HOFF,N.J. KEPPEN,I.V., redaktor; GERMOGENOV,A.V., redaktor; ZEMLYANSKIKH, I.N.[translator]; SHAPOVALOV,V.I., tekhnicheskiy redaktor

[Buckling and stability. Translated from the English] Prodol'nyi izgib i ustoichivost'. Perevod s angliiskogo I.N.Zemlianskikh. Moskva, Izd-vo inostrannoi lit-ry, 1955. 154 p. (MLRA 9:2)
(Strength of materials)

GLKHOGENOV, N. A.

CHEBYSHEV, P.L.; VINOGRADOV, I.M., akademik, redaktor; GEL'FOND, A.O.; VAVILOV, S.I., akademik, redaktor; PETROVSKIY, I.G., redaktor; BYKOV, K.M., akademik, redaktor; KAZANSKIY, B.A., akademik, redaktor; GERMOGENOV, A.V., redaktor; SHMIDT, O.Yu., akademik, redaktor; ANDREYEV, N.N., akademik, redaktor; SHCHERBAKOV, D.I., akademik, redaktor; YUDIN, P.F., akademik, redaktor; DELONE, B.N., redaktor; KOSHTOYANTS, Kh.S., redaktor; SAMARIN, A.M., redaktor; LEBEDEV, D.M., professor, redaktor; FIGUROVSKIY, N.A., professor, redaktor; KUZNETSOV, I.V., kandidat filosofskikh nauk, redaktor; AUZAN, N.P., tekhnicheskiy redaktor.

[Selected works] Izbrannye trudy. Otvetstvennyi redaktor I.M.Vinogradov. Redaktor-sostavitel' A.O.Gel'fond. Moskva, Izd-vo Akademii nauk SSSR, 1955. 926 p. (MLRA 8:4)

1. Chlen-korrespondent Akademii nauk SSSR (for Delone, Koshtoyants) (Mathematics)

SCHLICHTING, Hermann; VOL'PERT, G.A.[Translator]; AVDUYEVSKIY, V.S., redaktor; LIKHUSHIN, V.Ya., redaktor; GERMOGENOV, A.V., redaktor; HELEVA, M.A., tekhnicheskiy redaktor

[Boundary layer theory] Teoriia pogranichnogo sloia. Perevod s nemetskogo G.A.Vol'perta. Pod red.V.S.Avduevskogo i V.IA.Likhushina. Moskva, Izd-vo inostrannoi lit-ry, 1956. 528 p. (MLRA 9:6)
(Boundary layer)

VOL'MIR, A.S., red.; NOVITSKIY, V.V. [translator]; SLABNOV , A.S. [translator]; GERMOGENOV, A.V., red.; IOVLEVA, N.A., tekhn. red.

[Theory of bending of circular plates] [Translated from the Chinese] Teoriia gibkikh kruglykh plastinok. Moskva, Izd-vo inostr. lit-ry, 1957. 207 p. (MIRA 11:7)

(Elastic plates and shells)

POLYAKOV, Yu.A.; GERMOGENOVA, I.S.; TUSHINSKAYA, R.A.; USPENSKAYA, A.A.

Using heavy water for determining the percolation coefficient of soils in the Darwin Preserve. Trudy DGZ no.7:87-99 '61. (MIRA 16:2)

(Darwin Preserve--Soil percolation) (Deuterium oxide)

POLYAKOV, Yu.A.; GERMOGENOVA, N.S.

Applying interferometry in agrochemical investigations of soil. Pochvovedenie no.12:102-107 D '60. (MIRA 14:1)

1. Pochvennyy institut imeni V.V. Dokuchayeva AN SSSR.
(Soils--Analysis) (Interferometry)

POLYAKOV, Yu.A.; GERMOGENOVA, N.S.

Translocation of heavy water in plants. Trudy DGZ no.7:137-145 '61. (MIRA 16:2)
(Birch) (Deuterium oxide) (Plants, Motion of fluids in)

POLYAKOV, Yu.A.; ROZIN, V.A.; GERMOGENOVA, N.S.; YEVDOKIMOVA, V.I.

Using deuterium for studying the movement of surface and subsoil waters. Pochvovedenie no.11:97-103 N '63. (MIRA 16:12)

1. Pochvennyy institut imeni V.V. Dokuchayeva.

GERMOGENOVA, O.A.

Scattering of a plane electromagnetic wave on two spheres.
Izv.AN SSSR.Ser.geofiz. no.4:648-653 Ap '63. (MIRA 16:4)

1. Institut fiziki atmosfery AN SSSR.
(Electromagnetic waves--Scattering)

L5080

S/051/63/014/001/021/031
E032/E514

AUTHORS: Germogenova, O.A. and Rozenberg, G.V.

TITLE: Scattering of nonhomogeneous electromagnetic waves by spherical particles

PERIODICAL: Optika i spektroskopiya, v.14, no.1, 1963, 125-130

TEXT: It is noted that whereas existing theoretical calculations concerned with scattering by spherical particles assume that the plane electromagnetic wave incident on the particles is homogeneous, in practice it is frequently necessary to consider the scattering of plane nonhomogeneous waves, i.e. waves in which the plane of equal amplitudes differs from the plane of equal phases. It is shown that a nonhomogeneous plane wave can in general be looked upon as the superposition of two normal waves and the two components may be considered separately in the scattering calculation. A generalization of Mie's scattering theory is then given taking the above effect into account. It is shown that this type of scattering may lead to polarization effects which depend on the degree of nonhomogeneity of the incident wave and may occur, for example, in the case of

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total internal reflection from an absorbing medium. It is stated that these effects have not as yet been investigated experimentally. It is also noted that the effect may be present in the scattering of long radiowaves from the sporadic E-layer in the ionosphere.. The elliptical polarization of radiowaves scattered from the ionosphere may be due not only to the magnetic anisotropy of the medium but also to the effects mentioned above. Since the degree of nonhomogeneity of the incident wave varies with height, it may be possible to determine the height at which the scattering occurs by studying the polarization of the scattered wave.

SUBMITTED: October 30, 1961

GERMOGENOVA, O.A.

Method of group integrals in problems involving scattering.
Dokl.AN SSSR 149 no.1:76-79 Mr '63. (MIRA 16:2)

1. Institut fiziki atmosfery AN SSSR. Predstavleno akademikom N.N.Bogolyubovym.
(Electromagnetic waves—Scattering) (Integrals)

L 22349-66 EWT(1)/EWI(m)/FCC/T/EWP(j)/ETC(m)-6 DS/AWW/RM/GW

ACC NR: AP6011370 SOURCE CODE: UR/0362/66/002/003/0290/0296

AUTHOR: Germogenova, O. A.

ORG: Institute of Physics of the Atmosphere, Academy of Sciences SSSR (Institut fiziki atmosfery Akademii nauk SSSR)

TITLE: The effect of electrostatic interaction on electromagnetic wave scattering by atmospheric aerosols

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 2, no. 3, 1966, 290-296

TOPIC TAGS: electromagnetic wave scattering, electrostatics, aerosol

ABSTRACT: The correlation function for a system of charged particles, given by Landau and Lifshits (1964), was further developed and the ratios of the amplitudes of coherent to incoherent scatterings were computed and plotted versus wavelength and scattering angle for various concentrations of particles in clouds. The data show that 1) coherent scattering decreases the intensity of scattered light and does not change its polarization characteristics; 2) the coherence of scattering increases with an increase in wavelength, particle density and value of particle charge; 3) the smaller the angle of scattering and the lower the temperature, the greater the coherence of scattering; 4) coherent scattering is thought to have some effect on the propagation of radio waves in thunder clouds; and 5) measurement of coherent scattering in nocti-

UDC: 551.521.3

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ACC NR: AP6011370 2

lucent clouds should give some additional information on the state of ionization at given altitudes. In conclusion, the author thanks M. S. Malkevich and G. V. Rozenberg for their deep interest in the work. Orig. art. has: 2 figures, 12 formulas. [14]

SUB CODE: 08/ SUBM DATE: 24Aug65/ ORIG REF: 001/ OTH REF: 002
ATD PRESS: 4242

Card 2/2 dda

GERMOGENOVA, T. A. Cand Phys-Math Sci -- (diss) "On the solution of the equation of transfer with strong anisotropic dispersion". Mos, 1957. 7 pp 20 cm. (Acad Sci USSR. Department of applied Mathematics of Math Inst im V. A. Steklov). 100 copies . Bibliography at the end of the text. (KL, 23-57, 108).

PA - 3015

AUTHOR GERMOGENOVA, T.A.,

TITLE On Solving the Transport Equation for Strongly Anisotropic Scattering. (O reshinii uravneniya perenosa pri sil'no neizotropnom rasseyamii - Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957. Vol 113. Nr 2, pp 297-300, (U.S.S.R.)

Received 6/1957 Reviewed 7/1957

ABSTRACT If the function gradually modifies, the methods usually applied for the solution of the boundary problem $\cos\vartheta\,\partial\psi/\partial\tau = \psi(\tau,\vartheta,\varphi) - (1/4\pi)\int_0^{2\pi}d\varphi'\int_0^{\pi}\sin\vartheta'\,d\vartheta'\psi(\tau;\vartheta';\varphi')P(\cos x)$, $\cos x = \cos\vartheta\cos\vartheta' + \sin\vartheta\sin\vartheta'\cos(\varphi-\varphi')$, $\psi(\vartheta,\varphi,0) = f_1(\vartheta,\varphi)$, $\psi(\vartheta,\varphi,h) = f_2(\vartheta,\varphi)$. (which arises when investigating the scattering of a radiation through a two-dimensional layer of matter of finite optical thickness) present good results. Functions P(cosx) which highly modify correspond to a highly anisotropical scattering. They have ahigh maximum within the domain of small angles x. The method here proposed is a generalization of the methods of the type of interpolation. The qualitative investigation of the transport equation or of the corresponding integral equation makes it possible to ascertain the form of the solution. If this solution is highly varying function of theangles ϑ and φ,it is possible to separate the assumed singularities inform of a known factor, so that the new unknown function is a sufficiently smooth polynomal suited to be shown with a high degree of accuracy of not too high an order with regard to ϑ and φ. Such polynomial can be tried to find in two ways. One of them is similar to the method of the spheri-

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56-4-48/54

AUTHOR: Germogenova, T.A.

TITLE: Concerning the Improvement of the Approximate Solution in the Problems on the Multiple Scattering for Small Angles (K utochneniyu priblizheniya dlya malykh uglov v zadachakh o mnogokratnom rasseyanii) (Letter to the Editor)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 4, pp. 1067 - 1069 (USSR)

ABSTRACT: The analysis of the scattering of a charged particle current on metallic foils requires the solution of the problem to determine the spatial and angular distribution of density occurring in the beam as a consequence of the great number of collisions. The density of the particles in the monoenergetic ($E \gg 10$ MeV) beam $\psi(\mu,\tau)$ in the depth τ whose direction of distribution is determined by the angle Θ with the axis τ, ($\mu = \cos\Theta$) is represented as limit problem and solved. There are 1 table and 2 Slavic references.

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56-4-48/54

Concerning the Imrpovement of the Approximate Solution in the Problems on the Multiple Scattering for Small Angles

ASSOCIATION: Mathematical Institute AN USSR
(Matematicheskiy institut Akademii nauk SSSR)

SUBMITTED: July 18, 1957

AVAILABLE: Library of Congress

Card 2/2

AUTHOR: Germogenova, T.A. 20-1-5/54

TITLE: Bounded Solutions of Inhomogeneous Integral Equation Assumed on a Semi-Infinite Interval Whose Kernel is Dependent on the Difference of the Arguments. (Ob ogranichennykh resheniyakh zadannogo na polubeskonechnom intervale neodnorodnogo integral'nogo uravneniya s yadrom, zavisyashchim ot raznosti argumentov)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 115, Nr 1, pp.23-26 (USSR)

ABSTRACT: V.A.Fok, Matem. sbornik, Vol. 14, Nr 1 (1944) investigates the solution of the equation $f(x) = \int_0^\infty k(x-y)f(y)dy+g(x)$ for the case that $g(x)$ and $k(x)e^{\lambda|x|}$ in the case of all $\lambda < 1$ are absolutely integrable and have a limited variation. He investigates only those solutions which in the infinite tend toward zero. This paper investigates the existence of the solution in the general case, when the functions $g(x)$ and $k(x)e^{\lambda|x|}$ satisfy only the condition of integrability with the square in the infinite interval. In this connection the kernel $k(x)$ is assumed to be symmetrical. Such an expanding of the class of the functions to be investigated permits to use more convenient estimations in the construction of the solution by the method of N. Wiener and E. Hopf and to simplify the discussion. The expression for the solution, obtained in the form of a complex integral, makes it possible to investigate

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Bounded Solutions of Inhomogeneous Integral Equation Assumed on a Semi-Infinite Interval Whose Kernel is Dependent on the Difference of the Arguments. 20-1-5/54

the behavior of the solution in the infinite. The following theorem is given: The solution, bounded in the infinite, of the initially given equation exists and can be constructed by the method of Wiener and Hopf, when the kernel $k(x)$ and the free term $g(x)$ of the equation satisfy the following conditions:
1) $g(x)e^{-\xi x}$ and $k(x)e^{\lambda|x|}$ in the case of all $\lambda < 1$ and at least one $\xi < 0$ are integrable with a square in the interval $(0,\infty)$;
2) $k(x) = k(-x)$;
3) the variety of the roots of the corresponding characteristic equation which lie on the imaginary axis is not more than two.

