

FAYNSHTEYN, Veniamin Fedorovich; BOGDANOV, Yuriy Vasil'yevich;
ORLOV, Vyacheslav Prokhorovich; BUROV, Anatoliy Il'ich;
KORABLEV, A.A., otv. red.; FROLOVA, Ye.I., red. izd-va;
LOMILINA, L.N., tekhn. red.; MINSKER, L.I., tekhn. red.

[Sparkproof gauges and spark- and blastproof strain and
their use in the coal industry] Iskrobezopasnye i iskro-
vzryvbezopasnye tenzometricheskie pribory i ikh prime-
nenie v ugol'noi promyshlennosti. Moskva, Gosgortekhnizdat,
1961. 86 p. (MIRA 15:8)

(Coal mines and mining—Electric equipment)
(Strain gauges)

FAYNSHTEYN, V.F., inzh.; ORLOV, V.P., inzh.

Universal explosionproof tensometer. Sbor. KuzNIUI no.10:
222-230 '64.
(MIRA 18:9)

FAYNSHTEYN, V.F., inzh.; BOGDANOV, Yu.V., inzh.

Explosionproof measurements by wire gauges. Sbor. KuzNIUI no.10:
231-235 '64. (MIRA 18:9)

FAYNSHTEYN, V.F., inzh.; ZAKHAROV, V.I., inzh.

Explosionproof of three-phase wattmeter with oscillographic
recording. Sbor. KuzNIUI no.10:236-252 '64. (MIRA 18:9)

FAYNSHTEYN, V.G.

Law for regulating and distributing the loads among turbocompressors
working on a single network. Sbor. nauch. trud. KGRI no.19:109-
113 '62. (MIRA 16:5)

(Air compressors)

(Automatic control)

FAYNSHTEYN, V.G., inzh.

Dynamics of the control of parallel operating units. Izv. vys. ucheb.
zav.; energ. 7 no.8:40-45 Ag '64. (MIRA 17:12)

1. Krivorozhskiy gornorudnyy institut. Predstavlena kafedroy gornoy
elektrotehniki.

AGRE, V.L.; AL'DIYEVA, K.N.; ANANYAN, V.V.; BERLIN, R.I. [deceased];
ISTOMIN, A.V.; KAGAN, I.A.; KRONGAUZ, N.D.; KULAKOV, A.M.;
MARKOV, V.P.; MATVEYEV, Yu.M.; NESVETAYEV, A.M.; OSIPOV, A.P.
[deceased]; POZIN, M.S.; FAYNSHTEYN, V.M.; SHAPIRO, B.S.;
SHEVCHENKO, N.A.; SHCHIRIN, V.N.; AL'SHEVSKIY, L.Ye., kand:
tekhn.nauk, red.; VLADIMIROV, Yu.V., red.izd-va; MIKHAYLOVA,
V.V., tekhn.red.

[Rolling and pipe mills] Prokatnoe i trubnoe proizvodstvo.
Pod red. L.E.Al'shevskogo i A.V.Istomina. Moskva, Gos.nauchno-
tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1962.
246 p. (MIRA 15:2)

1. Moscow. TSentral'nyy institut informatsii chernoy metallurgii.
(Rolling mills) (Pipe mills)

FOMENKO, Yuriy Yevgen'yevich; FAYNSHTEYN, Vladimir Maksovich;
POZIN, Mikhail Solomonovich; LANOVSKAYA, M.R., red.izd-va;
ISLENT'YEVA, P.G., tekhn. red.

[Operator of guillotine shears] Rezhik gil'otinnykh nozh-
nits. Moskva, Metallurgizdat, 1963. 157 p. (MIRA 16:9)
(Shears (Machine tools))

VAYNBERGER, Isaak Matveyevich; VASENIN, Aleksandr Yermolayevich;
IZRAILIT, Lev Abramovich; RZHETSKIY, Dmitriy Borisovich;
SPORIUS, Eduard Alekseyevich; TIKHONOV, Vasilii Fedorovich;
FAYNSHTEYN, Vladimir Maksovich; LAMM, I.A., otv. red.;
SAKHAROV, Ye.D., red.

[Mechanization and automation of mail processing operations]
Mekhanizatsiia i avtomatizatsiia obrabotki pochty; informa-
tsionnyi sbornik. Moskva, Izd-vo "Sviaz'," 1964. 77 p.
(MIRA 17:6)

FAYNSHTEYN, V.M.

Mechanization and automation of slab cleaning. Metallurg 9 no.6:
28-32 Je '64. (MIRA 17:9)

1. Gosudarstvennyy soyuznyy institut po proyektirovaniyu metallurgi-
cheskikh zavodov.

FAYNSHTEYN, V.M.; PARNIKOV, P.M.

