

The Theory of Flame Propagation in Systems With
Branching Chain Reactions

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basis of experimental data. The author discusses on the basis of the equation (14) the equation (15) derived from his paper, reference 2, for a branching chain reaction with three active centers and the data from reference 2 with respect to the propagation of the flame in hydrogen-oxygen-helium (or argon) mixtures. There are 7 references, 5 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of
Chemical Physics of the Academy of Sciences, USSR)

PRESENTED: December 14, 1959 by V. N. Kondrat'yev, Academician

SUBMITTED: December 8, 1959



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LOVACHEV, L.A.

report to be submitted for the IUPAC 21st Conference and 13th Intl. Congress of Pure and Applied Chemistry, Montreal, Canada, 2-12 August 1961

- GEORGIYEV, A. V., Academy of Sciences USSR, Kiev - "The oscillographic investigation of the electrochemical kinetics in fused salts" (Section A.3, 8-2 - Session I, 11 Aug 61, afternoon)
- GRIVICH, L. V., Academy of Sciences USSR, Moscow - "The calculation of thermodynamic functions of gases in a wide temperature range" (Section A.3, 6, (1), Session II - 8 Aug 61, afternoon)
- KHARIN, V. A., Institute of Physical Chemistry, Moscow - "Vitrification phenomena in crystalline polymers" (Section B.4 - 7 Aug 61, afternoon)
- KISILEV, A. V., Moscow State University, Moscow - "The influence of surface heterogeneity and adsorbate-adsorbate interaction on the adsorption properties of solid surfaces" (Joint Session, Sections A.2 and B.1 - 8 Aug 61, morning)
- KONDRATIEV, V. M., Institute of Chemical Physics, Academy of Sciences USSR, Moscow - "The HO₂ radical" (Section A.1, Session I - 11 Aug 61, morning) (Also, Section A.1, Chairman, Session I - 8 Aug 61, morning)
- KUMAROV, V. I., Institute of Geochemistry and Analytical Chemistry, Moscow - "Precipitation for concentration of small amounts of the elements" (To be presented in Russian) (Section C.2 - 11 Aug 61, morning)
- LEVIN, L. A., V. I. Vernadsky Institute of Geochemistry, Moscow - "Data on radiocemical investigations of the processes of fission and fragmentation induced by high energy protons" (Section A.1 - 8 Aug 61, afternoon)
- LOVACHEV, L. A., Academy of Sciences USSR, Moscow - "Determination of rate constants of elementary processes from flame velocities as a function of temperature, pressure, and molecular transfer coefficients" (Section A.3, b, (2) - 7 Aug 61, afternoon)
- MURAVICH, S. (Probably MURAVICH, S.), and GEMINSKIY, Y. I., Moscow State University, Moscow - "Study of the thermodynamic properties of the system iron-sulfides" (Section A.3, c, (3), Section II(A) - 11 Aug 61, morning)
- PRIGORIN, G. M., BILISH, A. M., MALANOV, V. F., and SHCHER, Y. L., Moscow State University, Moscow - "Emission of cathode ions in solid-phase reactions" (Section A.1, Session I - 8 Aug 61, morning)
- SEKSEY, H. B., Institute of Chemical Physics, Academy of Sciences USSR, Moscow - "Certain chemical reactions at reduced temperatures and related problems of energy transfer" (To be presented in Russian) (Plenary lecture - Saturday, 12 Aug 61)
- SHILOV, Ye. A., Academy of Sciences USSR, Kiev - "The active agents and the intermolecular complexes in the catalytic reactions of halogenation of the organic compounds" (Section A.1, Session II - 11 Aug 61, morning)
- SHNEER, M. Y., Electrochemistry Institute, Sverdlovsk - "The equilibrium between the titanium subgroup metals and the salt melts" (Section B.3 - 7 Aug 61, afternoon)
- TALBUZ, Y. L., Institute of Chemical Physics, Academy of Sciences USSR - "Reactions of ions and molecules in the gas phase" (Section A.1, Session I - 9 Aug 61, afternoon)
- ZEMSKOV, G. M., Leningrad State University, Leningrad - "Section A.1, Chairman, Session I - 8 Aug 61, afternoon Session) (Also on program for Section A.1, Session I - 9 Aug 61, afternoon)
- ZEMSKOV, G. M., VILESOV, F. I., KHARINOV, S. J., and DOKHOVA, N. V., Leningrad State University, Leningrad - "Mass-spectrometry and limitations of radicals in the photodissociation and photoionization of molecules by vacuum ultra-violet radiation" (Section A.1, Session I - 9 Aug 61 - afternoon)
- KHARINOV, S. J., Scientific Research Physico-Chemical Institute, Leningrad - "On the dissociation of molecules on electron impact and the early stages of radiation-chemical processes" (Section A.1, Session I - 8 Aug 61, afternoon)
- JANUSZKIN, Edmund Ye., and EMPLEV, V. I., Institute of Geochemistry and Analytical Chemistry, Moscow - "The plasma generation and its use for spectral analysis of alloys" (Section C.1 - 8 Aug 61, morning)
- EMPLEV, V. I., Institute of Geochemistry and Analytical Chemistry, Moscow - "Study of nuclear reactions in iron isotopes under the action of high energy protons" (Section A.4 - 8 Aug 61, afternoon)
- YARUVLEV, M. V., and ALPANDIN, I. P., Institute of Geochemistry and Analytical Chemistry, Moscow - "The determination of trace impurities in some materials for semiconductor techniques by radio-activation analysis" (To be presented in Russian) (Section C.1 - 8 Aug 61, afternoon)
- EMPLEV, Boris V., Institute of Physical-Chemical Chemistry, Minsk - "The effect of donor and acceptor admixtures on the decomposition rate of solids" (Section A.2 - 8 Aug 61, afternoon)

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AUTHOR: Lovachev, L. A.

TITLE: Theory of flame propagation in systems with ramified chain reaction'

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 7, 1961, 1240-1248

TEXT: The first section of the present work deals with the theory of flame propagation in systems with ramified chain reactions on the basis of a model chain reaction having one active center. This problem was solved by considering the rate of formation, increase ramification, and break of the chains. A general solution of this problem was worked out for reactions of the degenerate ramified type in Ref. 7 (L. A. Lovachev, Dokl. AN SSSR, 123, no. 3 501 (1958)). For systems with throughout ramified reactions the formulas derived in Ref. 7 could be simplified. For the rate of flame propagation u_0 (cm/sec) the formula

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$$u_0 = \frac{4\lambda_0}{\rho_0 c_0} \sqrt{\frac{c_0 (h_V + h_W) V_m^2}{2\lambda_0 c_m T_m W_m + 2c_0 D_m (h_V + 2h_W) V_m}} \quad (14)$$

was set up. It corresponds to a simplified reaction scheme assumed in Ref. 6 (I. C. Giddings, G. O. Hirschfelder, Sixth Symposium on Combustion, 199, N. Y., 1956), and consists of two processes only: $2P \longrightarrow A$ and $P + A \longrightarrow C + 2P$. From (14) rates of flame propagation were computed for three cases, for which the values of u_0 in Ref. 6 were determined by

numerical integration of the corresponding equation system. All initial data of Ref. 6 were used in this calculation. The results are given in the Table. $c_0 = c_m = \text{const.}$ was assumed. The reported data show a good agreement; thus (14) is proved to be correct. In addition, their applicability to the determination of experimental values of rate constants in elementary processes for systems with ramified reactions is proved by the dependence of the rate of flame propagation on temperature. For a

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slightly modified reaction scheme, corresponding to the oxidation of hydrogen and consisting of the processes $2P \rightarrow A$ and $P \rightarrow 3P$, the formula:

$$u_0 = \frac{4\lambda_0}{\rho_0 c_0} \sqrt{\frac{2c_0 (h_V + h_W) V_m^2}{\lambda_0 c_m T_\Gamma W_m + 2c_0 D_m (h_V + 2h_W) V_m}} \quad (15)$$

was obtained. In case of $W = 0$ and $h_W = 0$ this formula is simplified:

$$u_0 = \frac{4\lambda_0}{\rho_0 c_0} \sqrt{\frac{V_m}{D_m}} = \frac{4\lambda_0}{\rho_0 c_0} \sqrt{\frac{K_{VM} n_{Am}}{D_m}} \quad (16)$$