In the general case the existence of an m-fold root on the imaginary axis is connected with the existence of m linear independent solutions which in the case of $x\to\infty$ do not increase faster than x^{m-1}. The initially given equation has only the solutions given here. Finally the asymptotic obtention of the solution of the inhomogeneous equation and the case of Hopf are treated. There are two Russian References.

PRESENTED: January 7, 1957 by M.V.Keldysh, Academician
SUBMITTED: December 27, 1956
AVAILABLE: Library of Congress
Card 2/2

16(1)
AUTHOR: Germogenova, T.A. SOV/20-126-2-7/64

TITLE: Some Properties of the Solutions of Integral Equations on the Semiline if the Kernel Depends on the Difference of the Arguments

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 2, pp 251-254 (USSR)

ABSTRACT:

The author considers the equation $f(x) = \int_0^\infty f(\xi)K(x-\xi)d\xi + g(x)$.

The assumptions on $g(x)$ and $K(x)$ are stronger than those of Kreyn [Ref 1]. Thereby the author succeeds in obtaining an integral representation of the solution, according to the method of Wiener-Hopf. By a consideration of this representation the author investigates the asymptotic behavior of the solution in dependence of $g(x)$, the behavior of the solution at the boundary $x = 0$, and questions of the approximate solvability. Six long theorems are formulated altogether. The author thanks Ye.S. Kuznetsov and M.V.Maslennikov for the discussion of the results. There are 5 references, 4 of which are Soviet, and 1 German.

PRESENTED: January 19, 1959, by M.V.Keldysh, Academician

SUBMITTED: January 13, 1959

Card 1/1

PHASE I BOOK EXPLOITATION SOV/4454

Moscow. Universitet. Kafedra atomnogo yadra

Nekotoryye matematicheskiye zadachi neytronnoy fiziki (Some Mathematical Problems in Neutron Physics) [Moscow] Izd-vo Mosk. univ-ta, 1960. 219 p. Errata slip inserted. 5,000 copies printed.

Ed.: M.G. Zaytseva; Tech. Ed.: K.S. Chistyakova.

PURPOSE: This book is intended for nuclear physicists interested in the mathematical theory of neutron physics.

COVERAGE: The collection of 9 articles was written during the period 1951 - 1955 by students of the Nuclear Physics Department of Moscow State University. The articles deal with the theory of kinetic equations of neutron physics. They should not be regarded as theses but as students' theoretical works which may contain new generalizations and examples of computations, some of which may require further proof. The articles are mathematical in nature and, in general, deal with the problem of setting up and working out approximation methods of

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... solving kinetic equations. A critical review of the articles is given in the ... foreword by Ye. Kuznetsov, who supervised the work and who, with the assistance of T.A. Germogenova and M.V. Maslennikov, edited the collection. Tables, figures, and references accompany the articles.

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AVAILABLE: Library of Congress (QC721.M87)

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20966
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A001/A101

26.2244

AUTHOR: Germogenova, T.A.

TITLE: Extrapolated length and density (of neutrons) near boundaries in the Milne spherical problem

PERIODICAL: Referativnyy zhurnal, Fizika, no 4, 1961, 125, abstract 4B581 (V sb. "Nekotoryye matem. zadachi neytron. fiz.", Moscow, MGU, 1960, 80-119)

TEXT: The author studies distribution of neutron flux n(r) near a black sphere of radius a located in a source-free infinite absorbing and scattering medium, and calculates the extrapolated boundary λ of this distribution. The kinetic equation of monoenergetic isotropically-scattered neutrons is transformed into an integral equation which is solved by the Davison method. Two extreme cases are considered: 1) the case of a large sphere; 2) the case of a small black sphere. Expressions are obtained for λ and n(r) at $r \approx a$ with an accuracy up to terms $\sim a^2$. It is pointed out that at the value of absorption coefficient $\alpha \to 0$, the expression for determination of λ coincides with Davison's formula. In case of $a \approx r$ the solution of the initial integral equation is represented, to a high degree of precision, by the first terms of the Neumann series. The expression for

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20966

Extrapolated length and density (of neutrons) ... S/058/61/000/004/006/042
A001/A101

$n(r)$ is found with an accuracy of up to terms $\sim a^2$. Using the results obtained the author calculated the values of $n(r)$ ($r \approx a$) for α = 0.1; 0.2; 0.3; 0.4; 0.5 and 0.7. Calculations by the variational method and by the asymptotic formula are compared. It is pointed out that accuracy decreases with increasing α. The λ-values are calculated for large a (2; 3; 4; 5 and ∞) and small a (0; 0.05; 0.1; 0.2; 0.3 and 0.5) at α = 0.0-0.9. For α =0, the results of calculations by the variational method and the method of spherical harmonics are compared with the results of Davison and the author. The author draws the following conclusions: this method is applicable for weak absorption, if $2 \leqslant a \leqslant 0.1$ (?); 2) asymptotic expressions for $n(r)$ can not be used at $r \approx a$; 3) the method is expedient for determining asymptotic behavior of $n(r)$ and λ in cases when not only absorption but also generation of neutrons takes place, as well as for a gray sphere.

Ye. Motorov

[Abstracter's note: Complete translation.]

Card 2/2

S/208/61/001/006/004/013
B112/B138

16.3500 16,6100

AUTHOR: Germogenova, T. A. (Moscow)

TITLE: The behavior of the solution of an equation of diffusion for a plane layer

PERIODICAL: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 1, no. 6, 1961, 1001-1019

TEXT: The author considers the equation

$$\cos\vartheta \frac{\partial \Psi_h}{\partial \tau} + \Psi_h(s,\tau) = \lambda(\tau) \int_\Omega P(ss',\tau)\Psi_h(s',\tau)ds' + \Phi(s,\tau) \qquad (1)$$

with the boundary conditions

$$\Psi_h(s,0) = \Phi_0(s) + \int_\Omega R(ss')\Psi_h(s',0)ds' \text{ for } \cos\vartheta>0, \quad \Psi_h(s,h) = 0 \text{ for } \cos\vartheta<0,$$

and with the normalisation

$$\int_\Omega P(ss',\tau)ds' = 1.$$

In the first section of this paper, the behavior of the solution $\Psi_\infty(h\to\infty)$

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33259
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D299/D303

24.4100 (1103, 1191, 1327)

AUTHOR: Germogenova, T.A. (Moscow)

TITLE: Maximum principle for the transport equation

PERIODICAL: Zhurnal vychislitel'noy matematiki i matem ticheskoy fiziki, v. 2, no. 1, 1962, 169 - 174

TEXT: Although the substance of the proofs, developed in the theory of elliptical equations, cannot be directly used in the study of the transport equation, it is nevertheless possible to prove a theorem which permits formulating the corollaries to the principle of maximum (minimum): the uniqueness of the solution to the boundary value-problem, the continuous dependence of the solution on the boundary conditions, etc. In addition, the question is considered whether the solution can attain its maximum (minimum) value at various points of its domain of existence. Let G denote a bounded open set in Euclidean space R_n, and Ω -- the set of all unit vectors s; P_r denotes the end-point of the radius vector r, $\Gamma_{s,r}$ -- the set of

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Maximum principle for the transport ...

intersection points $P_{r,+\xi s}$ (between s and G). The function $\psi(s,r+\xi s)$, uniquely defined at all points $P_{r+\xi s}$, is called the solution of the transport equation in $\Omega \times G$, provided the following conditions are satisfied: 1) Ψ is an absolutely continuous function of ξ for any $s \in \Omega$, $P_r \in G$; 2) at all the points of G, where the derivatives $\partial\Psi/\partial s$ exists, the transport equation

$$\frac{\partial \Psi}{\partial s} + q(r)\Psi(s, r) = \int_{\Omega} \mathcal{P}(ss', r)\Psi(s', r)ds' + f(s,r) \qquad (1.1)$$

is satisfied; it is assumed that the coefficients q and $\mathcal{P}$ satisfy the inequalities

$$\mathcal{P}(ss', r) \geq 0 \qquad (1.2)$$

$$\infty > M > q(r) \geq \int_{\Omega} \mathcal{P}(ss', r)\, ds', \qquad (1.3)$$

The solution of the boundary-value problem for the transport equation (in $\Omega \times G$), is defined as the solution Ψ of the transport

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equation which satisfies the boundary conditions

$$\Psi(s, r' + \xi_1 s) = \varphi(s, r' + \xi_1 s) \qquad (1.4)$$

$$\Psi(s, r' + \xi_{i+1} s) = \Psi(s, r' + \eta_i s) \quad (i = 1, 2, \ldots, N-1). \qquad (1.5)$$

Theorem 1 states the conditions for the boundedness of the solution. This theorem has the following corollaries: 1) If the functions $f(s, r)$ and $\varphi(s, r)$ are everywhere nonpositive, then the solution $\Psi(s, r)$ of the boundary value problem for the transport equation is also everywhere nonpositive (the converse is also true). 2) The considered boundary-value problem has a unique solution. 3) Let φ_1 and φ_2 be 2 functions which describe incoming radiation (their difference being a very small positive quantity, $< \varepsilon$); then the inequality $|\Psi_1(s, r) - \Psi_2(s, r)| < \varepsilon$ holds everywhere in the domain of the solutions Ψ_1 and Ψ_2 of the boundary value-problem (corresponding to the functions φ_1 and φ_2). 4) The uniformly convergent sequence of function $\{\varphi_n\}$, which describes the boundary conditions,

corresponds to the uniformly convergent (in $\Omega \times G$) sequence of the solutions to the boundary-value problem for the transport equation. Further, the conditions are ascertained for the maximum (minimum) value on the solution at the points of the set G. Theorem 2: The solution Ψ of Eq. (1.1) cannot have a positive maximum (negative minimum) at the point P_{r_0} for $f(s_0, r_0) \leqslant 0$ ($(f(s_0, r_0) \geqslant 0)$, in those directions s_0 where a derivative $\partial\Psi/\partial s_0$ exists, if

$$q(r) > \int_{\Omega} \mathcal{P}(ss', r_0)ds' \text{ or } f(s_0, r_0) \neq 0 \qquad (2.1)$$

at P_{r_0}. Conversely, Theorem 3 states the conditions for the solution to have a maximum. There is 1 Soviet-bloc reference.

SUBMITTED: June 23, 1961

Card 4/4

GERMOGENOVA, T.A.

Effect of polarization on the intensity distribution of dispersed radiation. Izv. AN SSSR. Ser. geofiz. no.6:854-856 Je '62. (MIRA 15:6)

1. Akademiya nauk SSSR, Matematicheskiy institut im. V.A. Steklova.
(Light—Scattering) (Polarization (Light))

ACCESSION NR: AT3009225 S/2922/63/006/000/0025/0030

AUTHOR: Germogenova, T. A.

TITLE: Solution of the transfer equation for a plane layer

SOURCE: Trudy* Vsesoyuznogo nauchnogo meteorologicheskogo soveshchaniya, v. 6: Sektsiya aktinometrii i atmosfernoy optiki. Leningrad, Gidrometeoizdat, 1963, 25-30

TOPIC TAGS: radiation, insolation, Milne problem, asymptotic solution, region of applicability, transfer equation

ABSTRACT: The author sees a strong need for a simple, precise description of a solution in approximate formulas whose parameters can be found by computational or experimental means. She cites a series of work dealing with study of asymptotic properties of the solution in problems on a plane-parallel homogeneous atmosphere of infinite optical thickness. Some particular problems for layers of great but finite thickness have been investigated by other authors. J. R. King (The source function for an equilibrium gray atmosphere. Astrophysical J., 124, No. 2, 1956) obtained a very precise formula for a solution for isotropic scattering without absorption, but direct extension of his arguments to more complicated cases produces great difficulties. In the present paper, the author clarifies the relation between problems

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ACCESSION NR: AT3009225

of the passing of radiation through a plane layer of finite optical thickness h and the limiting problems as $h \to \infty$: Milne's problem and Milne's problem with insolation. On the basis of established limits of regularity, formulas are given for the intensity of radiation, flow, the coefficients of reflection and passage, valid for large h. Analysis of these formulas and of the results of computation by a finite-difference method for various properties of a layer allowed the establishing of general properties of a solution, the separating of the region of operation of the asymptotic formulas (which turned out very wide) and the studying of the possibilities of a finite-difference approximate method. Orig. art. has: 11 formulas and 1 figure.

ASSOCIATION: Matematicheskiy institut im. V. A. Steklova AN SSSR, Moscow (Mathematical Institute, AN SSSR)

SUBMITTED: 00 DATE ACQ: 29Oct63 ENCL: 00

SUB CODE: MM NO REF SOV: 003 OTHER: 004

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ACCESSION NR: AP4019244 S/0056/64/046/002/0745/0754

AUTHORS: Germogenova, T. A.; Rautian, S. G.