Designing continuous pickling units. Metallurg 9 no.10:30-33
O '64 (MIRA 18:1)

1. Gosudarstvennyy soyuznyy institut po proyektirovaniyu metallurgicheskikh zavodov (for Faynshteyn). 2. Podruchnyy val'tsovshchika tsekha kholodnogo prokata zavoda "Saporozhstal'" (for Parnikov).

FAINSHTEYN, Ya. I.

KOMKOV, V.N.; RYCHKOV, N.S.; ARKUF'YEV, I.I., red.; BURMAN, M.Ye., red.;
FAINSHTEYN, Ya. I., red.; KUBANIN, Z.I., red.; KOVALEVSKAYA, A.I.,
red.; SOKOLOVA, I.A., tekhn.red.

["Vegetables and Canned Goods" Pavilion, a guidebook. Pavil'on
"Ovoshchi i konservy"; putevoditel'. Moskva, Pishchepromisdat,
1957. 43 p. (MIRA 11:1)

1. Vsesoyuznaya promyshlennaya vystavka, 1957.
(Moscow--Exhibitions) (Canning and preserving industry)

FAYNSHTEYN, Ya.I.

Produce high-quality products from corn. Kons.i ov.prom. 18
no.1:7-9 Ja '63. (MIRA 16:2)

1. Vserossiyskiy sovet narodnogo khozyaystva.
(Corn products)

ANTONOV, S.N.; FAYNSHTEYN, Ye.B.

~~Methods of testing the electric properties of thin films of~~
polymeric materials. Plast. massy no.11:48-50 '63.

(MIRA 16:12)

ANTONOV, S.N.; FAYNSHTEYN, Ye.B.; ANDRIANOVA, N.V.

Electric properties of a polyethyleneterephthalate film. Plast.massy
no.12:51-52 '63. (MIRA 17:2)

BUDANOV, G.V., otv.za vypusk; REZNIKOV, A.I., otv.za vypusk; FAYNSHTEYN,
Ye.Ya., red.; PEVZNER, A.S., red.isd-va; GUSEVA, S.S., tekhn.red.
BOROVNEV, N.K., tekhn.red.

[Cost manual for the assembling of equipment] TSennik na montash
oborudovaniia. No.32. [Equipment for gas purification] Oboru-
dovanie dlia oohistki gasov. Moskva, Gos.isd-vo lit-ry po stoit.
i arkhit. 1958. 17 p. (MIRA 12:4)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam
stroitel'stva.

(Gas purification--Equipment and supplies)

BUDANOV, G.V., otv. za vypusk.; REZNIKOV, A.I., otv. za vypusk.; ~~FAYNSHTAYN~~.
~~Ye. Ye.~~, red.; PEVZNER, A.S., red. izd-va.; TEYERMAN, T.M., tekhn. red.;
BOROVNEV, N.K., tekhn. red.

[Cost manual for the assembling of equipment] TSennik na montazh
oborudovaniia. Moskva, Gos. izd-vo lit-ry po stroit., arkhitekt. i
stroit. materialam. No. 17. [Equipment for the chemical industries]
Oborudovanie predpriatii khimicheskoi promyshlennosti. 1958. 183 p.
(MIRA 11:12)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam
stroitel'stva.
(Chemical industries--Equipment and supplies)

ABULADZE, M. A.; FAYNSHTEYN, Z. A.

Improving the equipment. Put' 1 put. khos. 7 no.3:33 '63.
(MIRA 16:4)

1. Mashal'nik rel'sosvarochnogo predpriyatiya No. 10, st. Orsha, Belorusskoy dorogi (for Abuladze). 2. Glavnyy inzh. rel'sosvarochnogo predpriyatiya No. 10, st. Orsha, Belorusskoy dorogi (for Faynshteyn).

(Railroads—Equipment and supplies)

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

Abs Jour: Ref Zhur-Biol., No 6, 1958, 25047

Author : Faynshteyn, Z. R.