If the constant composed of summands of the denominator under the radical in (15)

$$M_W = \frac{\lambda_0}{2c_0 D_m} \frac{c_m T_\Gamma}{(h_V + 2h_W)} \frac{W_m}{V_m} \quad (17)$$

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is small enough and the term $\lambda_{0m} c_m T_m W_m$ compared to $2\alpha_{0m} D_m (h_v + 1h_w) V_m$ may be neglected without exceeding the tolerated calculation error, no consideration need be paid to the rate of breaking of the chains. In this case, u_0 may be computed from (16). The second part of this work deals with the flame propagation in systems with ramified chain reaction having three active centers. As an example, the combustion of hydrogen (Ref. 8: V. N. Kondrat'yev, Kinetika khimicheskikh gazovykh reaktsiy, M., 1958, str. 514) is referred to, wherein the processes of breaking of chains were not taken into consideration. The formula for the determination of u_0 (cm/sec) was obtained in Ref. 5 (L. A. Lovachev, Dokl. AN SSSR, 128, no. 5, 995 (1959)): $u_0 = \frac{1}{\rho_0} \eta p_x$ (28). For the determination of p_x the formula $(F_{1m} \delta_1 + F_{2m} \delta_2 + F_{3m} \delta_3) p_x^4 + (F_{1m} F_{3m} \delta_1 \delta_3) p_x^2 - F_{1m} F_{2m} F_{3m} 2\delta_1 \delta_2 \delta_3 = 0$ (30) was suggested. p_x^2 was found by formula

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$$p_2^2 = \frac{1}{2} F_{3m} \delta_3 \left[\sqrt{1 + \frac{8F_{2m} \delta_2}{F_{3m} \delta_3}} - 1 \right] \quad (32)$$

In case of $8K_{2m}^n \delta_m D_{P3m} < K_{3m}^n \delta_{Am} D_{P2m}$, u_0 may be determined by the simple formula

$$u_0 = \frac{4\lambda_0}{\rho_0 c_0} \sqrt{\frac{F_{2m}}{D_{2m}}} = \frac{4\lambda_0}{\rho_0 c_0} \sqrt{\frac{K_{2m}^n \delta_m}{D_{2m}}} \quad (34)$$

For determining u_0 , in case of $8K_{2m}^n \delta_m D_{P3m} \gg K_{3m}^n \delta_{Am} D_{P2m}$, the formula

$$u_0 = \frac{4\lambda_0}{\rho_0 c_0} \sqrt{\frac{K_{2m}^n \delta_m K_{3m}^n \delta_{Am}}{2D_{2m} D_{3m}}} \quad (36)$$

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was derived. In order to bring this formula in harmony with (16), it may be expressed by the real value of the rate constant of the ramification $(K_{vm})_{\text{эф}}$ and of the coefficient of diffusion $(D_m)_{\text{эф}}$ multiplied by the density. In case of such a formulation, (36) becomes analogous to formula (16):

$$u_0 = \frac{4\lambda_0}{\rho_0 c_0} \sqrt{\frac{(K_{vm})_{\text{эф}} (n_{Am})_{\text{эф}}}{(D_m)_{\text{эф}}}} \quad (37)$$

where

$$(K_{vm})_{\text{эф}} = \sqrt{\frac{1}{2} K_{2m} \frac{n_{Em}}{(n_{Am})_{\text{эф}}} K_{3m} \frac{n_{Am}}{(n_{Am})_{\text{эф}}}} \quad (38)$$

$$(D_m)_{\text{эф}} = \sqrt{D_{2m} D_{3m}} \quad (39)$$

An examination of the quoted formulas shows that by means of formulas (34) or (37), and making use of (15), (16) and (17), the effect of the breaking of the chains on the rate of flame propagation may be estimated in a real

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system having three active centers. By checking formula (14) on the basis of results of numerical integration, in case of a correspondence of (16) to (34) and (37), the solution obtained for such systems was also proved to be correct. This justifies the possibility of applying formulas (28) with (30) or (32) and (34) as well as (36) for determining the experimental values of the rate constants of elementary processes from the temperature dependence of the rate of flame propagation. The numerical determination of experimental values of constants of elementary processes, made with two examples for flames of hydrogen combustion, brought forth satisfactory results. The authors thank V. N. Kondrat'yev and N. N. Semenov for advice. L. V. Karmilova, A. B. Nalbandyan, N. N. Semenov are mentioned. There are 1 table and 15 references: 9 Soviet-bloc and 6 non-Soviet-bloc. The most recent references to English-language publications read as follows: Ref. 6: I. C. Giddings et.al.: Sixth Symposium on Combustion, 199, N. Y. 1956; Ref. 9: W. H. Clingman et.al. Fourth Symposium on Combustion, 310, Baltimore, 1953; Ref. 10: J. O. Hirschfelder et. al.: Molecular Theory of Gases and Liquids, N. Y., 1954.

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ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR
(Institute of Chemical Physics of the Academy of Sciences
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Interpretation of symbols and indices used in this work: In the first part of the work: h_i - thermal effect of the reaction (cal/M); K_i and W - rate constants of the reactions ($g^2/cm^3 \cdot M \cdot sec$); R - rate of formation of chains ($M/cm^3, sec$); n - concentration of the active center P (M/g mixture); n_A concentration of the initial material A (M/g mixture); T' - temperature ($^{\circ}K$); C - reaction product. It was assumed that $R = R(T)$ and $F = F(T')$. ρ - density (g/cm^3); c - thermal capacity ($cal/g \cdot ^{\circ}C$); D_p - coefficient of diffusion of the active center P (cm^2/sec); λ - thermal conductivity of the mixture ($cal/cm \cdot sec \cdot ^{\circ}C$); $D = \rho D_p$, $T = T' - T'_0$,

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AUTHOR: Lovachev, L. A.

TITLE: Theory of Flame Propagation in Systems With Non-ramified Chain Reactions

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 2, pp. 384-387

TEXT: In Refs. 1-6 the author derived equations for determining the velocity of flame propagation on the assumption that the diffusion coefficients of the initial substances equal the coefficients of thermal diffusivity, and that the concentrations of the initial substances are linear functions of temperature. The present paper deals with the problem, taking account of the diffusion equations for the initial substances. In agreement with Refs. 1,3,7, the following is written down for the scheme of the non-ramified chain reaction (A = initial substance, P = active center, C = reaction product): $A \rightarrow 2P, \bar{\Phi}_R = h_R R = h_R F_R(T') n_A$ (1); $P + A \rightarrow 2C + P, \bar{\Phi} = hK(T') n_A n; (2); 2P \rightarrow A, \bar{\Phi}_W = h_W W(T') n^2$ (3). h_i is the

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thermal effect of the reaction (cal/mole); R the rate of the formation of chains (mole/cm³.sec); K and W = constants of the continuation and rupture of chains (g²/cm³.mole.sec); n_A = concentration of A (mole/g mixture); n = concentration of P; T' = temperature (°K). For the laminary plane flame the following holds:

$$\frac{d}{dx} \left(\lambda \frac{dT}{dx} \right) - Bc \frac{dT}{dx} + \Phi_R + \Phi + \Phi_W = 0, \quad (4)$$

$$\frac{d}{dx} \left(D_A \frac{dn_A}{dx} \right) - B \frac{dn_A}{dx} - K n_A n - 0,5 F_R n_A + 0,5 W n^2 = 0, \quad (5)$$

$$\frac{d}{dx} \left(D \frac{dn}{dx} \right) - B \frac{dn}{dx} + F_R n_A - W n^2 = 0 \quad (6)$$

with the boundary conditions: T = 0, n = n₀, n_A = n_{A0}; T = T_b, n = n_b, n_A = n_{Ab}; dT/dx = dn_A/dx = dn/dx = 0. B = uξ; T = T' - T'₀, D_A = ∫ D_{PA}; D = ∫ D_P; x = coordinate (cm); ρ = density (g/cm³); λ = thermal conductivity of the mixture (cal/cm.sec.°C); c = specific heat (cal/g.°C);