TITLE: Concerning the interaction between a quantum system and a strong field

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 745-754

TOPIC TAGS: strong electromagnetic interaction, interaction matrix element, quantum level system, level damping, quantum generator, maser, laser, monochromatic quantum generator, solid state quantum generator, maser stability, monochromatic maser stability

ABSTRACT: In view of the stringent limitations imposed on the interaction matrix elements and their derivatives in most solutions of the equations describing the interaction between a quantum system and a strong field, the authors obtain an approximate solution based on a procedure proposed by A. M. Molchanov in his lectures at

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Moscow State University. The fundamental matrix of the system of differential equations is sought in the form of a product of matrice; this procedure is like that used by the method of "variation of the constants." The initial linear system is reduced to a nonlinear one which is solved by successive approximations. The solution obtained is applied to an electromagnetic field, and the specific features of the saturation effect at a large difference between the probabilities of spontaneous damping of the combining levels is ascertained. The system is described in two ways, with the aid of probability amplitudes and with the aid of a density matrix. The second method of solution is useful for an investigation of the stability of monochromatic emission from a solid-state quantum generator. It is shown that stability is obtained if the fields at other than the monochromatic frequency attenuate in time, and the conditions under which this occurs are given. "The authors are deeply grateful to A. M. Molchanov, who suggested the idea of solving the problem in the manner shown above." Orig. art. has: 37 formulas.

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ACCESSION NR: AP4019244

ASSOCIATION: Matematicheskiy institut im. V. A. Steklova AN SSSR (Mathematics Institute, AN SSSR); Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 24Jul63	DATE ACQ: 27Mar64	ENCL: 00
SUB CODE: PH	NO REF SOV: 012	OTHER: 005

Card 3/3

ACC NR: AP5028355 SOURCE CODE: UR/0362/65/001/011/1160/1167

AUTHOR: Germogenova, T. A.; Krasnokutskaya, L. D.

ORG: Institute of the Physics of the Atmosphere, AN SSSR (Institute fiziki atmosfery AN SSSR)

TITLE: Angular and vertical distribution of reflected terrestrial radiation in the band of ozone absorption in the spectral range 0.20—0.34 μ

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 1, no. 11, 1965, 1160-1167

TOPIC TAGS: terrestrial radiation, ultraviolet spectral range, atmospheric brightness coefficient, solar radiation, solar vertical upwelling radiation, downwelling radiation, ozone absorption, dispersion angle, indicatrix

ABSTRACT: The method of computing characteristics of the terrestrial radiation field in the ultraviolet spectral range from 0.20 to 0.34 μ is discussed, and the angular reflection of the radiation is studied by coefficients of atmospheric brightness. The brightness coefficients are based on the angles: θ (the sighting), ζ (the incidence of solar radiation), and φ (the azimuth of the solar vertical). The intensity of the reflected upwelling radiation depends upon the regions of strong and weak ozone absorption. The brightness coefficient increases with the increase of ζ, especially in the region of strong absorption. The variation of the brightness

Card 1/2 UDC: 551.521.2

L 8115-66

ACC NR: AP5028355

coefficient is caused by two effects: the change in the dispersion angle and the indicatrix and the geometrical increase in the dispersing layer. A distinct minimum of the intensity of downwelling radiation occurs in the layer of strong absorption at a height of 40 km and a maximum at a height of 60 km where the amount of ozone is small. A new term $\Phi_\lambda^\uparrow = I_\lambda^\uparrow / S_\lambda$ is introduced, by which the upwelling radiation is studied. $I_\lambda^\uparrow$ is the radiation reflected upward, and S_λ is the incident solar radiation of a chosen wavelength. $\phi_\lambda^\uparrow$ is analyzed at various ζ and θ, and the result is represented graphically. The vertical distribution of upwelling and downwelling radiations in two atmospheric models is computed and represented graphically by height. One model of the atmosphere is based on Jonson's [Johnson's?] distribution of ozone in the isothermal molecular atmosphere; the other model is based on Green's standard distribution of ozone in the atmosphere and the density of air. The upwelling and downwelling radiations are studied by means of the terms $\phi_\lambda^\downarrow$ and $\phi_\lambda^\uparrow$. Orig. art. has: 11 figures. [EG]

SUB CODE: AA/ SUBM DATE: 08Jun65/ ORIG REF: 002/ OTH REF: 006/ ATD PRESS: 4445

Card 2/2 jw

GERMOGENOVA, T.A.; KRASNOKUTSKAYA, L.D.

Angular and vertical distribution of the reflected radiation of the earth in the 0.20-0.34 μ ozone absorption band. Izv. AN SSSR. Fiz. atm. i okeana 1 no.11:1160-1167 N '65.

(MIR 18:12)

1. Institut fiziki atmosfery AN SSSR. Submitted June 8, 1965.

ACC NR: AT6027918 SOURCE CODE: UR/0000/66/000/000/0022/0039

AUTHOR: Germogenova, T. A.; Suvorov, A. P.; Utkin, V. A. 47 44 B+1

ORG: None

TITLE: Penetration of neutrons through plane-parallel multilayer media

SOURCE: Voprosy fiziki zashchity reaktorov (Problems in physics of reactor shielding); sbornik statey, no. 2. Moscow, Atomizdat, 1966, 22-39

TOPIC TAGS: neutron radiation, finite difference, computer programming, radiation shielding, RADIATION INTENSITY

ABSTRACT: A finite-difference method is proposed for a numerical solution of a one-dimensional kinetic equation describing the penetration of radiation through a material in terms of complex functions of energy, angles and spatial coordinates. This method is based on the multigroup system of analysis and gives high accuracy while requiring a comparatively small amount of machine time. In solving the finite-difference system, the coefficients of transmission and reflection are calculated for a sequence of layers increasing in thickness and these coefficients are then used for finding the approximate values of radiation intensity. This method is not as sensitive as iteration methods to an increase in the dimensions of the system or to steep gradients in the coefficients. The method is used for analyzing the passage of radi-

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ACC NR: AT6027918

ation through a plane-parallel shield consisting of several layers. The proposed method for solving a multigroup system of equations is used as the basis for compilation of programs for calculating the characteristics of one-dimensional shielding. These programs were compiled by L. P. Bass and V. A. Utkin. Graphs are given showing the results of calculations for angular distribution of transmitted and reflected radiation, spatial distribution of neutron flux, the fast neutron spectrum for radiation from an isotropic source and the change in angular distribution with distance in a medium consisting of hydrogen nuclei for radiation from a plane isotropic source. The authors are deeply grateful to L. P. Bass who was the author of a portion of the program for calculating one-dimensional shielding and gave tremendous assistance in carrying out the calculations. The authors also thank N. F. Golova and G. E. Rishina who helped with the basic calculations. Orig. art. has: 5 figures, 38 formulas.

SUB CODE: 18/ SUBM DATE: 12Jan66/ ORIG REF: 018/ OTH REF: 008

Card 2/2

ACC NR: AT6027923 SOURCE CODE: UR/0000/66/000/000/0074/0087

AUTHOR: Germogenova, T. A.; Suvorov, A. P.; Utkin, V. A.

ORG: None

TITLE: Angular energy spectra for fast neutrons behind iron shielding

SOURCE: Voprosy fiziki zashchity reaktorov (Problems in physics of reactor shielding); sbornik statey, no. 2. Moscow, Atomizdat, 1966, 74-87

TOPIC TAGS: fast neutron, radiation shielding, angular distribution, neutron distribution, neutron spectrum

ABSTRACT: The authors give some results from calculations of the energy and angular distributions of fast neutrons behind flat iron plates of various thickness. In finding the differential intensity of a stream of neutrons $F(x, \mu, \phi, E)$ of energy E at a depth x in the direction Ω determined by the angles $\theta=\cos^{-1}\mu$ (with the x-axis) and ϕ (azimuth), the kinetic equation

$$\mu\frac{\partial F}{\partial x}+\Sigma(x, E)F(x, \mu, \varphi, E)=\int d\Omega'_{4\pi}\int_{E}^{E_{max}} dE'\Sigma_s(E'\to E, \Omega'\Omega)F(x, \mu', \varphi', E')$$

was used together with boundary conditions describing the angular and energy distribu-

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ACC NR: AT6027923

tion of a plane-parallel radiation beam incident on the surface $x=0$ of the plate. A program for calculating one-dimensional shielding was used for computing the intensity of scattered radiation $\phi(x, \mu, \phi, E)$ in the $2P_7$-th multigroup approximation. The main purpose of the calculations was to determine the angular energy distribution of intensity of scattered radiation as a function of spectral and angular characteristics of plane monochromatic sources for various shielding thicknesses. Basically, the distribution of fast neutrons from two sources was studied: $T(d,n)He^4$ and $D(d,n)He^3$. The first source may be considered nearly monochromatic while it is necessary in the second to consider the effect of energy and angle on the intensity of the emitted neutrons. Errors are analyzed. Orig. art. has: 14 figures, 1 table, 3 formulas.

SUB CODE: 18,20,12/ SUBM DATE: 12Jan66/ ORIG REF: 005/ OTH REF: 004

Card 2/2 pla

ACC NR: AT6027920 SOURCE CODE: UR/0000/66/000/000/0057/0066

AUTHOR: Germogen va, T. A.; Suvorov, A. P.; Utkin, V. A.; Bass, L. P. 36

ORG: None 19 B+/

TITLE: Neutron transfer in nonmultiplying systems with spherical symmetry

SOURCE: Voprosy fiziki zashchity reaktorov (Problems in physics of reactor shielding); sbornik statey, no. 2. Moscow, Atomizdat, 1966, 57-66 19

TOPIC TAGS: neutron radiation, radiation source, scattering cross section

ABSTRACT: The literature on methods for solution of radiation transfer problems is briefly reviewed and the problem of an isotropic point source is considered. Since the problem of an isotropic point source in an infinite medium has been studied in more detail in transfer theory than the case of a bounded medium, the solutions for these problems are compared on the basis of the one-velocity model with isotropic scattering for spheres with finite and infinite radii. A comparison of formulas describing the asymptotic behavior of the density of a finite sphere with a large radius shows that the results of calculations of the density of scattered radiation from a point source in an infinite homogeneous medium may be directly used for determining the density only when absorption is less than 1 everywhere except in the region adjacent to the boundary $r=R$. Orig. art. has: 6 figures, 9 formulas.

SUB CODE: 20, 18/ SUBM DATE: 12Jan66/ ORIG REF: 007/ OTH REF: 002

Card 1/1 fv

ACC NR: AP6034405 SOURCE CODE: UR/0388/66/002/003/0251/0266

AUTHOR: Germogenova, T.A.

ORG: Mathematical Institute, AN SSSR, im. V. A. Steklov (Matematicheskiy institut AN SSSR)

TITLE: Diffusion of radiation in a spherical envelope surrounding a point source

SOURCE: Astrofizika, v. 2, no. 3, 1966, 251-266

TOPIC TAGS: radiative transfer, isotropic point source, radiation diffusion, albedo, LIGHT RADIATION OPTIC

ABSTRACT: The solution of the equation of radiative transfer in a homogeneous absorbing and isotropically scattering spherical envelope containing an isotropic point source at its center is examined. The far-field asymptotic behavior of the solution in the case of a finite outer envelope radius, as well as in the case of an infinite radius, is established, and the relationship between the two problems explained. The dependence of the solution on the inner radius of the envelope is studied. Special attention is given to describing the inner albedo of the envelope. Orig. art. has: 30 formulas.

SUB CODE: 03/ SUBM DATE: 01Jun66/ ORIG REF: 010 OTH REF: 002

Card 1/1

ACC NR: AT7007281 SOURCE CODE: UR/3249/66/000/013/0083/0087

AUTHOR: Germogenova, Ye. V.; Samykina, K. A.

ORG: none

TITLE: The behavior of individual rare earth elements during sulfuric acid decomposition of phosphorites

SOURCE: Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya. Mineral'noye syr'ye, no. 13, 1966. Obogashcheniye i pererabotka mineral'nogo syr'ya (Concentration and processing of minerals), 83-87

TOPIC TAGS: [redacted], phosphate mineral, rare earth element, yttrium, cesium, [redacted] sulfuric acid, chemical decomposition, phosphoric acid

ABSTRACT: Phosphorite and apatite-nepheline rocks contain 0.5—1% rare earth elements and are considered as a raw material for the production of rare earths. The behavior of rare earths during the treatment of phosphate rocks with sulfuric acid solutions in the production of phosphoric acid and phosphates was studied to explore the possibility of simultaneous recovery of phosphoric

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ACC NR: AT7007281

Table 1. Recovery of rare earth elements by sulfuric acid decomposition of a phosphorite (0.84% rare earth in the phosphorite and 0.3% rare earths in the calcium sulfate formed)

Components	Rare earths composition		Content of rare earth elements		Recovery of rare earths
	Phosphorite, %	Gypsum, %	In 100 g. phosphorite	In 100 g. gypsum	
Elements of the yttrium group					
Y_2O_3	12,6	8,8	0,1058	0,0277	73,3
Dy_2O_3	4,6	2,3	0,0386	0,0074	81,1
Ho_2O_3	1,0	0,3	0,0084	0,0010	88,1
Er_2O_3	2,2	1,1	0,0185	0,0035	81,2
Yb_2O_3	2,5	0,7	0,0210	0,0022	89,5
Sum	22,9	13,2	0,1923	0,0417	78,4
Elements of the cerium group					
Ce_2O_3	25,0	28,1	0,2100	0,0885	57,9
La_2O_3	12,0	21,0	0,1008	0,0662	34,4
Pr_2O_3	3,7	5,8	0,0311	0,0183	41,2
Nd_2O_3	16,4	22,3	0,1378	0,0704	49,0
Sm_2O_3	3,6	4,2	0,0302	0,0132	56,0
Gd_2O_3	6,1	5,0	0,0512	0,0158	69,2
Tb_2O_3	0,3	0,1	0,0025	0,0003	88,0
Total	67,1	86,5	0,5636	0,2726	51,7
Amount of rare earths	90,0	99,7	0,7559	0,3143	58,5

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ACC NR: AT7007281

acid and rare earths. A phosphate rock concentrate containing 20.0% P_2O_5, 0.84% rare earths, and 33.5% CaO was treated with 18—20 vol % H_2SO_4 at room temperature and with heating to 50—95°C. The degree of leaching of the rare earths into the solution was established by determining the amount of rare earths in the solid phase ($CaSO_4$) formed during the leaching. At room temperature, 62.5% of the total content of rare earths in the rock was leached into the solution. Heating to 50°C increased the recovery of the rare earths to 67%. Heating to 95°C decreased the degree of recovery of rare earths to 55%. This is attributed to an isomorphic crystallization of rare earth elements with gypsum. The amount of rare earths extracted from the rock into H_2SO_4 solution is also dependent on the Ca content in the rock and varied between 60 and 72%. The behavior of individual rare earths during the treatment of phosphate rocks with sulfuric acid was also studied. Sulfates of the yttrium group are more soluble than sulfates of the cerium group. The degree of extraction of individual rare earths, determined by the x-ray spectroscopy, is shown in the table. The rare earths are precipitated from the solution and purified by the oxalate method to form a concentrate containing 30% Y and 17% Ce. L. V. Zverev is thanked for valuable instructions. Orig. art. has: 4 tables. [PS]

SUB CODE: 07,11/ SUBM DATE: none/ ORIG REF: 009/ ATD PRESS: 5117

Card 3/3

[illegible], Ye.V.; [illegible], E.V.