Inst : ~~Not given~~

Title : The Problem of Using Fertilizer on Potatoes and
Tomatoes on Light Alluvial Bottom-Land Soils

Orig Pub: V sb.: Tr. Mold. ovoshche-kartof. orosit. opyt. st.,
Kishinev, Gosizdat Moldavii, 1956, 277-284

Abstract: Tests were made in the flood-lands of the Dnestr River in Tiraspol'skiy Rayon on carbonate or weakly carbonate soils with a poor supply of humus and nitrogen. In the tests with potatoes the greatest effect was gotten with the application of N60P30K30 and organic mineral fertilizers before planting (boosting the crop by 40-50%). The split application of regular fertilizers and side-dressing in-

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B FAYNSHTEYN, Z.V. D-4 PROCESSES AND PROPERTIES INDEX 1. Z. V. Faynshteyn 2. Z. V. Faynshteyn 3. Z. V. Faynshteyn 4. Z. V. Faynshteyn 5. Z. V. Faynshteyn 6. Z. V. Faynshteyn 7. Z. V. Faynshteyn 8. Z. V. Faynshteyn 9. Z. V. Faynshteyn 10. Z. V. Faynshteyn 11. Z. V. Faynshteyn 12. Z. V. Faynshteyn 13. Z. V. Faynshteyn 14. Z. V. Faynshteyn 15. Z. V. Faynshteyn 16. Z. V. Faynshteyn 17. Z. V. Faynshteyn 18. Z. V. Faynshteyn 19. Z. V. Faynshteyn 20. Z. V. Faynshteyn																			
ASB-31A METALLURGICAL LITERATURE CLASSIFICATION																			
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FAYNSHTEYN, Z.V., doktor meditsinskikh nauk

Injuries of the urethra in young boys. Urologia no.1:39-43
Ja-Mr '55. (MLRA 8:10)

1. Iz kazanskogo meditsinskogo instituta imeni V.M.Molotova
(dir.-dotsent S.R.Karynbayev)
(URETHRA, wounds and injuries,
in boys)
(WOUNDS AND INJURIES
urethra, in boys)

FAYNSHTYIN, Z.V., professor (Alma-Ata)

Report on the activity of the Kazakhstan Urological Society in 1956.
My-Je '57. (MLRA 10:8)

(GENITOURINARY ORGANS--DISEASES)

PAYNSHTEYN, Z.V., prof.

Classification of tuberculosis of the urogenital organs. Urologia
24 no.4:56 J1-Ag '59. (MIRA 12:12)

1. Iz kafedry urologii (sav. - prof. Z.V. Paynshteyn) Kazakhskogo
meditsinskogo instituta.
(TUBERCULOSIS, UROGENITAL)

FAYNSHTEYN, Z.V., prof.

Tactics of treating bilateral kidney calculi. Urologiia no.1:
23-25 '62. (MIRA 15:11)

1. Iz urologicheskoy kliniki Kazakhskogo meditsinskogo instituta.
(CALCULI, URINARY)

FAYNSHTEYN, Z.V., prof.

Treatment of tumors of the urinary bladder in the light
of late results. Urologiia no.4:43-45 '63. (MIRA 17:10)

1. Iz urologicheskoy kliniki (zav.- prof. Z.V. Faynshteyn)
Kazakhskogo meditsinskogo instituta.

FAYNSHTEYN, Z.V., prof.; ALFEROV, G.A.

Ureteral alloplasty. Urologiia. 29 no.3:52-54 My-Je '64.
(MIRA 18:10)

1. Urologicheskaya klinika (zav.- prof. Z.V. Faynshteyn) Alma-
Atinskogo meditsinskogo instituta.

RUBINSHTEYN, A.L., prof.; ORUSSKIY, V.A., retsenzent; FAYNTSIMMER, V.M.,
retsenzent; YELIZAVETSKAYA, G.V., red.; GUREVICH, M.M., tekhn.
red.

[Soil mechanics research and foundation engineering] Gruntovede-
nie, osnovaniia i fundamentey. Moskva, Gos. izd-vo sel'khoz. lit-
ry, zhurnalev i plakatov, 1961. 311 p. (MIRA 14:8)
(Soil mechanics) (Foundations)

KROL', E.G., inzh.; KHOKHLOVA, A.N., inzh.; BEGLYAROV, S.A., inzh.,
rukovoditel' raboty; IGNATYUK, G.L., glavnyy red.; KAGAN, G.S.,
zamestitel' glavnogo red.; GANKIN, M.Z., red.; DEVILLERS, B.P.,
red.; ZHEREBTSOV, V.V., red.; ZHUKOV, G.A., red.; KREMER, Ye.S.,
red.; OFFENGENDEN, S.R., red.; PAVLOV, Ye.L., red.; PETROVSKAYA,
I.V., red.; FAYNTSIMMER, V.M., red.; FROG, N.P., red.;
CHERNIKEVICH, L.A., red.; SHAPAYEV, A.M., red.

[Special operating conditions of irrigation pumping stations.]
Spetsial'nye rezhimy orositel'nykh nasosnykh stantsii. Moskva,
Giprovdkhkh, 1964. 136 p. (Moscow. Vsesoiuznyi proektno-
izyskatel'skii i nauchno-issledovatel'skii institut Giprovd-
khkh. Trudy, no.27). (MIRA 19:1)

1. Nachal'nik otdela nasosnykh stantsiy Vsesoyuznogo gosudarst-
vennogo proyektno-izyskatel'skogo i nauchno-issledovatel'skogo
instituta vodokhozyaystvennogo stroitel'stva (for Beglyarov).