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u = velocity of flow (cm/sec); D_P , D_{PA} = diffusion coefficients of P and A, respectively (cm²/sec). Index o refers to the initial state, index b to the state of burning, index m to the state at the maximum value of the temperature gradient. [Abstracter's note: in the equations that had been cut out the letter r stands for the index b (burning)]. Under neglect of

the quadratic rupture of the chain at $T = T_m$, on the assumption

$0.5R_m \ll K_m n_{Am} n_m$ and $|\Phi_{Rm}| \ll |\Phi_m|$ one obtains:

$$(d/dx)(\lambda dT/dx) - BcdT/dx + \Phi = 0 \quad (7); \quad (d/dx)(D_A dn_A/dx) - Bdn_A/dx - Kn_A n$$

$$= 0 \quad (8); \quad (d/dx)(D_n dn/dx) - Bdn/dx + F_{Rm} n_{Am} = 0 \quad (9). \quad \text{On the basis of the}$$

approximation method developed in Refs. 1-3 for solving the diffusion equations at $T = T_m$ the following is written down:

$$n'_{Am} = t_{Ao} A - K_m n_{Am} n_m \quad (10); \quad n_m = t_{Ao} + F_{Rm} n_{Am} \quad (11), \quad \text{where}$$

$$t = n_o + lT_m; \quad t_A = n_{Ao} + l_A T_m; \quad l = (n_b - n_o)/T_b, \quad l_A = (n_{Ab} - n_{Ao})/T_b;$$

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$\omega = 1 - 2q/\kappa; \omega_A = 1 + 2q_A/\kappa_A; \kappa = c_o D_o / \lambda_o; \kappa_A = c_o D_{Ao} / \lambda_o; D_o = D_m q;$
 $D_{Ao} = D_{Am} q_A; q = (\mu_o / \mu_m) (T_o' / T_m')^{a-1}$ at $D_P \sim (T')^a; q_A = (\mu_o / \mu_m) (T_o' / T_m')^{aA-1}$
 at $D_{PA} \sim (T')^{aA}; N = r/2D_m p_m^2; N_A = r/2D_{Am} p_m^2; r = T_m (T_b - T_m)$ and
 $T_m = 0.5T_b$. The solution of (10) and (11) gives (12).

$$n_{Am} = \frac{(1 + t\omega K_m N_A)}{2F_{Rm} K_m N N_A} \left[\sqrt{1 + \frac{4t_A \omega_A F_{Rm} K_m N N_A}{(1 + t\omega K_m N_A)^2}} - 1 \right] \quad (12)$$

By substituting (12) in (11), n_m may be calculated. On the basis of the results of Refs. 2,8 $t\omega K_m N_A \cong 2q_A / \kappa_A$ (ξ = coefficient taking the rate of chain formation into account). On the assumption that the rupture taking place under the root sign in (12), < 1 , it follows:

$$\left[\frac{4t_A \omega_A D_{Am} (2q_A)^2}{[(t\omega)^2 D_m (\kappa_A + 2q_A)^2]} (F_{Rm} / K_m) < 1 \quad (13). \right. (12) \text{ may then be decomposed in series, and for } n_{Am} \text{ one obtains:}$$

$$n_{Am} = t_A \omega_A / (1 + t\omega K_m N_A) \quad (14). \text{ Substitution of (14) in (11) gives (12).}$$

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$$n_m = t\omega \left[1 + \frac{t_A \omega_A F_{Rm} N}{t\omega (1 + t\omega K_m N_A)} \right] \quad (15)$$

Substitution of (14) and (15) in (7) gives: 1) with $T = T_m$, $F_{Rm} = 0$ the equation $p_m^2 = (1/c_m \eta) t\omega K_m [ht_A + (2q_A/K_A)(ht_A - c_m T_m)]$ (16); with $T = T_m$, however, $F_{Rm} \neq 0$, the equation $c_m \eta p_m^4 - t\omega(ht_A \omega_A - 2c_m \eta \delta_A) p_m^2 - hK_m (t_A \omega_A)^2 \delta_{Rm} - K_m^2 (t\omega)^2 \delta_A (ht_A \omega_A - c_m \eta \delta_A) = 0$ (17), where $\eta = 4\lambda / c_o T_m$, $\delta_A = r/2D_{Am}$, and $\delta = r/2D_m$. For the propagation velocity of the flame $v_o = (1/\rho_o) \eta p_m$ (18) is written down. Substitution of (16) in (18) gives the final equation (19)

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$$u_0 = \varphi \frac{1}{\rho_0} \sqrt{\frac{n_r Q_m \rho_m D_{Pm}}{2c_m T_r}}, \quad (19)$$

where, $\varphi = 2 \sqrt{\frac{2q}{x} \left(1 - \frac{2q}{x}\right)}$; $Q_m = Q_m \left[1 + \frac{2q_A}{x_A} \left(1 - \frac{c_m T_m}{h t_A}\right)\right]$; $Q_m = h K_m t_A$;

at $n_{Ab} = 0$, $t_A = n_{A0}/2$. The distribution of the concentrations in dependence on temperature is described by (20), (21).

$$n_A(T) = \frac{(n_{A0} + t_A T) - \frac{\eta_A^i}{2D_{Am}} (T_r - T) T}{1 + \frac{K_m}{2D_{Am} \rho_m^2} \left[(n_0 + t T) - \frac{\eta_A^i}{2D_m} (T_r - T) T \right] (T_r - T) T}, \quad (20)$$

$$n(T) = (n_0 + t T) - \frac{\eta_A^i}{2D_m} (T_r - T) T + F_{Rm} \frac{(T_r - T) T}{2D_m \rho_m^2} n_A(T), \quad (21)$$

where p_m is calculated from (16) or (17). Discussion of the equations shows that in the case of a negligible effect of R upon u_0 , a change of D_A results in only a minor deformation of the curve $n_A = f(T)$. This was

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checked on the hydrazine flame (Refs. 1,3,7) at $T_b = 1950^\circ\text{K}$. Fig. 1 represents n_A as a function of temperature. Herefrom, the following conclusion is drawn: 1) In the system with non-ramified chain reactions, the concentration of the initial substances may be assumed as a linear function of temperature. 2) The diffusion coefficient of the initial substances is without any essential effect upon the propagation velocity of the flame. At $T = T_m$ all curves converge at one point. The condition for the foregoing is that no noticeable drop of temperature occurs as a result of dissociation of the combustion products. There are 1 figure and 7 references: 6 Soviet and 1 British. ✓

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

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LATYSHEV, A.; LOVACHEV, L.V.

Useful manual for a salesman ("Milk, butter, and egg products and animal fats" by V.G.Krutov and others. Reviewed by A. Latyshev, L. Lovachev). Sov. torg. no. 7:50-51 J1 '58. (MIRA 11:7)

1. Direktor torga Mosmoloko (for Latyshev). 2. Starshiy prepodavatel' Moskovskogo instituta narodnogo khozyaystva im. G.V.Plekhanova (for Lovachev).

(Animal products--Marketing)

LOVACHEV, L.N.; KHOMUTOV, B.I.; KOLESNIK, Yu.A.

Determining the degree of oxidation transformations in edible
fats. Izv.vys.ucheb.zav.; pishch.tekh. no.5:137-142 '59.
(MIRA 13:4)

1. Moskovskiy institut narodnogo khozyaystva imeni G.V.
Flekhanova, kafedra tovarovedeniya prodovol'stvennykh tovarov.
(Oils and fats, Edible)

KOLESNIK, Arseniy Adamovich; LOVACHEV, Lev, Nikolayevich; SALUN, Irina
Pavlovna; KHOMUTOV, Boris Izotovich; BORISOVA, G.A., red.;
SINEL'NIKOVA, TS.B., red.; GROMOV, A.S., tekhn. red.

[The study of food products] Tovarovedenie prodovol'stvennykh
tovarov. By A.A.Kolesnik i dr. Moskva, Gos. izd-vo torg. lit-
ry, 1961. 511 p. (MIRA 15:2)

(Food)

GEKKER, Inna Yevgen'yevna, kand. tekhn.nauk; STABNIKOV, V.N., doktor tekhn. nauk, prof., retsenzent; LOVACHEV, L.N., kand. tekhn. nauk, retsenzent; MASLOVA, Ye.F., red.; VOLKOVA, V.G., tekhn. red.

[Processes and apparatus of food industries] Protsessy i apparaty pishchevykh proizvodstv. Moskva, Gostorgizdat, 1963.
290 p. (MIRA 16:8)

(Food industry)

(Food machinery)

LOVACHEVA, G., dotsent; ZANADVOROV, S.

X Additional information on the production of concentrated bone
boullon. Mais. ind. SSSR 32 no.1:29-30 '61. (MIRA 14:7)

1. Moskovskiy institut narodnogo khozyaystva imeni Plekhanova.
(Soups)

LOVACHEVA, G.; KUNITSYNA, S.