Behavior of rare-earth elements during [illegible] opening with sulfuric acid. Min.syr'e no.9:32-36 '63. (MIRA 17:10)

GERMOVŠEK, C.

Upper Cretaceous sediments in the region of Kočevje and its surroundings. p. 103.
(LJUBLJANA, Vol. 1, 1952)

SO: Monthly List of East European Accessions. LCL, LC, Vol. 5, No. 6, June 1956, Incl.

[illegible], [illegible]

Quartz keratophyre near Veliki [illegible] Firesica. p. 135. ([illegible], No. 1, 195[illegible].)

SO: Monthly List of East European Accessions. (EEAL, LC, Vol.4, No. 6, June 1955, Uncl.

GERMOVSEK, C.

Note on the geologic mapping of the sheets for Novo mesto: 1(Trebnje), 2(Novo mesto), 3(Kocevje) in 1953 and 195[illegible]. p. 284. (L US JAMA, Vol. 1, [illegible])

SO: Monthly list of East European Accessions. (EEAI, LC, Vol. 4 No. 6, June 1955, Uncl.

[illegible], [illegible], A.

Report on the founding and work of the Geologic Society in Ljubljana. p. 302. (GEOLOGIJA, Vol, 1, 1953.)

SO: Monthly List of East European Accessions. (EEAI, LC, Vol. 4, No. 6, June 1955, Uncl.

GERMUNYUK, M. M. PA 9477

USSR/Oil Regions May 1947
Petroleum

"The Stavropol' Rise: A New Gas-Oil-Bearing Province in the Northern Caucasus," M. M. Germunyuk (City of Stavropol'), ½ p

"Neftyanoye Khozyaystvo" Vol 25, No 5

Not yet exploited. Has 98% methane with a small admixture of heavy carbohydrates. Caloric value of one cubic meter is greater than 8,000 large calories.

9477

GERMUT, A.A., inz'.

Investigating the flow from under a shutter installed on the crest of the weir of a practical profile. Trudy VNIIGiM 35: 105-112 '60. (MIRA 14:9)

(Spillways)

GERN, A.A., inzh.

Dyeing of acetate rayon with insoluble dyes. Tekst.prom. 21 no.7:56-58 Jl '61. (MIRA 14:8)
(Dyes and dyeing—Rayon)

GRIN, A. P.

Potatoes

Hybrid 42, new phytophthora-and cancer-resistant variety of potato. Sel. i sem. 20, No. 3, 1953.

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

USSR / Cultivated Plants. Potatoes. Vegetables. Melons. M-3

Abs Jour: Ref Zhur-Biol., No 6, 1958, 25033

Author : ~~Gorn, A. P.~~
Inst : Not given
Title : Frost Resistant Potato Varieties

Orig Pub: Agrobiologiya, 1956, No 5, 146-147

Abstract: At the Petrovskaya Selection Station (in Penzenskaya Oblast') the Petrovskiy (Hybrid 42) and 49038 potato varieties were the interspecies hybrids, picket out in the second crossing of the selected varieties with Solanum demissum, which were resistant to phytophthora and canker and were shown to be hardy to autumn early frosts. The tops of the Hybrid 42 potato withstood frosts up to -3.7°, and the 49038 variety is even more frost resistant. The Mexican potato Solanum demissum

Card 1/2

53

Petrov State Selection Station

GERENI, R.A.; MARKIN, I.V.; YATSKO, N.V.

Railless conveying of half-finished skins in plants manufacturing chrome-tanned leather. Obm.tekh.opyt. [MLP] no.27:45-49 '56. (MIRA 11:11)
(Conveying machinery)

GERNE, R.A.

Collector bin for storing spent sodium chloride and its loading into self-dumping trucks. Kozh.-obuv.prom. 5 no.3:3 of cover Mr '63. (MIRA 16:3)

(Leather industry—Equipment and supplies)

GERNER, D.M.

PHASE I BOOK EXPLOITATION SOV/6341

Shubenko-Shubin, Leonid Aleksandrovich, Corresponding Member, Academy of Sciences USSR, David Mikhaylovich Gerner, Natan Yakovlevich Zel'dovich, Vilor L'vovich Ingul'tsov, Vladimir Zel'manovich Kogan, Moisey Yosifovich Pokrassa, Sergey Petrovich Sobolev, Viktro Pavlovich Sukhinin, Anatoliy Vitol'dovich Trzhetsinskiy, Avadiy Yefimovich Shneydman

Prochnost' elementov parovykh turbin (Strength of Steam Engine Parts). Moscow, Mashgiz, 1962. 567 p. Errata slip inserted. 4000 copies printed.

Reviewer: B. M. Panshin; Ed.: R. A. Nikiforova, Engineer; Tech. Ed.: M. S. Gornostaypol'skaya; Chief Ed.: Mashgiz (Southern Dept.): V. K. Serdyuk, Engineer.

PURPOSE: This book is intended for steam-turbine designers and service and engineering personnel in the steam-turbine industry. It may also be useful as a special textbook for teachers and students specializing in the steam- and gas-turbine industry.

Card 1/5

Strength of Steam Engine Parts SOV/6341

COVERAGE: This book contains material on the structural strength problems of all basic steam-turbine parts. Industrial methods of calculating turbine blades, disks, rotors, diaphragms, housings, etc., some described for the first time, are given. Metal strength and methods for its control are described in detail.

TABLE OF CONTENTS [Abridged]:

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SHUBENKO-SHUBIN, Leonid Aleksandrovich; GERNER, David Mikhaylovich; ZEL'DES, Natan Yakovlevich; INGUL'TSOV, Vilor L'vovich; KOGAN, Vladimir Zel'manovich; POKRASSA, Moisey Iosifovich; SOBOLEV, Sergey Petrovich; SUKHININ, Viktor Pavlovich; TRZHETSINSKIY, Anatoliy Vitol'dovich; SHNEYDMAN, Avadiy Yefimovich; PANSHIN, B.M., retsenzent; NIKIFOROVA, R.A., inzh., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn. red.

[Strength of steam-turbine elements]Prochnost' elementov parovykh turbin. Pod red. L.A.Shubenko-Shubina. Moskva, Mashgiz, 1962. 567 p. (MIRA 16:2)

1. Chlen-korrespondent Akademii nauk Ukr.SSR (for Shubenko-Shubin).
(Steam turbines)

"APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514910013-7

[illegible], [illegible], inzh., [illegible], [illegible]

[illegible] of the flange [illegible] and cylindrical vessels according to a method used by the Central Boiler and Turbine Research Institute. Energ[illegible]. 11 no.2:44-45 F '65. (MIRA 18:4)

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514910013-7"

GERNER, K.

Role of the prostate in epidemic parotitis. Polski tygod. lek. 7 no.50:1673-1675 15 Dec 1952. (CIML 24:2)

1. Of the Warsaw Municipal Hospital of Infectious Diseases No. 2 (Director--Prof. Klemens Gerner, M.D.)

GERNER, M.M.; ARONOV, Ye.G.; ROFE, A.Ye.; KALONTAROV, D.Ye., red.; KOKIN, N.M., tekhn. red.

[Study of materials for stomatology] Materialovedenie po stomatologii. Moskva, Medgiz, 1962. 255 p. (MIRA 16:5)
(STOMATOLOGY--EQUIPMENT AND SUPPLIES)

GERNER, M.M.; ARONOV, Ye.G.; BATOVSKIY, V.N.

Isocol, a new insulating material. Stomatologiia 41 no.4:94-95 Jl-Ag '62. (MIRA 15:9)

1. Iz Khar'kovskogo zavoda zubovrachebnykh materialov (dir. Ye.G. Aronov).

(DENTAL MATERIALS)

S/081/62/000/024/034/052
B106/B136

AUTHORS: Aronov, Ye. G., Gerner, M. M., Rapoport, R. M.

TITLE: Sielast, a new silicone printing material

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24(II), 1962, 921, abstract 24Zh763 (Stomatologiya, no. 3, 1962, 78 - 79)

TEXT: Cold-vulcanized polydimethylsiloxane showing a molecular weight of 60000 - 90000 was used as rubber-like printing material. Homogeneous distribution of a catalyst (e.g. $Si(OC_2H_5)_4$) in the past makes it possible to obtain an exact print without deformations. The selection and the proper combination of the fillers strongly influence the physical characteristics of the material (viscosity, elasticity, shrinking). Peppermint oil which mixes well with crude silicone rubber and which influences neither the duration of vulcanization nor the quality of the material is used as corrective substance. Petroleum jelly is used as plasticizer. After 30 min the linear shrinking is 0.05% and after 3 days 0.35%. The material can, therefore, be regarded as non-shrinking. Compared with imported specimens Sielast is characterized by its long storability. [Abstracter's note: Complete translation.]

Card 1/1

GERNER, M.M.; RUDNITSKAYA, Ye.A.

Determination of the solidification point of waxes, waxlike substances, and compositions. Zav. lab. 29 no.6:733 '63.
(MIRA 16:6)

1. Khar'kovskiy zavod zubovrachebnykh materialov.
(Waxes) (Solidification)

ARONOV, Ye.G.; GORNER, M.M.; BATOVSKIY, V.N.

Jet mills in medical industry. Med. prom. 17 no.9:44-47 S'63.
(MIRA 17:5)

1. Khar'kovskiy zavod zubovrachebnykh materialov.

GERNER, M.S. kand.med.nauk (Ryazan')

Physical training for students at the Ryazan Medical Institute.
Zdrav.Ros.Fed. 2 no.10:32-34 0'58 (MIRA 11:10)
(RYAZAN.—PHYSICAL EDUCATION AND TRAINING)

PRODOLOBOV, N.V.; GERNER, V.F.; DOBRIN, B.Yu.; KIRSANOV, G.P.; PARSHIKOV, M.Ya.; PETUKHOV, M.I.; KRIZHANOVSKIY, V.A.; YAMCHUK, N.I.

Abstracts. Sov.med. 26 no.6:135-137 Je '62. (MIRA 15:11)

1. Iz Tyumenskoy gorodskoy infektsionnoy bol'nitsy (for Prodolobov). 2. Iz sel'skoy uchastkovoy bol'nitsy sovzhoza "Chernaya" Solikamskogo payonnogo otdela zdravookhraneniya (for Gerner). 3. Iz kafedry gospital'noy terapii Luganskogo meditsinskogo instituta (for Dobrin). 4. Iz respublikanskoy klinicheskoy bol'nitsy Mordovskoy ASSR (for Kirsanov, Parshikov). 5. Iz propedevticheskoy khirurgicheskoy kliniki Kuybyshevskogo meditsinskogo instituta (for Petukhov). 6. Iz gospital'noy khirurgicheskoy kliniki i kafedry patologicheskoy anatomii Chelyabinskogo meditsinskogo instituta (for Krizhanovskiy, Yamchuk).

(MEDICINE--ABSTRACTS)

G[illegible], G.

Photographs of soil in the Rumanian People's Republic. Tr. from the Rumanian. p.31 (AGROKEMIA ES TALAJTAN. Vol. 11, no. 1/4, 1957, Budapest, Hungary)

Sc: Monthly List of East European Accessions (EEAL) LC. Vol. 6, no. 14, Dec. 1957. Uncl.

GERNET, A. V.

