TAGS: pressure metalworking, hydraulic press design, hammer design

TRANSLATION: The article surveys the activities of VNIIMETMASh from its inception. Described are designs of hydraulic presses and hammers developed at the Institute, as well as new technological processes for pressure metalworking (including hydrostatic techniques) Bibl. with 21 titles; 26 illustrations. 14 18

SUB CODE: IE, MM ENCL: 00

Card 1/1

ACC NR: AP6032534 SOURCE CODE: UR/0413/66/000/017/0141/0141

INVENTOR: Tselikov, A. I.; Rozanov, B. V.; Nistratov, A. F.; Gol'man, L. D.; Maksimov, L. Yu.; Pobedin, I. S.; Fridman, A. Z.; Kitain, R. S.; Kurovich, A. N.; Nadtochenko, A. F.; Kaganovskiy, F. I.; Kozhevnikov, V. F.; Zonenko, V. V.

ORG: none

TITLE: Hydraulic press reinforced with wire wrapping. Class 58, No. 185696 [announced by the All-Union Scientific Research Institute for the Planning and Design of Metallurgical Machinery (Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut metallurgicheskogo mashinostroyeniya)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 17, 1966, 141

TOPIC TAGS: hydraulic press, reinforced hydraulic press, HYDRAULIC EQUIPMENT, METAL PRESS

ABSTRACT: This Author Certificate introduces a hydraulic press reinforced (see Fig. 1) with wire wrapping. The press includes a cylinder, housing consisting of upper end lower crossmembers and columns with a concave oval-shaped outside surface which makes it possible to wind a reinforcing band or wire around the housing. To improve the technical and economic characteristics and the reliability of the press at the same main parameters, the housing is provided with stiffenning ribs located

Card 1/2 UDC: 621.226

ACC NR: AP6032534

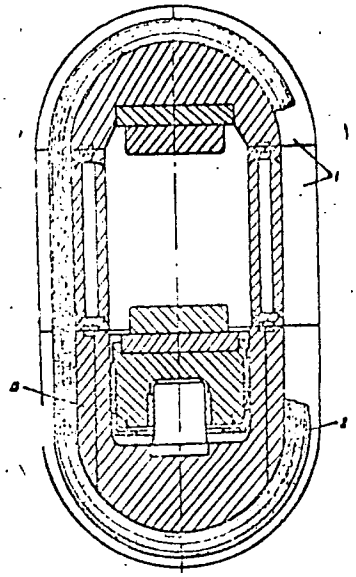

Fig. 1. Hydraulic press reinforced with wire wrapping

1 - Stiffenning ribs; 2 - wrapping;
3 - lower crossmember.

between the wrapping, and the lower crossmember of the press is laminated and serves as a hydraulic cylinder. Orig. art. has: 1 figure.

SUB CODE: SUBM DATE: 20Aug64/

Card 2/2

29303
S/084/61/000/011/001/001
D036/D114

6,1140

AUTHORS: Maksimov, M., Airport Chief (see Association); Shul'gin, M., Ground Services Engineer; Shmel'kov, A., Scientific Worker

TITLE: The fog recedes...

PERIODICAL: Grazhdanskaya aviatsiya, no. 11, 1961, 19

TEXT: The authors discuss experience gained at the Alma-Atinskiy aeroport (Alma-Ata Airport) in the dispersal of supercooled fogs by dry ice. Supercooled fogs appear at the Alma-Ata Airport, which is situated close to the foothills of the Zailiyskiy Alatau Range, from December to February, normally arising before dawn and lasting for several hours or even the entire day. They appear more frequently in some years than others. The first attempts to disperse these fogs with dry ice at the Alma-Ata Airport were made in 1953, when carbon dioxide in a liquid state was put into canvas bags, where it solidified. Then it was dropped from a Ли -2 (Li-2) sounding aircraft. Although the experiments were successful, the method was discarded due to difficulties in the preparation, storing and spraying of the dry ice. After this, the "Метель-55" ("Metel'-55") airborne carbon dioxide unit, developed by the Gosu-

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The following ...

darstvennyy nauchno-issledovatel'skiy institut Grazhdanskogo vozdushnogo flota (State Scientific Research Institute of the Civil Air Fleet [GosNII GVF]), was introduced at the airport. The unit worked on liquid carbon dioxide and was used at the airport until 1960, when it was replaced by an improved model, the "Metel'-59", which is still being used. It was found that with the "Metel'" units often a single spraying was sufficient to obtain a window until the fog was evaporated naturally by the Sun, as most of the supercooled fogs at the airport arise either during a dead calm or a very gentle wind of about one meter per second. Despite the effectiveness of the airborne units, it was found difficult to organize constant operational preparedness of the aircraft, equipment and the crew. In recent years, ground equipment, also developed by the GosNII GVF, was therefore used at the same time as the airborne units. Stationary units placed at the near approaches to the airfield proved unsatisfactory: the units could not be switched from one place to another in case of wind changes, and it was difficult to attend four or five widely separated units. In 1961, experiments with compact mobile units were therefore started. These units dispersed the fog while moving at 15-30 km/hr along roads bordering the airfield at a distance of

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D036/D114

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1 to 2 kilometers from the runway, as well as along the taxiways. On one January day, a single mobile unit working for about one hour dispersed a homogeneous fog, which had covered the entire airport and the surrounding area and in which the visibility was 50 to 100 m. One 25-kg container of liquid carbon dioxide was used up in the process. Discussing the advantages and disadvantages of airborne and ground units, the authors point out that airborne units can be used to disperse clouds as well as fogs, but their application is more complicated and costly. The ground units are more effective against ground fogs, and can be used if there are suitable roads near the airport; it is stressed that they are practical, simple, reliable and economical and are the only real means of combatting winter fogs if there is no sounding aircraft available. On the basic of the experience gained at the airport, the following recommendations are made: (a) carbon dioxide units should be used as widely as possible to combat supercooled and warm fogs and thus improve the regularity of flights; (b) carbon dioxide units can be used only to disperse innermass clouds and fogs at temperatures of $-5^{\circ}C$, and below; they should therefore be used at airfields where the anticyclonic type of weather prevails in the cold season, i.e. the eastern part of the European territory of the USSR, Kazakhstan, and Siberia: (c) as ground fogs

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The fog recedes ...

cause the greatest disruption of the regularity of flights in these regions. simple and economical mobile ground carbon dioxide units should be [illegible] there.

ASSOCIATION: Alma-Atinskiy aeroport (Alma-Ata Airport) (Maksimov, M. [illegible]; Shul'gin, M.); GosNII GVF (Shmel'kov, A.)

MAKSIMOV, M., slesar'-sborshchik, udarnik kommunisticheskogo truda

Our contribution to the Russian treasure chest. Okhr. truda i sots. strakh. 6 no.11:7 N '63. (MIRA 16:11)

1. Chlen zavodskogo komiteta Srednevolzhskogo stankostroitel'nogo zavoda.

MAKSIMOV, M.

Towns and settlements of Tula miners. Mast.ugl.3 no.3:29 Mr '54.
(MLRA 7:4)
(Tula Province--Coal miners) (Coal miners--Tula Province)