Specification of ingredients is needed. Obshchestv. pit. no.11:23
N '61. (MIRA 15:2)

(Soups)

LOVACHEVA, G., dotsent

Rapid determination of the amount of fat in food products.
Obshchestv. pit. no.6:35-36 Je '62. (MIRA 15:9)

1. Kafedra tekhnologii prigotovleniya pishchi Moskovskogo
instituta narodnogo khozyaystva imeni G.V. Plekhanova.
(Food—Analysis) (Oils and fats)

LOVACHEVA, G. A., CAND MED SCI, "CLINIC AND THERAPY
OF PREECLAMPSIA AND ECLAMPSIA ACCORDING TO ^{the} DATA OF OB-
STETRICAL INSTITUTIONS OF MOSCOW." MOSCOW, 1961. (FIRST
MOSCOW ORDER OF LENIN MED INST IM I. M. SECHENOV). (KL,
3-61, 233).

434

and of mustard greens to 3.65 mg. % in the course of the
plants' development. When grown in the open soil the
content of ascorbic acid of these vegetables was 100%.

ZANADVOROV, Sergey Ivanovich; LOVACHEVA, Galina Nikolayevna; LOBANOV,
D.I., prof., red.; KAGANOVA, A.A., red.; KISELEVA, A.A.,
tekh.red.

[Practical studies in the technology of food handling and cooking]
Prakticheskie zaniatia po tekhnologii prigotovleniia pishchi.
Pod red. D.I.Lobanova. Moskva, Gos.izd-vo torg.lit-ry, 1960.
295 p. (MIRA 13:12)

(Cookery)

ZANADVOROV, Sergey Ivanovich; LOVACHEVA, Galina Nikolayevna;
CHERVYAKOVA, L.S., red.

[Practical work on the technology of food preparation]
Prakticheskie zaniatiia po tekhnologii prigotovleniia
pishchi. Izd.2., perer. i dop. Moskva, Ekonomika,
1964. 307 p. (MIRA 17:9)

BALASHOVA, N.I.; LOVACHEVA, M.V.; SELIVANOVA, Ye.P.; ZHIVILIN, N.N.;
MANYAKIN, V.I., red.; SIEMZIN, A.A., red.; PYATAKOVA, N.D., tekhn.red.

[Certified seed sowing in the U.S.S.R. (grain and sunflower);
a statistical manual] Sortovye posevy SSSR (zernovye kul'tury
i podsolnechnik); statisticheskiy sbornik. Moskva, Gos.stat.
izd-vo, 1957. 422 p. (MIRA 11:1)

1. Chlen Kollegii Tsentral'nogo statisticheskogo upravleniya SSSR
(for Manyakin). 2. Russia (1923- U.S.S.R.) Tsentral'noye
statisticheskoye upravleniye.
(Field crops)

PAVLOV, A.N., otv. za vypusk; VOLODICHEVA, V.N.; IVANOVA, A.I.; KULAKOV, I.N.; LYAMINA, T.N.; MIF'KINA, L.I.; POZDNYAKOVA, N.P.; RODIONOVA, L.I.; ROMANOVA, N.M.; SOFIYEV, E.S.; CHICHKINA, A.A.; TRESCHUKOVA, Z.G.; BOGATYREV, P.P.; BROVKINA, A.I.; IVANOVA, L.D.; IVASHKIN, G.A.; KAMNEV, N.I.; LYSANOVA, L.A.; OZHEREL'YEVA, Z.I.; PAVLOVA, T.I.; TYUTYUNOVA, N.I.; UMHITSYNA, A.P.; ZHIVILIN, N.N.; ALESHICHEV, M.P.; VINOGRADOV, V.I.; YEREMIN, F.S.; KRAVCHENKO, Ye.P.; LOVACHEVA, H.V.; NIKOL'SKAYA, V.S.; MAKHOV, G.I.; SKEGINA, A.V.; TAREYEV, A.V.; KHOLINA, A.V.; BRYANSKIY, A.M.; BURMISTROVA, V.D.; GRIGOR'YEVA, A.M.; LUTSENKO, A.I.; OREKHOVA, Z.V.; TEPLINSKAYA, N.V.; FEOKTISTOVA, V.I.; BUTORIN, I.M.; BOCHKAREVA, L.D.; BURENINA, V.A.; VETUSHKO, A.M.; VIKHLYAYEV, A.A.; SOROKIN, B.S.; TSYBENKO, I.T.; KHLBNIKOV, V.N.; DUMNOV, D.I.; STEPANOVA, V.A.; MANYAKIN, V.I., red.; VAKHATOV, A.M.; MAKAROVA, O.K., red.izd-va; PYATAKOVA, N.D., tekhn.red.

[Soviet agriculture; a statistical manual] Sel'skoe khoziaistvo SSSR; statisticheskii sbornik. Moskva, 1960. 665 p.

(MIRA 13:5)

1. Russia (1923- U.S.S.R.) Tsentral'noye statisticheskoye upravleniye. 2. Upravleniye statistiki sel'skogo khozyaystva Tsentral'nogo statisticheskogo upravleniya SSSR (for all except Makarova, Pyatakova).

(Agriculture--Statistics)

LOVACHIK, A.B.

MOSCOW. Guidebook to the pavilion "Sheep breeding". Moskva, Gos. izd-vo sel'khoz.
lit-ry, 1954. 67 p. (55-35634)

S557.M87 1954k3

URAZOV, G.G. [deceased]; LIPSHITS, B.M., LOVCHIKOV, V.S.

Solubility isotherm of the system $\text{Na}_2\text{O} - \text{H}_2\text{O} - \text{As}_2\text{O}_5$ at 75° .
(concerning the process of the alkaline refining of lead).
Zhur. neorg. khim. 5 no.4:950-952 Ap '60. (MIRA 13:7)

1. Moskovskiy institut tsvetnykh metallov im. M.I. Kalinina.
(Sodium oxide) (Arsenic oxide) (Lead)

LOVCHIKOVA,, G.N.

Angular distribution of elastically scattered neutrons. Zhur.
eksp.i teor.fiz. 38 no.5:1434-1435 My '60. (MIRA 13:7)
(Neutrons--Scattering)

LOVACHOVA, G. N.

"Aging of Culinary Articles from Starch-Containing Products." Sub 29 Jun 51,
Moscow Inst of National Economy imeni G. V. Plekhanov

Dissertations presented for science and engineering degrees in
Moscow during 1951.

SO: Sum. No. 480, 9 May 55

LOVACS, Gyula

The Gyor-Sopron-Ebenfurt Railway in the last 20 years. Vasut
15 no.3:7-9 Mr '65.

LOVHLENKO, P. N.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 151 - 7/37

Authors : Nadezhina, L. S., and Lovalenko, P. N.

Title : Composition of soluble complex nickel-dimethylglyoxime compounds forming in the presence of oxidants.

Periodical : Zhur. ob. khim. 24/10, 1734-1741, Oct 1954

Abstract : The basic physico-chemical characteristics of $\text{NiSO}_4 - \text{H}_2\text{Dm} - \text{J}_2$, $\text{NiSO}_4 - \text{H}_2\text{Dm} - \text{Br}_2$, $\text{NiSO}_4 - \text{H}_2\text{Dm} - \text{K}_3[\text{Fe}(\text{CN})_6]$, $\text{NiSO}_4 - \text{H}_2\text{Dm} - (\text{NH}_4)_2\text{S}_2\text{O}_8$, $\text{NiSO}_4 - \text{H}_2\text{Dm} - \text{atmospheric oxygen}$ were investigated in the presence of various oxidizing agents. The physico-chemical analysis data were also confirmed by calculating the coordination number by the method of the boundary logarithm. The process of reaction between Ni and dimethylglyoxime, in the presence of oxidants, is explained. The results obtained are described in detail. Six references: 4-USSR; 1-German and 1-Italian (1924-1953). Table; graphs.

Institution : State University, Rostov/Don

Submitted : February 15, 1954

LOVANTSEV, N. P.

"How Do We Satisfy the Increased Needs in the Rural Regions," Vestnik Svyazi,
No 1 (166), 1954, pp 20, 21.

Translation M-573, 29 Jun 55

LOVANYI, I.

KOVACS, E.; GESZTI, O.; STEFAITS, G.; LOVANYI, I.

Changes of the blood coagulation factors after surgery. Magy. belorv.
arch. 5 no.3:122-127 Sept 1952. (GLML 25:5)

1. Doctors. 2. People's Army Sanitation Service.

LOVANYI, Istvan, dr.