"Changes in the Functional Condition of the Digestive Glands of a Dog (Stomach Glands and the Pancreatic and Salivary Gland) in Response to the Action of Sympathomimetine," Sub. 4 Mar 47, Inst of Physiology, Acad Med Sci USSR. *Cand Biol Sci*

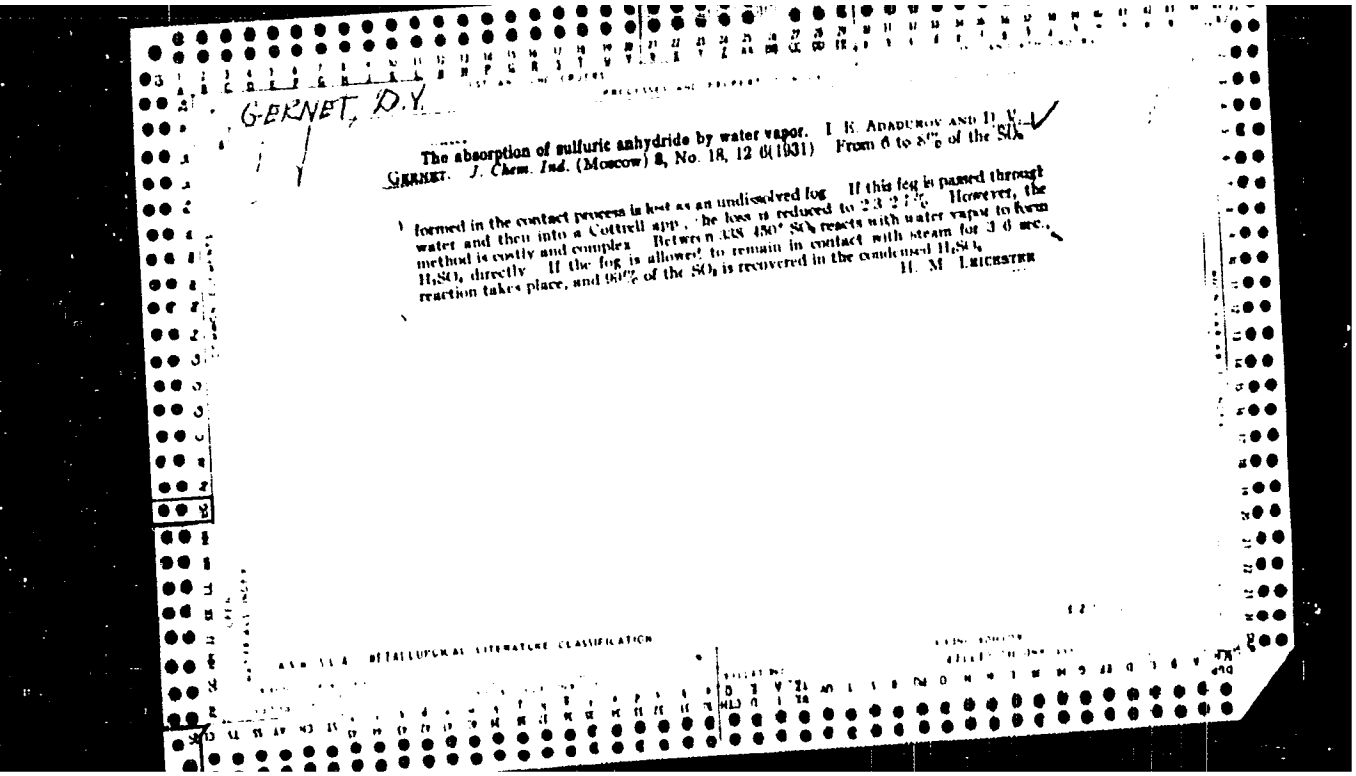
Dissertations presented for degrees in science and engineering in Moscow in 1947.

SO: Sum.No.457, 18 Apr 55

GERNET, D.V.

Synthesis and decomposition of hydrogen bromide in the presence of catalysts. I. E. Adadurov and D. V. Gernet. *J. Phys. Chem.* (U. S. S. R.) 2, 735 43(1931). The initial temps. for activity of the catalysts are: 280° for Cu, 286° for Cr_2O_3 and V zeolite, 320° for Al, 324° for Fe, 370° for MgO, 380 for $CaBr_2$. The ΔF value is 1683 1708 for the first 3 and 1012 76 for the last 4. Decompn. begins at 195 on Al_2O_3, 250° on Fe_2O_3, 325° on $CaBr_2$, 415° on BaCl. F. H. Rathmann

METALLURGICAL LITERATURE CLASSIFICATION



GERNET, D.Y.

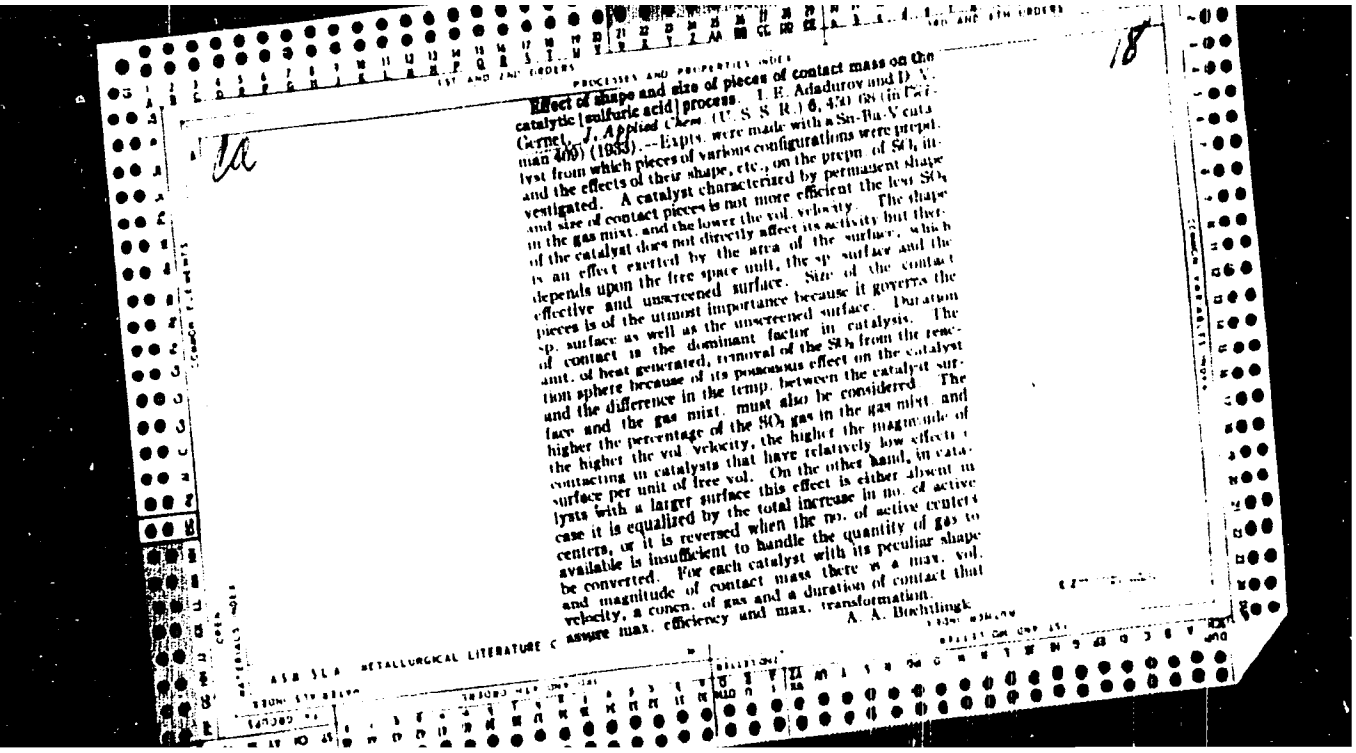
The absorption of sulfuric anhydride by water vapor. I. E. Adadurov and D. Y. Gernet. *J. Chem. Ind.* (Moscow) 8, No. 18, 12-6(1931). From 6 to 8% of the SO_3 formed in the contact process is lost as an undissolved fog. If this fog is passed through water and then into a Cottrell app., the loss is reduced to 2.3-2.7%. However, the method is costly and complex. Between 435° and 450° SO_3 reacts with water vapor to form H_2SO_4 directly. If the fog is allowed to remain in contact with steam for 3.6 sec., reaction takes place, and 98% of the SO_3 is recovered in the condensed H_2SO_4.
H. M. Leicester

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Experiments on the determination of the order and heat of activation of a reaction in the solid state. I. K. Anatchkov and D. V. Gerneri. *J. Phys. Chem.* (U. S. S. R.) 3, 307-13 (1932). The rate of decompn. of $FeAsO_4$ in the presence of NaCl was detd. at 700 to 1000°. The decompn. is of the second order and is formulated as $2FeAsO_4 \rightarrow Fe_2O_3 \cdot As_2O_5 \xrightarrow{1000°} Fe_2O_3 + As_2O_5$. The heat of activation was 22.2 kcal. H. H. R.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

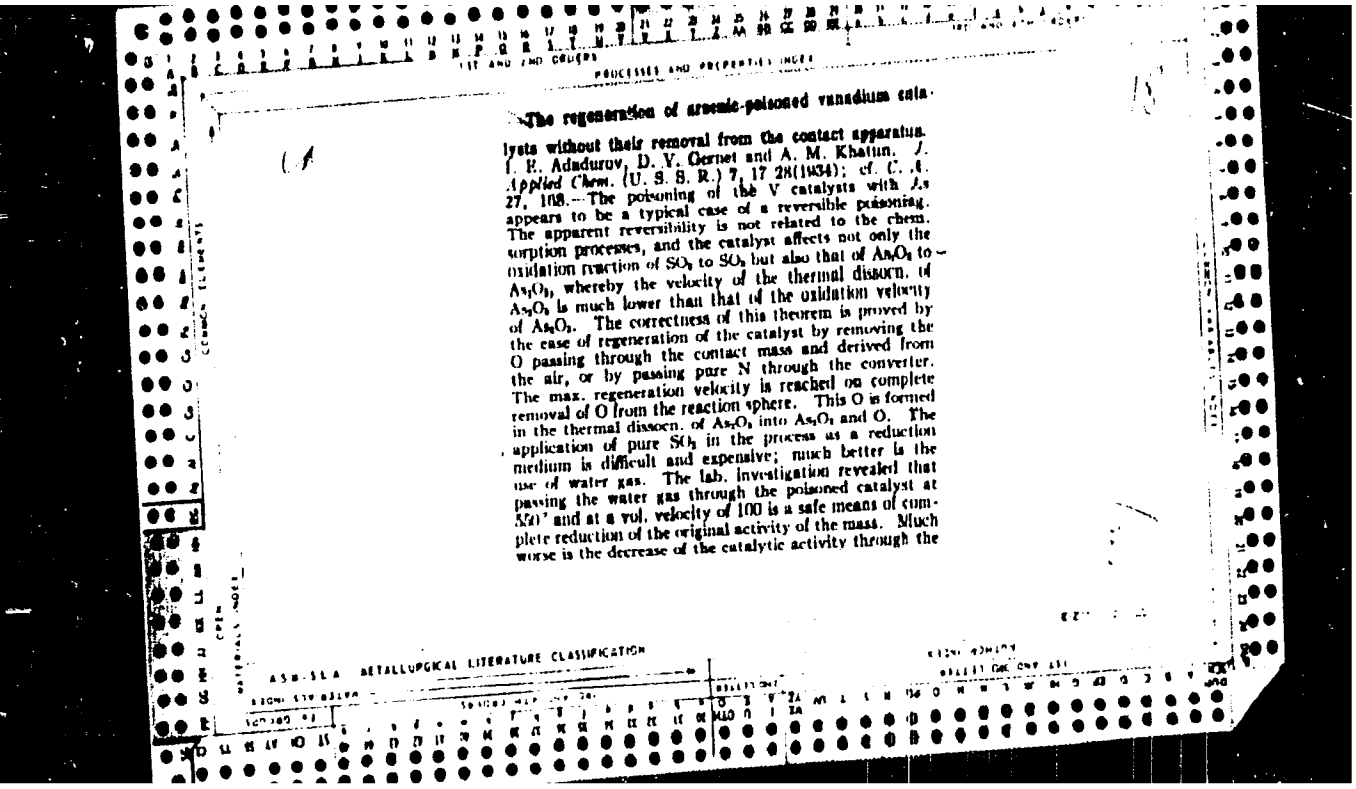


PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS

Effect of shape and size of pieces of contact mass on the catalytic [sulfuric acid] process. I. E. Adadurov and D. V. Gernet. *J. Applied Chem.* (U. S. S. R.) 6, 470-98 (in German) (1933).—Expts. were made with a Sn-Ba-V catalyst from which pieces of various configurations were prepd. and the effects of their shape, etc., on the prepn. of SO_3 investigated. A catalyst characterized by permanent shape and size of contact pieces is not more efficient the less SO_3 in the gas mixt. and the lower the vol. velocity. The shape of the catalyst does not directly affect its activity but there is an effect exerted by the area of the surface, which depends upon the free space unit, the sp. surface and the effective and unscreened surface. Size of the contact pieces is of the utmost importance because it governs the sp. surface as well as the unscreened surface. Duration of contact is the dominant factor in catalysis. The amt. of heat generated, removal of the SO_3 from the reaction sphere because of its poisonous effect on the catalyst and the difference in the temp. between the catalyst surface and the gas mixt. must also be considered. The higher the percentage of the SO_3 gas in the gas mixt. and the higher the vol. velocity, the higher the magnitude of contacting in catalysts that have relatively low effects surface per unit of free vol. On the other hand, in catalysts with a larger surface this effect is either absent in case it is equalized by the total increase in no. of active centers, or it is reversed when the no. of active centers available is insufficient to handle the quantity of gas to be converted. For each catalyst with its peculiar shape and magnitude of contact mass there is a max. vol. velocity, a concn. of gas and a duration of contact that assure max. efficiency and max. transformation.