Role of medical examination in radiation protection. Nepegeszseguy 43
no.4:110-113 Ap '62.

1. Kozlemeny az Orszagos Munkaegeszseguyi Intezetbol (igazgato:
Timar Miklos dr.)

(RADIATION PROTECTION)

EDER, Sandor, Dr.; KOVACS, Laszlo; LOVANYI, Istvan, Dr.; PREDMERSZKY, Tibor, Dr.

Hungarian experiences with the use of radioactive luminous paints.
Munkavedelem 7 no. ~~10/12:28-35~~ '61.

KOVACS, Iaszlo; LOVANYI, Istvan, dr.; PREDMERSZKY, Tibor, dr.

Investigation of the decontaminating effect of various deter-
gents by the standard method in connection with radioactivity.
Munkavedelem 8 no.1/3:36-41 '62.

1. Orszagos Munkaegeszsegugyi Intezet.

ADAM, Iaszlo; KOVACS, Iaszlo; LOVANYI, Istvan, dr.; FREDMERSZKY, Tibor,
dr.

Radiation protection of the semi-plant production of the Sr-90
glass. Munkavedelem 8 no.7/9:40-43 '62.

1. Orszagos Munkaveszsegugyi Intezet, es a Banyaszati Kutato
Intezet.

LOVAS, Bela, dr

Electron microscopic study fo the size of lust particles produced in various industries. *Nepegeszsegugy* 35 no.6:164-166 June 54.

1. Kozlemeny a Magyar Tudomanyos Akademia Merestechnikai es Muszeragi Itezete elektronmikroszkop asztalyarol.

(DUST,

electron microscopic determ. of size of particles in indust.)

(MICROSCOPY, ELECTRON,

of dust particles, determ. of size)

(INDUSTRY AND OCCUPATIONS,

electron microscopy of indust. dust)

MACHAY, M.L.,; LOVAS, B.

Pathogen in the virus disease of *Hyphantria cunea* Drury.
Acta microb. hung 3 no.1-2:117-124 1955.

1. Tierphysiologische Abteilung des Forschungsinstitutes für
Tierzucht und Elektronenmikroskopisches Laboratorium des Instituts
für Messtechnik und Instrumentenwesen der Ungarischen Akademie
der Wissenschaften.

(VIRUS DISEASES

polyhedral, in *Hyphantria cunea* Drury)

JUHASZ, I.,; LOVAS, B.,; EGYESSY, M.

Electron micrographic examination of bacteriogenesis from filtrable forms; Salmonella enteritidis var. Danysz. Acta physiol. hung. 8 no. 1:97-108 1955.

1. Institute of Microbiology, University Medical School, Budapest, and Electron Microscopic Laboratory of the Hungarian Academy of Sciences (Received September 24, 1954)

(MICROSCOPY, ELECTRON,

of Salmonella enteritidis regen. from filtrable forms)

(SALMONELLA,

enteritidis, regen. from filtrable forms, electron microscopy)

LOVAS, B.

Modification of the HKB method by pulverization, and its further use for electron microscopic preparations. Acta microb. hung. 4 no.1:23-29 1957.

1. Elektronenmikroskopisches Laboratorium des Instituts für Messtechnik und Instrumentenwesen der Ungarischen Akademie der Wissenschaften.

(MICROSCOPY, ELECTRON

membrane culturing method with pulverization for electron microscopic prep. (Ger))

(TISSUE CULTURE

same)

LOVAS, B.

IVANOCIS, G.; ALFOLDI, L.; LOVAS, B.

Cultivation and electron microscopy of a bacteriocinogenic strain of *Bacillus megatherium*. Acta microb. hung. 4 no.3:295-308 1957.

1. Institute of Microbiology, Medical University, Szeged and Electron Microscopic Laboratory of the Hungarian Academy of Sciences, Budapest.

(BACILLUS MEGATHERIUM

bacteriocinogenic strain, cultivation, absence of phage form., megacin form. & electron microscopy)

(MICROSCOPY, ELECTRON

of bacteriocinogenic strain of *Bacillus megatherium*)

LOVAS, B.; EGYESSY, D. M.; ALFOLDI, L.

Electron microscopic studies on *Pseudomonas pyocyanea* bacteriophages.
Acta microb. hung. 4 no.4:391-404 1957.

1. Elektronenmikroskopische Abteilung des Instituts für Messtechnik
und Instrumentenwesen der Ungarischen Akademie der Wissenschaften und
Mikrobiologisches Institut der Medizinischen Universität, Szeged.

(PSEUDOMONAS

pyocyanea, electron microscopy of bacteriophages
F1, F2 & F3 (Ger))

(BACTERIOPHAGE

of *Pseudomonas pyocyanea*, electron microscopy of F1,
F2 & F3 (Ger))

(MICROSCOPY, ELECTRON

of bacteriophages F1, F2 & F3 of *Pseudomonas pyocyanea* (Ger))

F

Country : Hungary
Category : Microbiology. General Microbiology. Growth and
Development of the Microbial Population
Abs. Jour : Ref Zhur-Biol., No 23, 1958, No 103599
Author : Nasz Istvan, Lovas Bela
Institut. : ---
Title : Electron-Microscope Investigation of Filtrates of
Old Salmonella Cultures
Orig Pub. : Biol. kôzl, 1957, 5, No 1, 3-6
Abstract : In filtrates of 45-day-old cultures of S. enteritidis
Danysz translucent spheroid particles 70-245 millimu
in diameter were found under the electron microscope
after concentration by means of the ultracentrifuge.
Some of them have dense centers. Similar particles
are seen in the cytoplasm of many cells in old cultures.
The authors suggest that the disintegration of these
cells leads to the liberation of the spheroid particles,
which may afterwards serve as the starting point for
regeneration.--S.B.S.
Card: 1/1

HUNGARY/Virology - Insect Viruses.

E.

Abs Jour : Ref Zhur - Biol., No 19, 1958, 85872

Author : Machay, L., Lovas, B.

Inst : -

Title : Histologic, Electron-Microscopic, and Epizootologic
Studies of a Virus Isolated from the Larvae of the
White Moth Hyphantria cunea Drury

Orig Pub : Biol. Kozl., 1957, Vol. 5, No 1, 7-18

Abstract : In polyhedrosis of the caterpillar of *H. cunea*, cuboidal polyhedrons with average dimensions of 2 to 3 microns grow in the cell nuclei of the hypodermis, tracheal epithelium, fat body, and blood cells. Following solution of the polyhedrons in weak alkali and dialysis of the preparations, the liberated bundles of virus particles measuring 400 by 200 to 300 millimicrons are clearly visible; each bundle consists of 3 to 6 separate rod-shaped virus particles measuring 350 by 50 millimicrons.

Card 1/2

HUNGARY/Virology - Insect Viruses.

E.

Abs Jour : Ref Zhur - Biol., No 19, 1958, 85872

Further application of alkali leads to disintegration of the virus into small granules, and finally only an empty membrane is left, the structure of which shows that it normally contains two rod-shaped particles. Artificial infection of caterpillars by mouth led to nearly 100% death rate; the LD₅₀ was initially 48,000 polyhedrons per microliter, but after two passages this dropped to 27,000 polyhedrons per microliter. Upon one passage, there were 10 to 20 virus bundles in each polyhedron, but this increased to 40 to 60 bundles after 2 passages. Among caterpillars obtained from eggs laid by moths of the infected group, 7% to 8% died from polyhedrosis. In the opinion of the authors, the virus described by them, which they propose to name *Bollea hyphantriae* (more accurately - *Borrelina hyphantriae*), may be used for purposes of controlling the white moth. 17 microphotographs and electron-microscopic pictures. -- S.M. Gershenzon.

Card 2/2

- 18 -

1658

END

SZABO, Istvan; LOVAS, Bela

International cooperation for studying taxonomic questions of ray
fungi. Agrochem talajtan 10 no.3:435-440 S '61.

SZABO, Istvan; LOVAS, Bela

Present state of taxonomic research on ray fungi. Botan kozl 49
no.3/4:251-257 '62.

1. Magyar Tudományos Akademia Agrokemiai es Talajtani Kutato Intezet,
Budapest, II., Herman Otto ut 15.

SZEKELY, Maria; GAAL, O.; LOVAS, B.