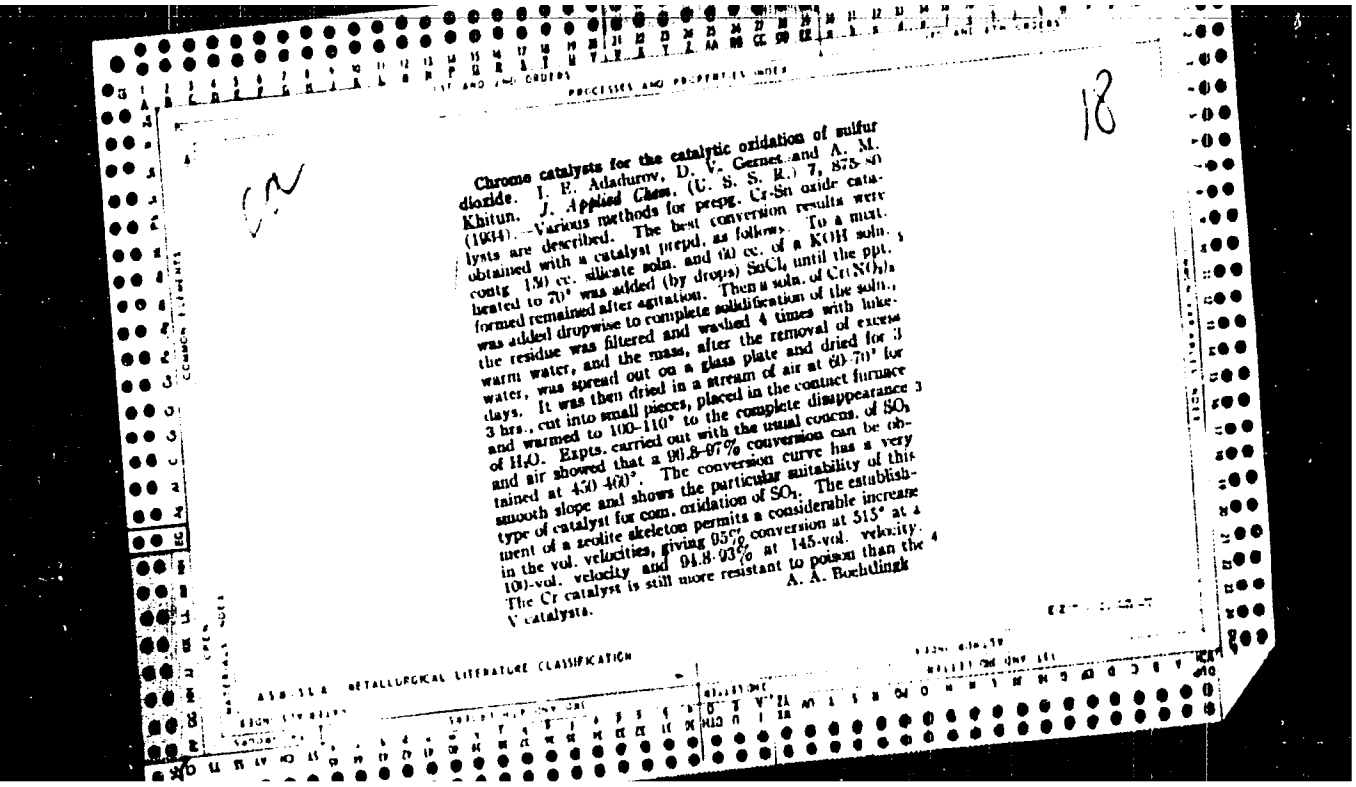
A. A. Bochtlingk



The regeneration of arsenic-poisoned vanadium catalysts without their removal from the contact apparatus. I. E. Adadurov, D. V. Gernet and A. M. Khatun. *J. Applied Chem.* (U. S. S. R.) 7, 17-28(1934); cf. C. A. 27, 108.—The poisoning of the V catalysts with As appears to be a typical case of a reversible poisoning. The apparent reversibility is not related to the chem. sorption processes, and the catalyst affects not only the oxidation reaction of SO_2 to SO_3 but also that of As_2O_3 to As_2O_5, whereby the velocity of the thermal dissocn. of As_2O_5 is much lower than that of the oxidation velocity of As_2O_3. The correctness of this theorem is proved by the case of regeneration of the catalyst by removing the O passing through the contact mass and derived from the air, or by passing pure N through the converter. The max. regeneration velocity is reached on complete removal of O from the reaction sphere. This O is formed in the thermal dissocn. of As_2O_5 into As_2O_3 and O. The application of pure SO_3 in the process as a reduction medium is difficult and expensive; much better is the use of water gas. The lab. investigation revealed that passing the water gas through the poisoned catalyst at 350° and at a vol. velocity of 100 is a safe means of complete reduction of the original activity of the mass. Much worse is the decrease of the catalytic activity through the

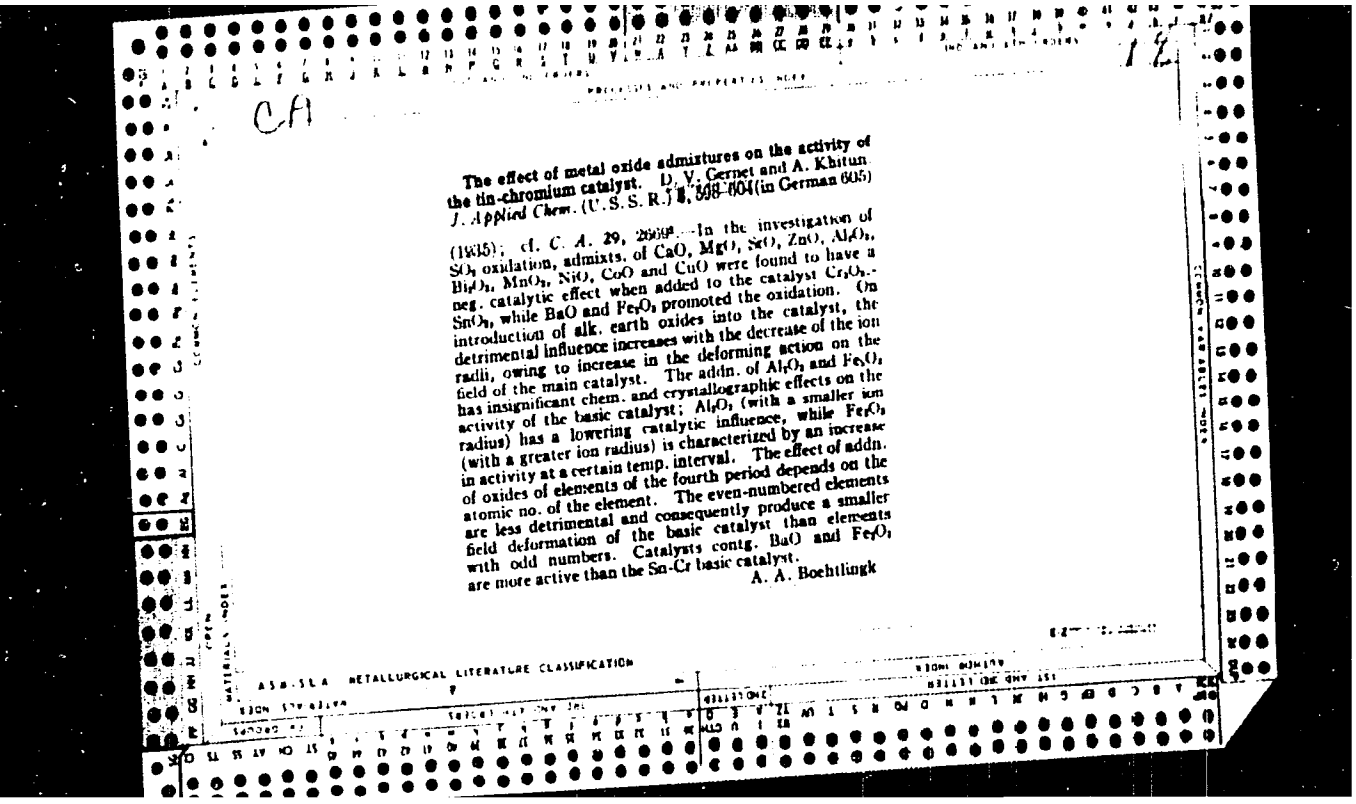
dust from the burned pyrites, which reaches the converter. This, as well as the poisoning by As_2O_3, causes the clogging of the contact-mass surface by volatile Fe_2O_3 and $AsCl_3$. It is necessary to transfer the catalyst, for its regeneration, into an easily subliming substance such as $FeCl_3$, this procedure being carried out in an equimol. mixt. of CO and Cl, which restores the activity completely in 30 min. The above mixt. can be replaced by $COCl_2$ and the procedure of regeneration carried out in the same manner as with the above mixt.

A. A. Boehtlingk



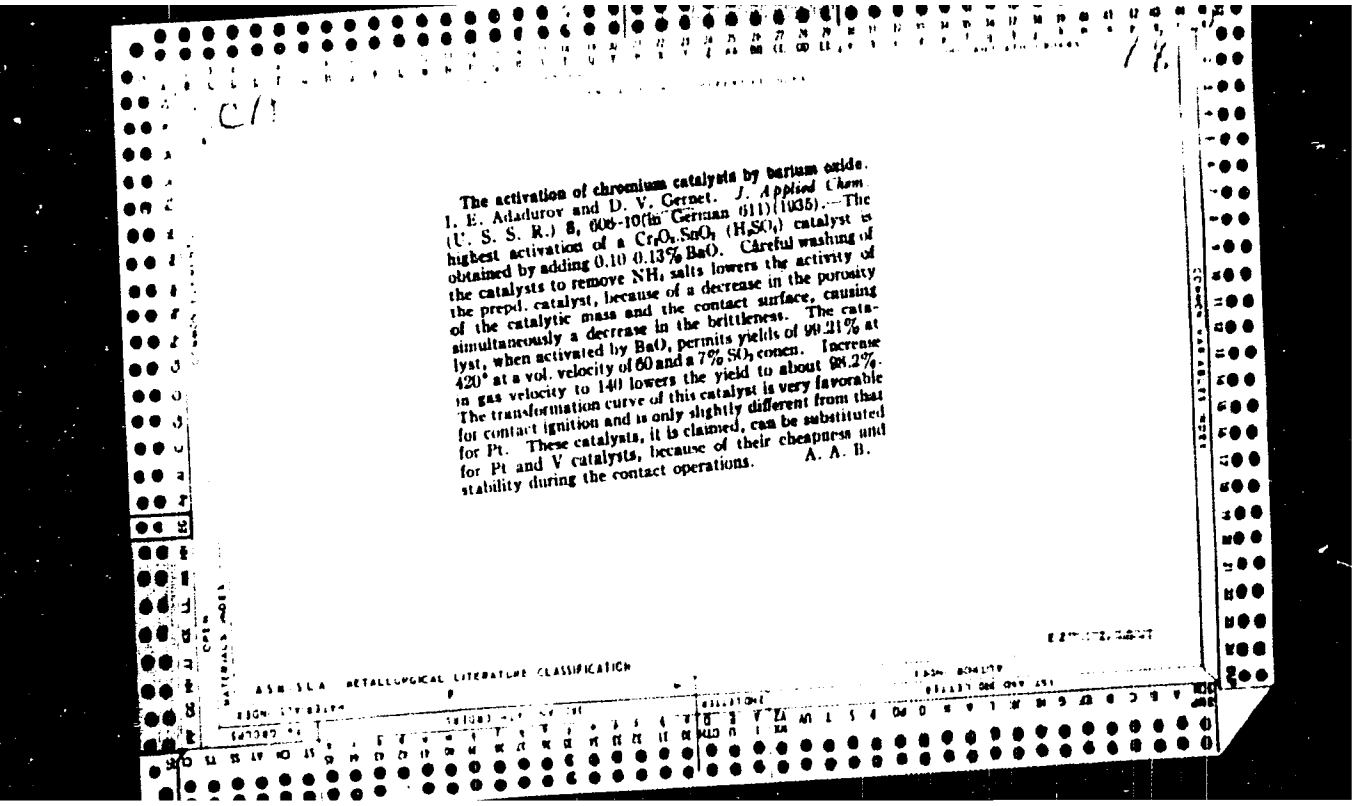
Chrome catalysts for the catalytic oxidation of sulfur dioxide. I. E. Adadurov, D. V. Gernet, and A. M. Khitun. *J. Applied Chem.* (U. S. S. R.) 7, 875-80 (1934).—Various methods for prepg. Cr-Sn oxide catalysts are described. The best conversion results were obtained with a catalyst prepd. as follows. To a mixt. contg. 150 cc. silicate soln. and 60 cc. of a KOH soln. heated to 70° was added (by drops) $SnCl_4$ until the ppt. formed remained after agitation. Then a soln. of $Cr(NO_3)_3$ was added dropwise to complete solidification of the soln., the residue was filtered and washed 4 times with luke-warm water, and the mass, after the removal of excess water, was spread out on a glass plate and dried for 3 days. It was then dried in a stream of air at 60-70° for 3 hrs., cut into small pieces, placed in the contact furnace and warmed to 100-110° to the complete disappearance of H_2O. Expts. carried out with the usual concns. of SO_2 and air showed that a 90.8-97% conversion can be obtained at 450-460°. The conversion curve has a very smooth slope and shows the particular suitability of this type of catalyst for com. oxidation of SO_2. The establishment of a zeolite skeleton permits a considerable increase in the vol. velocities, giving 95% conversion at 515° at a 100-vol. velocity and 94.8-93% at 145-vol. velocity. The Cr catalyst is still more resistant to poison than the V catalysts.

A. A. Bochtlingk



The effect of metal oxide admixtures on the activity of the tin-chromium catalyst. D. V. Gernet and A. Khitun. *J. Applied Chem.* (U.S.S.R.) 8, 598-604 (in German 605) (1935); cf. *C. A.* 29, 2668. In the investigation of SO_2 oxidation, admixts. of CaO, MgO, SrO, ZnO, Al_2O_3, Bi_2O_3, MnO_2, NiO, CoO and CuO were found to have a neg. catalytic effect when added to the catalyst Cr_2O_3-SnO_2, while BaO and Fe_2O_3 promoted the oxidation. On introduction of alk. earth oxides into the catalyst, the detrimental influence increases with the decrease of the ion radii, owing to increase in the deforming action on the field of the main catalyst. The addn. of Al_2O_3 and Fe_2O_3 has insignificant chem. and crystallographic effects on the activity of the basic catalyst; Al_2O_3 (with a smaller ion radius) has a lowering catalytic influence, while Fe_2O_3 (with a greater ion radius) is characterized by an increase in activity at a certain temp. interval. The effect of addn. of oxides of elements of the fourth period depends on the atomic no. of the element. The even-numbered elements are less detrimental and consequently produce a smaller field deformation of the basic catalyst than elements with odd numbers. Catalysts contg. BaO and Fe_2O_3 are more active than the Sn-Cr basic catalyst.

A. A. Boehtlingk



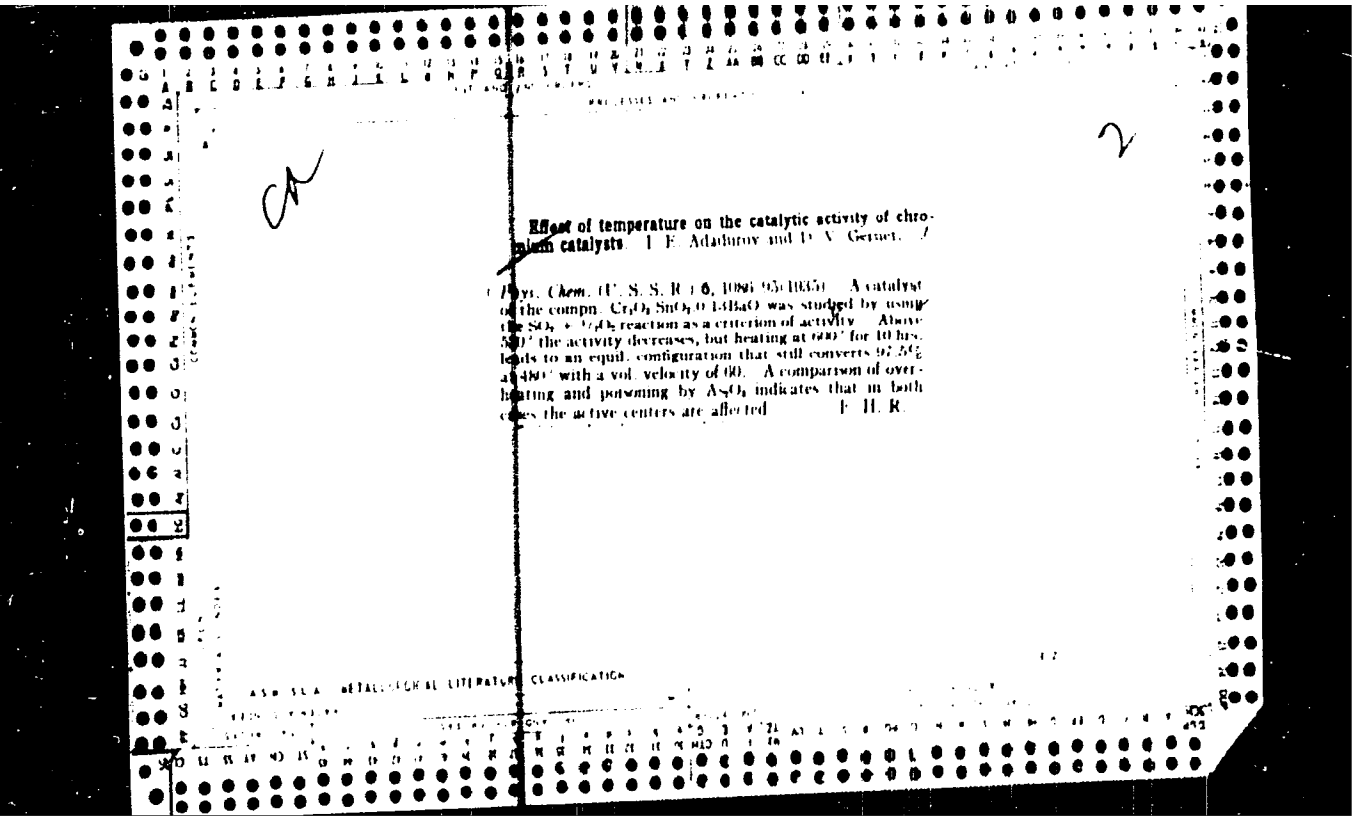
The activation of chromium catalysts by barium oxide. I. E. Adadurov and D. V. Gernet. *J. Applied Chem.* (U. S. S. R.) 8, 606-10(in German 611)(1935).—The highest activation of a $Cr_2O_3.SnO_2$ (H_2SO_4) catalyst is obtained by adding 0.10 0.13% BaO. Careful washing of the catalysts to remove NH_4 salts lowers the activity of the prepd. catalyst, because of a decrease in the porosity of the catalytic mass and the contact surface, causing simultaneously a decrease in the brittleness. The catalyst, when activated by BaO, permits yields of 99.21% at 420° at a vol. velocity of 60 and a 7% SO_2 concn. Increase in gas velocity to 140 lowers the yield to about 98.2%. The transformation curve of this catalyst is very favorable for contact ignition and is only slightly different from that for Pt. These catalysts, it is claimed, can be substituted for Pt and V catalysts, because of their cheapness and stability during the contact operations. A. A. B.

CA

The poisoning of chromium catalysts by arsenic and other contact poisons. I. R. Adadurov and D. V. Gernet. J. Applied Chem. (U. S. S. R.) 8, 812-20 (in German 820) 7(1935). The Cr-Sn-Ba catalyst is poisoned by As in the same manner as the V-Sn-Ba catalyst. The catalytic activity of the Cr catalyst at 400-75°, after the adsorption of 0.5 g. As_2O_3 per 14 cc., decreases more rapidly than that of the V catalysts, the effect of As_2O_3 at 500° being identical for the 2 catalysts, while at 550° both catalysts are immune to poisoning. The poisoned catalyst can be reconditioned by treatment with CO, while CO + H_2 is highly detrimental, because H_2 reduces the SnO_2 to Sn, causing the catalyst to break up into 2 layers of a lower activity. The appearance of H_2S in the regeneration of the catalyst is explained by the fact that its surface holds S vapors or sulfide. Under manufg. conditions, the Cr-Sn catalyst does not decrease in activity under the influence of H_2O. The catalytic activity is lowered in the presence of an air-SO_2 mixt. with water vapor at a tension corresponding to a temp. of 85-100°, although as soon as the admission of water vapor is discontinued the activity of the catalyst is restored completely. Moist HCl vapor causes a reversible poisoning of the catalyst, while dry HCl gas does not lower the activity of the catalyst.

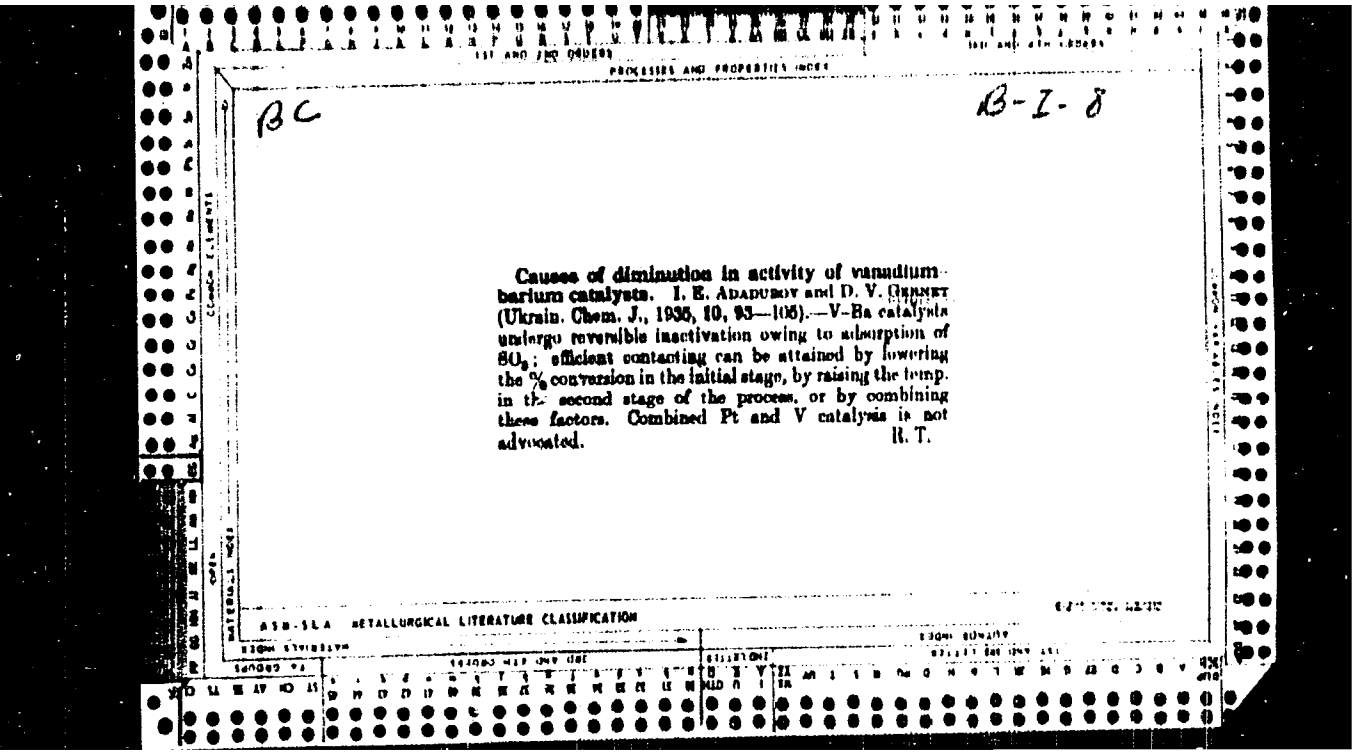
A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Effect of temperature on the catalytic activity of chromium catalysts. I. F. Adadurov and D. V. Gernet.

(Zhur. Khim. (U. S. S. R.) 6, 1086-95(1933).) A catalyst of the compn. Cr_2O_3-SnO_2-0.15BaO was studied by using the $SO_2 + O_2/2$ reaction as a criterion of activity. Above 550° the activity decreases, but heating at 600° for 10 hrs. leads to an equil. configuration that still converts 97.5% at 480° with a vol. velocity of 60. A comparison of overheating and poisoning by As_2O_3 indicates that in both cases the active centers are affected. F. H. R.



BC

B-I-8

Causes of diminution in activity of vanadium-barium catalysts. I. E. ADADUROV and D. V. GRINET (Ukrain. Chem. J., 1935, 10, 93—106).—V–Ba catalysts undergo reversible inactivation owing to adsorption of SO_3; efficient contacting can be attained by lowering the % conversion in the initial stage, by raising the temp. in the second stage of the process, or by combining these factors. Combined Pt and V catalysis is not advocated. R. T.