Heterogeneous labelling of the cytoplasmic ribonucleic acids of pigeon pancreas. Acta physiol. acad. sci. Hung. 24 no.3: 269-278 '64

1. Institute of Medical Chemistry, Medical University, and Laboratory for Research of Chemical Structures, Hungarian Academy of Sciences, Budapest.

FRENVAIGAY, Norand, NAGY, Tiborcs; IOVAS, Bela

Fibrillar structure of the cell wall as seen in the simple
and electron microscope/ Botan kozl. 51 no.1:19-24 '64

1. Institute of Applied Botany, Lorand Eotvos University,
Budapest, VIII., Huzom korut 4/A (E. r. Fridvulsky). 2.
Research Laboratory of Chemical Structures, Hungarian Academy
of Sciences, Budapest, VII., uskto u.11/13 (for Iovas).

HUNGARY

LOVAS, Gyorgy, Dr; state farm veterinary specialist (ag. [allamgazdasagi] szakallatorvos), Baja.

"Symptomatological Treatment of Viral Pneumonia of the Calves."

Budapest, Magyar Allatorvosok Lapja, Vol 5, No 18, May 63, pp 217-218.

Abstract: The author describes his observations made on the treatment of viral pneumonia and inflammation of the intestines (mucosal disease) which was carried into the cattle farms in 1960 and is a serious problem since. Sulfonamide and antibiotic treatments were generally ineffective. The serum from animals which survived the disease was also without benefit. Alcoholic extract of *Radix angelicae officinalis* diminished the extent of salivation and dyspnea but made the meat unusable after slaughter. The use of some drugs, made for the treatment of humans proved effective. These were: Calcevit, Hypanodin, Enteroseptol and Tetran B. The author stresses that the spreading of the disease can only be controlled by the isolation of the infected areas. Meanwhile, the above mentioned drugs are recommended for symptomatological treatment. No references.

1/1

HUNGARY

LOVAS, Gyorgy, Dr, state farm veterinary (allami gazdasagi allatorvos), Baja.

"Congenital Head Anomaly in a Lamb."

Budapest, Magyar Allatorvosok Lapja, Vol 18, No 9, Sept 63, pages 377-378.

Abstract: An unusually severe case of malformation of the head in a newborn lamb is reported by the author. Several bones of the face were completely absent. The tongue was also absent and the nose and mouth were represented by rudimentary structures. The case is considered to be a peculiar form of aprosopia. The animal died almost immediately after a normal delivery. No references.

1/1

LOVAS, Gyorgy, dr., szakallatorvos (Baja)

Treating the anemia of sucking pigs with Myofer. Magy allatorv
lap 19 no.1:23-25 Ja '64.

LOVAS, Gyorgy, vezető szakallatorvos (Baja)

Observations on the so-called tail necrosis of cattle. Magyar Allatorv Lap 19 no.4:156-158 Ap '64.

LOVAS, Gyorgy, dr., szakallatorvos (Baja); HORVATH, Zoltan, dr., tanszekvezeto
egyetemi docens (Budapest)

New possibility for curing the coma of cattle by medication. Magy
allatorv lap 19 no.4:160-161 Ap '64.

LOVAS, Gyula

Data on the history of the Series No.52 railroad locomotives.
Wasut 13 no.9:26 S '63.

IOVAS, Istven, kandidatus

Study on the basic and generated states of the nucleus of Cl^{36} .
Magy fiz folyoir 12 no.6:499-511 '64.

1. Central Research Institute of Physics of the Hungarian
Academy of Sciences, Budapest.

SZALAY, Sándor, egyetemi tanár; AIMASSY, Gyula; PESTY, László;
LOVAS, István

Survey of certain more important coal fields in Hungary for
locating uranium traces. ATOMKI közl 1 no. 1:7-26 '59.

1. Magyar Tudományos Akadémia levelező tagja; Magyar Tudományos Akadémia Atommag Kutató Intézet igazgatója, Debrecen; "ATOMKI Közlemények" felelős szerkesztője és felelős kiadója (for Szalay).

HUNGARY/Nuclear Physics - Instruments and Installations. Methods of Measurement and Research C-2

Abs Jour : Ref Zhur - Fizika, No 2, 1958, No 2643

Author : Adam Andras, Lovas Istvan

Inst : -

Title : Measurement of the Flux of Thermal Neutrons by the Activation Method

Orig Pub : Magyar tud. akad. Kozp. fiz. kutato int. kozl., 1957, 5, No 5, 521-534

Abstract : The requirements that must be met by radioactive indicators used for the measurement of neutron flux listed. The relationship between the flux of the neutrons and the activity, resulting from neutron capture, is considered. The principle of measurement of the absolute activity by the coincidence method is described in general outline. Also described is the construction of the measuring apparatus, consisting of scintillation and Geiger-Mueller counters. The problem of the estimate of the results and of the measurement errors is discussed. V.I. Lend'yel'

Card : 1/1

HUNGARY/Nuclear Physics - Structure and Properties of Nuclei

G-4

Abs Jour : Ref Zhur - Fizika, No 12, 1958, No 26940

Author : Lovas Istven
 Inst : Not Given
 Title : Polarization of Internal Bremsstrahlung

Orig Pub : Magyar tud. akad. kozp. fiz. kutato int. kozl., 1957, 5,
 No 6, 613-617, VI.

Abstract : A study is made of the circular polarization of internal bremsstrahlung. The probability $W(k, P)$ of emission of a quonum with energy k and polarization P is calculated. The right and left circular polarization corresponds to $F = +1$ and $P = -1$.

The calculation of $W(k, P)$ on the basis of the theory of the two-component neutrino leads to the following equation

$$W(k, P) = \left(\frac{e^2}{16\pi^2} \right) |M|^2 (J_1 \mp PJ_2) / k,$$

where M is the nuclear matrix element, and J_1 and J_2 are functions of k ; the signs $-$ and $+$ correspond to the ST and

Card : 1/2

HUNGARY/Nuclear Physics - Structure and Properties of Nuclei

C-4

Abs Jour : Ref Zhur - Fizika, No 12, 1958, No 26940

VA interactions respectively. The degree of polarization is small at low energies and reaches one at a maximum energy of the quanta.

Card : 2/2

HUNGARY/Nuclear Physics - Elementary Particles.

C

Abs Jour : Ref Zhur Fizika, No 2, 1960, 2882

Author : Lovas, Istvan

Inst : -

Title : Polarization of Elastically Scattered Gamma Quanta

Orig Pub : Magyar tud. akad. Kozp. fiz. kutato int. kozl., 1958,
6, No 5, 367-372, V.

Abstract : The polarization of elastically scattered gamma quanta in Delbruck scattering differs from the polarization of gamma quanta scattered by other processes. This difference makes it possible to prove experimentally the presence of Delbruck scattering.

Card 1/1

- 19 -

L. LOVAS

Polarization of elastically scattered α -rays. L. Lovas
(Central Research Inst. Phys., Budapest, Hung.). *Nuclear*
Phys. B, 165-6(1958).—A method is suggested to obtain
some definite information about Delbrück scattering.
Norman B. Pickering
Distr: 4E3c/4E3d

4
RMF 2

HUNGARY/Nuclear Physics - Penetration of Charged and Neutral Particles Through Matter. C

Abs Jour : Ref Zhur Fizika, No 11, 1959, 24583

Author : Lovas, I.

Inst : Central Institute of Physics, Hungarian Academy of Sciences

Title : Annihilation of Polarized Positrons in Ferromagnetic Materials.

Orig Pub : Acta phys. Acad. scient. hung., 1958, 8, No 4, 441-445

Abstract : The author has calculated several effects of angular distribution of photons in the annihilation of polarized positrons by polarized electrons.

Card 1/1

LOVAS, I.

The polarization of elastically scattered photons. István
Lovas (Hung. Acad. Sci., Budapest). Magyar Tudományos
Ákad. Közvetl. Fiz. Kutató Osztályának Közleményei 6,
367-72(1959); cf. C.A. 53, 8843c.—The four various inter-
actions of high-energy photons with atoms, such as resonant
scattering, Thomson scattering, Rayleigh scattering, and
Delbrück scattering, which may lead to elastic scattering,
are briefly discussed. The difference in the polarization of
the photons produced in the various interactions may be
used for the exptl. proof of Delbrück scattering. R.M.

KARDON, Bela; KISS, Dezso; FADEL MOHAMED ALI; LOVAS, Istvan; ZAMORI, Zoltan

Energy measurement of the gamma radiation due to slow neutron capture.
Koz fiz kozl MTA 8 no.2/3:87-105 '60. (EEAI 10:4)

I. A Magyar Tudomanos Akademia Kozponti Fizikai Kutato Intezete,
Magfizika I. Laboratorium.
(Gamma rays) (Neutrons) (Spectrometer)

LOVAS, ISTVAN

Distr: 4E2c(m)

MSR(JD)
ZJF(C)

19 ✓
 The annihilation of polarized positrons in magnetized materials. Istvan Lovas (Central Inst. Phys. Research, Budapest, Hung.). Magyar Fiz. Folyoirat 8, 187-97 (1950). The angular correlation of the annihilation radiation from polarized electrons and positrons was detd. theoretically and exptl. with ferromagnetic iron (Armco), ferrimagnetic magnetite, and Cu annihilators. Positrons from β -disintegration are polarized longitudinally; about 8% of the radiation results from $3d$ electrons.

Rose Mittelmann

LOVAS, Istvan

The density and sensibility matrix. Fiz szemle 11 no.8:232-
239 Ag '61.

1. Magyar Tudományos Akademia, Kozponti Fizikai Kutato Intezet

LOVASH, I. [Lovas, I.]

Interference between direct and resonance capture of slow
neutrons. Zhur.eksp.i teor.fiz. 41 no.4:1178-1184 0 '61.

(MIRA 14:10)

1. Tsentral'nyy nauchno-issledovatel'skiy institut fiziki, Budapesht.
(Neutrons--Capture)

9/058/62/060/011/010/061
A062/A101

AUTHOR: Lovas, István

TITLE: The effect of interference of direct processes in capture reactions

PERIODICAL: Referativnyy zhurnal, Fizika, no. 11, 1962, 45 - 46, abstract 11B3/41 ("Magyar tud. akad. Közp. fiz. kutató int. közl.", 1962, v. 10, no. 1, 31 - 45, IV, IX, Hungarian; summaries in Russian, English)

TEXT: A number of experimental facts shows that, in the capture reaction of the (n, ν) and (p, γ) type, apart from the formation process of the composite nucleus, a role is played by the direct process. The interference of these two processes results in certain effects. Thus, in the case of the (n, γ) reaction, as a result of the interference, the asymmetric resonance appears on the excitation curve. At (p, γ) , a characteristic angular distribution of γ -quanta and a change in their linear polarization are observed.

[Abstracter's note: Complete translation]

Card 1/1

H/016/62/000/003/002/003
D249/D301

AUTHOR: Lovas, I.

TITLE: Scattering of photons in Coulomb field

PERIODICAL: Fizikai szemle, ¹²no. 3, 1962, 74-81

TEXT: The possibility of scattering light by photons is discussed. Owing to the linear nature of Maxwell's equations this was not considered possible by classical electrodynamics. Quantum electrodynamics gives an interpretation of the dual nature of elementary particles. The equations of the quantum electrodynamics are of a linear nature as well, but postulate the presence of electrically charged particles in an electromagnetic field. Both the electromagnetic field and the electrons are expressed by field equations. The field equation of the electromagnetic field is identical with those of the classical electrodynamics, while the equation of the electrons is that of Dirac. Electrons are considered as quanta of a special electron field. The quantum properties of electrons and electromagnetic fields are expressed by the postulate of the interchangeability. ✓

Card 1/3

H/016/62/000/003/002/003
D249/D301

Scattering of photons in ...

Quantum electrodynamics postulates the existence of interaction between electrons and electromagnetic fields, and between photons and electron fields. The example of formation of pairs of electrons and positrons from high energy γ rays is discussed in detail. Delbruck drew the attention first to the possibility of the scattering of high energy γ rays in the Coulomb field of the atomic nuclei. The mechanism of this scattering is assumed to occur by the formation of a pair of electron and positron. Before the annihilation of this pair the Coulomb field of a nearby nucleus changes the impulse of this virtual pair. The impulse of the photon, formed on the annihilation of the pair will be of the same magnitude, but its direction will be changed due to the action of the Coulomb field of the nucleus. The cross-section of the effect is estimated. Difficulties of the experimental observation of the Delbruck scattering are reviewed in detail. These are: 1) Compton scattering on the electrons of the atom. 2) Resonance scattering on the nuclei. 3) Thomson scattering on the nuclei due to their electric charge. 4) Rayleigh scattering on the bound electrons of the atoms. The main difficulty is that the scattering of photons cannot be separated from the Rayleigh and Thomson scattering; in addition,

Card 2/3

Scattering of photons in ...

H/016/62/000/003/002/003
D249/D301

these three kinds of scatterings of different origins are coherent. Results of the experiments of P. Eberhard, L. Goldzahl, E. Hara; and of Moffat and Stringfellow are reviewed. The results of the latter prove the existence of Delbruck scattering beyond doubt. In the final section the role of non-linear phenomena is discussed. The purpose of researchers is to formulate a generalized non-linear theory which expresses the fields of all elementary particles with a single non-linear field equation. There are 8 figures and 8 references: 1 Soviet-bloc and 7 non-Soviet-bloc. The 4 most recent references to the English language publications read as follows: J. Moffat, M.W. Stringfellow, Proc. Roy.Soc.A. 254, 242 (1960); P. Eberhard, L. Goldzahl, E. Hara, H. Phys. Radium 19, 658, (1958); G.E. Brown, D.F. Mayers, Proc. Roy. Soc. A., 242, 89, (1957); H.A. Bethe and F. Rohrlich, Phys.Rev., 86, 10, (1952),

ASSOCIATION: Központi fizikai kutatóintézet (Central Institute of Research in Physics)

Card 3/3

LOVAS, Istvan

Polarized neutron as a means in nuclear research. Fiz szemle 13
no.7:209-216 JI '63.

1. Eotvos Lorand Tudományegyetem Elméleti Fizikai Intezete,
Budapest.

I 42080 66 EWT(m)
ACC-NR: AP6031820

SOURCE CODE: HU/0016/65/000/012/0363/0371

AUTHOR: Lovas, Istvan

33B

ORG: First Laboratory for Nuclear Physics, Central Research Institute for Physics
(Kozponti Fizikai Kutato Intezet I. Magfizikai Laboratorium)

TITLE: Microscopical description of the collective vibrations of atomic nuclei

SOURCE: Fizikai szemle, no. 12, 1965, 363-371

19

TOPIC TAGS: microscopy, nuclear physics

ABSTRACT: A general description was given of the collective vibrations of atomic nuclei. The subjects covered included dipole vibration and a quantum-mechanical characterization of the excitations causing the vibrations. Approximations were performed to derive the equations describing the collective vibrations of a dipole and it was noted that these could also be applied to quadrupoles. It is not possible to provide a unified theory for the microscopical characterization of the vibrational excitations on the basis of data available at this time. Orig. art. has: 3 figures and 40 formulas. [JPRS: 34,525]

SUB CODE: 20 / SUBM DATE: none

Card 1/1 hb

LOVAS, Janos

For a more cultured and more beautiful life of Hungarian villages. Munka 13 no.6:11-12 Je '63.

1. Felszomasi Allami Gazdasag szakszervezeti bizottsaganak titkara.

LOVAS, L.; MASZ, L.

Electron-microscopic studies of the filtrates of aged Salmonella cultres.
In English. p. 373. Vol. 3, No. 4 1956. ACTA MICROBICA. Budapest
Hungary.

SOURCE: East European Accessions List, (EEAL) Library of Congress
Vol. 6, No. 1 January, 1956

LOVAS, L.

How could the manufacture of mining machinery promote the mechanization of mining, the modern safeguarding of roads, the mechanization of surface and underground works, and the movement of materials both on the surface and underground? p. 620 (BANYASZATI LAPOK. Vol. 11, no. 10, Oct. 1956. Hungary)

SO: Monthly List of East European Accession (EEAL)LC, Vol. 6, no. 6, June 1957, Uncl.

LOVAS, L.

Decreasing losses through infiltration from irrigation canals and water storage areas. p.317.

(Hidrologiai Kozlony, Vol. 36, No. 5, Oct. 1956, Budapest, Hungary)

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

LOVAS, Laszlo

Thoughts on structural changes occurring in steel manufacturing.
Koh lap 95 no.3: Supplement: Ontode 13 no.3: 142-143 Mr '62.

1. Acel- es Femkulkereskedelmi Vallalat,

LOVAS, Laszlo

Contimous steel casting. Msz elet 17 no.18:12 30 kg '62.