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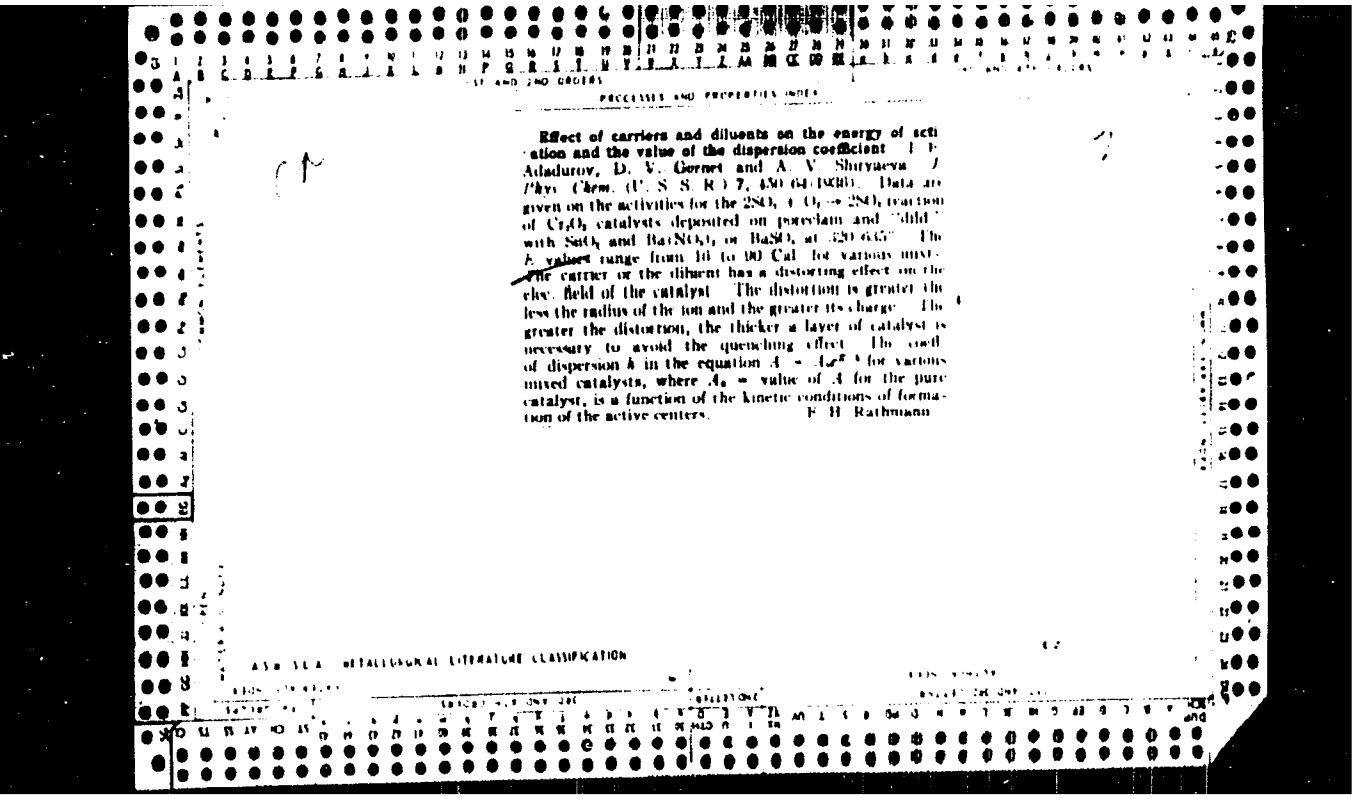
8C

B-J-V

Enhancement of thermostability of chromium catalysts. I. E. Adadurov and D. V. Gernet (J. Appl. Chem. Russ., 1936, 9, 603—610).—Inactivation of Cr_2O_3–SnO_2 catalysts (of SO_2 oxidation), due to sintering and to recrystallisation of the mass, may be prevented by adding 3% of $SbCl_3$ to the original mixture. The catalyst so obtained gives 99% conversion at 600°; heating at 600° for 20 hr. lowers % conversion to 97-8, at the same rate of flow, but gives a very stable surface. Addition of $BaCl_2$ or $AlCl_3$ confers a smaller degree of thermostability on the catalyst. In general, the radius of the anion of the stabiliser should be considerably < that of the cation; the effect is greater when the potential valency of the cation is > that actually taken, and when the interionic distance is small. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Effect of carriers and diluents on the energy of activation and the value of the dispersion coefficient I. F. Adadurov, D. V. Gernet and A. V. Shuryaeva. *J. Phys. Chem.* (U. S. S. R.) 7, 430-64 (1936). Data are given on the activities for the $2SO_2 + O_2 \rightarrow 2SO_3$ reaction of Cr_2O_3 catalysts deposited on porcelain and "diluted" with SnO_2 and $Ba(NO_3)_2$ or $BaSO_4$ at 420-65°. The A values range from 16 to 90 Cal. for various mixtures. The carrier or the diluent has a distorting effect on the elec. field of the catalyst. The distortion is greater the less the radius of the ion and the greater its charge. The greater the distortion, the thicker a layer of catalyst is necessary to avoid the quenching effect. The coefficient of dispersion k in the equation $A = A_0 e^{-kx}$ for various mixed catalysts, where A_0 = value of A for the pure catalyst, is a function of the kinetic conditions of formation of the active centers. F. H. Rathmann

PROCESSES AND PROPERTIES INDEX

Effect of sulfur dioxide and trioxide on the activity of chromium-tin oxide catalyst. I. E. Adadurov and D. V. Gernet. *J. Applied Chem.* (U. S. S. R.) 10, 245-50 (in French 250) (1937); cf. *C. A.* 30, 3600[9].—Dry SO_2 and SO_3 do not affect the catalyst chemically under industrial conditions at 200-450° and do not cause a change of the velocity consts. These facts prove that the change of color of the freshly pptd. air-dry catalytic mass at 150° is caused by the Cr_2O_3-SnO_2 complex formation (but not by the formation of higher oxides of Cr), as was shown in a previous paper (*C. A.* 31, 2768[9]). The Cr_2O_3-SnO_2 catalyst operates without considerable decrease of its activity in moist gas, and rapidly recovers its complete activity in dry gas. A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

USSR/Chemistry - Ammonium nitrate FD-510

Card 1/1 : Pub. 50-9/23

Authors : Fedorova, V. K., Gernet, D. V., and Matkovskiy, A. N.

Title : Improvement of the quality of non-caking ammonium nitrate

Periodical : Khim. prom., 296 (40), Jul/Aug 1954.

Abstract : Report that a chemical combine (name not given) has been using since 1951 the inorganic additive "RAP" (composition not given) to prevent caking of ammonium nitrate. The use of organic additives has been discontinued as potentially dangerous. Ammonium nitrate treated with "RAP" proved satisfactory in agricultural use, including dispersion by seeding machines together with seeds and and dispersion from planes.

Institution :

Submitted :

ATROSHCHENKO, V.I.; IVANOVA, L.N.; GERBIT, D.V.

Kinetics of the conversion of carbon monoxide with water vapors on a zinc-chromium catalyst. Izv.vys.ucheb.zav.;khim. i khim. tekh. 7 no. 1:70-76 '64. (MIRA 17:5)

1. Khar'kovskiy politekhnicheskiy institut im. V.I.Lenina i Lisichanskiy filial Gosudarstvennogo nauchno-issledovatel'skogo i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza.

S/146/60/003/006/002/013
B012/B060

9,4140
6,1360

AUTHOR: Gernet, E. M.

TITLE: Measurement of the Parameters of the Photoconductive Layer in Finished Vidicons

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniya. 1960, Vol. 3, No. 6, pp. 15 - 23

TEXT: This is the reproduction of a lecture delivered at the 14. nauchno-tekhnicheskaya konferentsiya NTO radiotekhniki i elektrosvyazi im. A. S. Popova (14th Scientific and Technical Conference of the NTO of Radio Engineering and Electrical Communications imeni A. S. Popov) which took place in Leningrad in April 1959. The paper offers a description of methods of measuring the coefficient of secondary emission, of dark and light resistance of the photoconductive layer as well as the coefficient of the capacity of this layer. The secondary emission was investigated with the aid of single pulses and by excluding the interference of a voltage drop in the layer (Refs. 3,4,5). More precisely, the characteristic of secondary emission was recorded with the

difference current $J = i_p(1-\sigma)$ of the target as a function of the potential V_p of the target surface. In other words the effective coefficient of secondary emission was measured. i_p is the primary current of the beam hitting the target. Fig.1 shows the block diagram of pulse measurements. Measurements included the volt-ampere characteristic of the difference current $J = f(V_p)$, and in this connection i_p was determined experimentally. The characteristic of secondary emission was then obtained from equation

$\sigma(V_p) = 1 - \frac{J(V_p)}{q\, i_g}$. q is the transparency coefficient of the grid for the electrons, i_g is the total current of the beam. The method of shifting the secondary emission characteristic was used for measuring the layer resistance. This involved the use of the difference current characteristic obtained in the determination of the secondary emission. For the measurement of capacity the beam current was given by longer

pulses (up to 2 msec), with the area of the spot diminishing to such an extent as to make it possible to observe the effect of the charge. The measurement itself was conducted in three different manners. 1) The initial potential of the surface was to be found in the linear section of the characteristic curve, i.e., it was smaller than the V^* corresponding to the minimum of the secondary emission coefficient. 2) The initial potential was chosen to be somewhat larger than V^*. 3) The oscillograms were taken at different initial potentials V_{o1} and V_{o2}. The methods applied here offer the possibility of comparing the parameters of the photoconductive layer with the characteristic curves of the tube and with their production procedure, with an accuracy sufficient in the practice. There are 5 figures and 7 references: 5 Soviet and 1 French.

SUBMITTED: December 26, 1959

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B012/B060

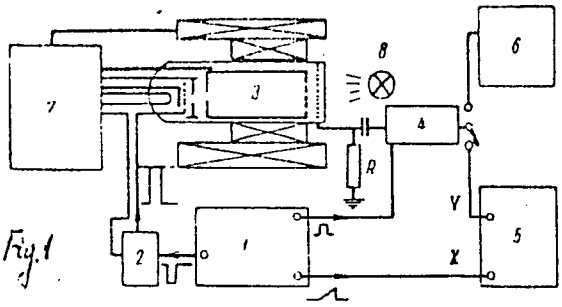

Fig.1

Fig.1

Legend to Fig.1: Block diagram of pulse measurements. 1) Pulse generator; 2) Beam triggering block; 3) Vidicon to be tested; 4) Amplifier; 5) Oscilloscope; 6) Video-control device; 7) Feed block; 8) Illuminator.

Card 4/6

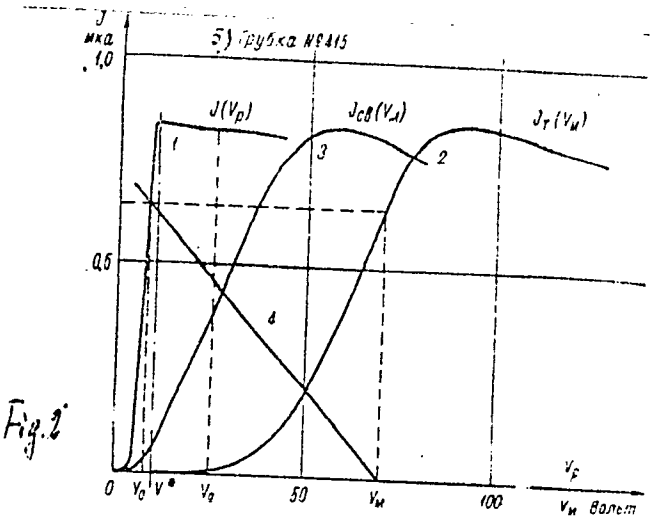

Fig.2

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Fig.2

Legend to Fig.2: Volt-ampere characteristics of the difference current. 1) Pulse characteristic $J = f(V_p)$; 2, 3) Static characteristic curves (2 - in the dark, 3 - under illumination); 4) Characteristic of layer resistance R at a potential V_m of the base; 5) Tube.

Card 5/6

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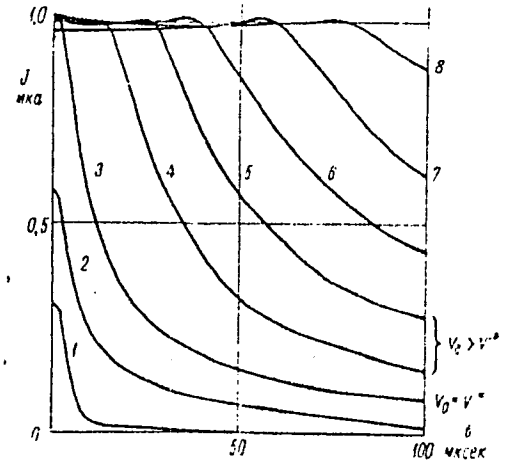

Fig.3

Fig.3

Legend to Fig.3: Oscillograms of pulses in layer charging. 1-5: Enlargement of V_0; 6-8: Enlargement of area spot. The publication of this article was recommended by the kafedra radiotekhniki LITMO (Department for Radio Engineering at the LITMO).

Card 6/6

LAPIN, P.I.; KONDRATOVICH, N.Ye.; YUR'YEV, Yu.I.; ANTSIFEROVA, T.S.; GERNET, G.M.; POTOLOVSKIY, N.I., red.; MEL'NIKOVA, M.S., red. izd-va; PARAKHINA, N.L., tekhn. red.

[Manual on the assembly, operation, maintenance and repair of the equipment of sawmills and woodworking enterprises] Spravochnik po montazhu, ekspluatatsii i remontu oborudovaniia lesopil'nykh i derevoobrabatyvaiushchikh predpriiatii. Moskva, Goslesbumizdat, 1961. 443 p. (MIRA 14:11)
(Woodworking machinery) (Sawmills—Equipment and supplies)

GERNET, G.M., inzh.

Use of rack separating systems on trimmers with preselective control. Der.prom. 10 no.5:9-10 My '61. (MIRA 14:5)

1. Arkhangel'skiy lesotekhnicheskiy institut im. V.V.Kuybhsheva.
(Woodworking machinery)