LOVAS, Laszlo

Technical development works of the European Steel Community.
Koh lap 95 no.10:457 0 '62.

1. Licencia.

LOVAS, László

Reduction of seepage losses in irrigation canals and storing
areas. Hidrologiai közlöny 36 no.5:317-327 0'56

LOVAS, Laszlo; SZABO, Laszlo

Precipitation seepage tests at Ujkigyos. Hidrologiai kozlony
38 no.5:313-330 0'58.

1. MELYEPTERV (igazgato: Hilvert Elek).

LOVAS, Laszlo; VITALIS, Gyorgy

Hydrogeological conditions of the Bekescsaba water research
area. Hidrologiai kozlony 38 no.2:81-89 Ap'58.

VAGAS, Istvan; KONTUR, Gyorgy; IVICSICS, Ferenc; BAUER, Jeno; LOVAS,
Laszlo

Society and technical news. Hidrologiai kozlony 43 no.3:197, 204,
218, 224, 228, 236, 250, 265 Je '63.

1. "Hidrologiai Kozlony" szerkeszto bizottsagi tagja es rova-
tvezetoje (for Vagas).

LOVAS, Laszlo, dr.

Effect of clay minerals on the water permeability of sand soils.
Epites kozleked tud kozl 7 no.1/2:175-193 '63.

L 40984-65 EWT(1)/EWG(v)/EEC(t) Pe-5/Pae-2 GW
ACCESSION NR: AR5009012 S/0269/65/000/002/0033/0033

SOURCE: Ref. zh. Astronomiya. Otd. vyp., Abs. 2.51.278

AUTHOR: None LOVAS, M.

TITLE: Supernova

CITED SOURCE: Astron. tsirkulyar, no. 288, marta 20, 1964, 1

TOPIC TAGS: supernova, galactic astronomy, type I supernova, astrophysics

ABSTRACT: This article reports the discovery made by M. Lovas (Budapest) of a
supernova in an unnamed galaxy; the discovery was made on 11 March 1964. The
coordinates of the supernova are: $\alpha = 11^h 52^m 16^s$, $\delta = 10^{\circ} 32' 46''$. The
light curve of the brightness made by Lovas, A. B. Chyadic (Abastoma) and
Byurakan (Byurakan) (see Table in English ref. on 14 March 1964). The
spectrum of the supernova which was obtained on 14 March 1964.

SUB CODE: AA

ENCL: 01

Card 1/2

L 40984-65

ACCESSION NR: AR5009012

ENCLOSURE: 01

Table 1.

	Lovas	Chuadze	Markaryan
14/15 Dec 1963	10 th , 83		
19 Feb 1964		14 th , 0	
20 Feb *		13,2	
23 Feb *		13,6	
12/14 Mar *	13,21		
15/16 Mar *	13,62	13,7	
16/17 Mar *	13,47	13,9	13 th , 3

Card

ll
2/2

LOVAS, Marton

Hungarian socialist agriculture. Hung TU no.12:14-16 D '64.

I. 34957-66 EWP(t)/ETI IJP(c) JD/JG
ACC NR: AP6026667 SOURCE CODE: HU/0014/65/098/008/0369/0371

AUTHOR: Szucs, Palne--Syuch, P.-ne; Lovasi, Jozsef--Lovashi, Y. 28

ORG: Research Institute for the Metal Industry (Femipari Kutato Intozot) E

TITLE: Polarographic determination of niobium ✓

SOURCE: Kohaszati lapok, v. 98, no. 8, 1965, 369-371

TOPIC TAGS: polarographic analysis, niobium compound

ABSTRACT: The niobium content of solutions of the fusion product of niobium pentoxide with potassium pyrosulfate, containing not less than 2 µg. Nb/10 ml., was determined with the aid of a PO-4 polarograph (made by the Danish firm Radiometer in Copenhagen) using a 10 N hydrochloric acid electrolyte containing 0.05 g. hydroxylamine and 0.2 g. tartaric acid per 10 ml. The half-step potential of niobium was 0.57 - 0.6 E under the conditions described; the terminal current was a linear function of the Nb content in the 0.35 - 2.5 µg./ml. concentration range. Most elements usually present in niobium-containing materials do not interfere with the determination. Orig. art. has: 3 figures and 1 table. [JPRS: 32,491]

SUB CODE: 07 / SUM DATE: none / SOV REF: 007 / OTH REF: 010

Card 1/1 *dy*

UDC: 546.882:545.33
0916 2363

L 34966-66 EWP(t)/ETI IJP(c) JD

ACC NR: AP6026657

SOURCE CODE: HU/0014/65/098/011/0507/0512

25
B

AUTHOR: Lovasi, Jozsef (Staff scientist)

ORG: Research Institute for the Metal Industry (Femipari Kutato Intezet)

TITLE: Determination of trace impurities in high-purity metals at the Research Institute for the Metal Industry with the aid of inverse polarography

SOURCE: Kohaszati lapok, v. 98, no. 11, 1965, 507-512

TOPIC TAGS: steel impurity, high purity metal, polarographic analysis, trace analysis

ABSTRACT: The trace impurities in high-purity metals (such as manganese and gallium) are determined at the Research Institute for the Metal industry by the inverse polarography technique known as anodic stripping method. The instrumentation and the analytic techniques employed, generally standard equipment and methods, were described and some results were discussed to illustrate the accuracy attainable. Emphasis was laid on the necessity to follow the analysis prescriptions closely to realize the maximum advantages in terms of accuracy and reproducibility. Orig. art. has: 7 figures and 1 table. [JPRS: 33,732]

SUB CODE: 11, 07 / SUBM DATE: none / SOV REF: 007 / OTH REF: 010

Card 1/1 JS

UDC: 669.71'74'871:669.9:545.33

0976 2353

I 34083-66 T/EWP(t)/ETI IJP(c) JD

ACC NR: AF6025498

SOURCE CODE: HU/0006/66/000/003/0162/0165

AUTHOR: Lovasi, Jozsef

ORG: Metallurgical Research Institute, Budapest (Femipari Kutato Intezet)

37
B

TITLE: Application of inverse polarography (voltammetry) for the determination of trace elements in high-purity aluminum

SOURCE: Magyar Kemikusok lapja, no. 3, 1966, 162-165

TOPIC TAGS: polarography, alloy composition, aluminum, electrolyte, metal purification

ABSTRACT: In voltammetry, a new type of cell and electrode was used for the determination of the zinc-, lead, cadmium, copper and gallium contents of high-purity aluminum. In 15 ml of the supporting electrolyte containing hydrochloric acid (and 0.1 g aluminum) amounts of 0.01 to 0.2 ug of each of these ions can be determined with an error of ± 20%. The interfering effect of gallium and vanadium can be eliminated by the presence of 0.5 ml of a 0.1 M citric acid solution. The determination of impurities in the range of 10⁻⁴ to 10⁻⁶ % from a sample weighing no more than 0.2 g became possible with the voltammetry methods not used before at the Metallurgical Research Institute. Orig. art. has: 8 figures. [Based on author's Eng. abst.] [JPRS: 36,646]

SUB CODE: 11 / SUBM DATE: none / ORIG REF: 007 / OTH REF: 001

Card 1/1 *J*

L 45647-66 EWP(t)/ETI IJP(c) JD/WW/JG

ACC NR: AP6033890

SOURCE CODE: HU/0014/65/098/010/0477/0479

AUTHOR: Lovasi, Jozsef (Scientific collaborator)

24

ORG: Research Institute of the Metallurgical Industry (Femipari Kutato Intezet)

B

TITLE: Rapid determination of the sulfate content of technical uranium solutions

SOURCE: Kohaszati lapok, v. 98, no. 10, 1965, 477-479

27

TOPIC TAGS: quantitative analysis, sulfate

ABSTRACT: The rapid determination of the sulfate content in sulfuric acid and sodium carbonate solutions is described. The method is suitable for an $SO_4^{=}$ content of above 1 gram per liter. In the presence of much Ca^{++} a separation is necessary. The analysis can be performed in 15 minutes with a precision of ± 2 percent. Separation of the Ca increases the analysis time to three hours. Orig. art. has: 4 tables. [Based on author's Eng. abst.] [JPRS]

SUB CODE: 07 / SUBM DATE: none / ORIG REF: 001 / OTH REF: 010

Card 1/1 fv

UDC: 546.791:544.546.226