DANILOVICH, B.I.; FAYNYSIMMER, R.Z.

Using calcium chloride to remove dirt frozen to automobile
bodies. Rats. 1 izobr.predl. v stroi. no.89:25-26 '54.
(Automobiles--Bodies) (MIRA 9:6)

DANILOVICH, B.I., inzhener; FAYNTSIMMER, R.Z., inzhener.

Removing loose and other soils frozen to the metal walls of
dump truck bodies. Elek. sta. 24 no.12:47 D '53. (MLRA 6:12)
(Dump trucks)

FAYNYUD, G.M., inzh.

Switching device for the remote control of reversive electric
drives. Elek. sta. 33 no.6:51-53 Je '62. (MIRA 15:7)
(Electric switchgear) (Electric driving)

L 07872-67 EWT(d) IJP(c)

ACC NR: AP6030664

SOURCE CODE: UR/0166/66/000/004/0026/0031

AUTHOR: Fayzibayev, E. F.; Plaksina, A. I.

ORG: Institute of Mathematics im. V. I. Romanovskiy, AN UzSSR (Institut matematiki AN UzSSR)

TITLE: Concerning certain properties of the solution of a nonlinear differential equation with slowly varying parameters

SOURCE: AN UzSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 4, 1966, 26-31

TOPIC TAGS: nonlinear differential equation, differential equation solution, asymptotic solution, vibration analysis

ABSTRACT: The authors analyze a vibrating system in which some parameters vary slowly with time and are described by the nonlinear differential equation

$$A(\tau)\ddot{x} + B(\tau)\dot{x} + C(\tau)x = \epsilon f(\tau, x, \dot{x}), \quad (1)$$

where ϵ is a small positive parameter, $\tau = \epsilon t$ is the slow time, and A , B , and C are positive continuous functions of τ . A one-sided and a two-sided limits of the distances between two zeroes of the solution of this nonlinear differential equation are presented, and the solutions of two equations of this type are compared. The limits and comparisons are expressed in the form of appropriate theorems. The differential equations considered are encountered in problems involving the passage of a system through resonance, vibrations of bridges and lifting cranes under the influence of

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L 07872-67

ACC NR: AF6030664

moving loads and pulsating forces, calculation of rocket trajectories under power.
Orig. art. has: 28 formulas.

SUB CODE: 12/ SUBM DATE: 25Sep65/ ORIG REF: 003/ OTH REF: 001

Card 2/2 bc

FAYNZIL'BER, A. M.

"On Some Fundamental Relations in Aerodynamics of the Turbulent Boundary Layer in Compressible and Incompressible Fluids," Dokl. AN SSSR, 47, No.8, pp 541-42, 1945

FAYNZIL'BER, A. M.

Nekotorye osnovnye zavisimosti aerodinamiki turbulentnogo pogranichnogo sloia szhimaenogo gaza i neszhimaemoi zhidkosti. (Akademiia Nauk SSSR. Doklady. Novaia seriia, 1945, v. 47, no. 8, p. 562-563)

Title tr.: Some fundamental relationships in the aerodynamics of turbulent boundary layer of a compressible gas and an incompressible fluid. Also published in English in Comptes rendus de l'Academie des Sciences de l'URSS. Nouvelle serie, 1945, v. 47 no. 8, p. 541-542 (C60.A52).

AS262.S3663 v. 47

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955

FAINZIL'ER A. M.

Osnovnye zadachi gazogidrodinamiki pograničnogo sloja kryia aeroplana.
(Akademiia Nauk SSSR Doklady. Novia seriia, 1945, v. 48, no. 2, p. 91-94)

Title tr.: Fundamental problems of the fluid dynamics of the boundary layer of an airplane wing.
Also published in English in Comptes rendus de l'Academie des Sciences de l'URSS. Nouvelle serie, 1945, v. 48, no. 2, p. 86-88 (Q60.A52).

AS262.S3663 v.48

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955

FAYNZIL'BER, A.M.

Universal'nye peremennye teorii pogramichnogo sloia. (Akademiia Nauk SSSR. Doklady. Novaia seriia, 1945, v.48, no.7, p.500-502)

Title tr.: Universal variables in the boundary layer theory.

Also published in English in Comptes rendus de l'Academie des Sciences de l'URSS. Nouvelle serie, 1945, v.48, no.7, p.473-475

(Q60.A52)

AS262.S3663 v.48

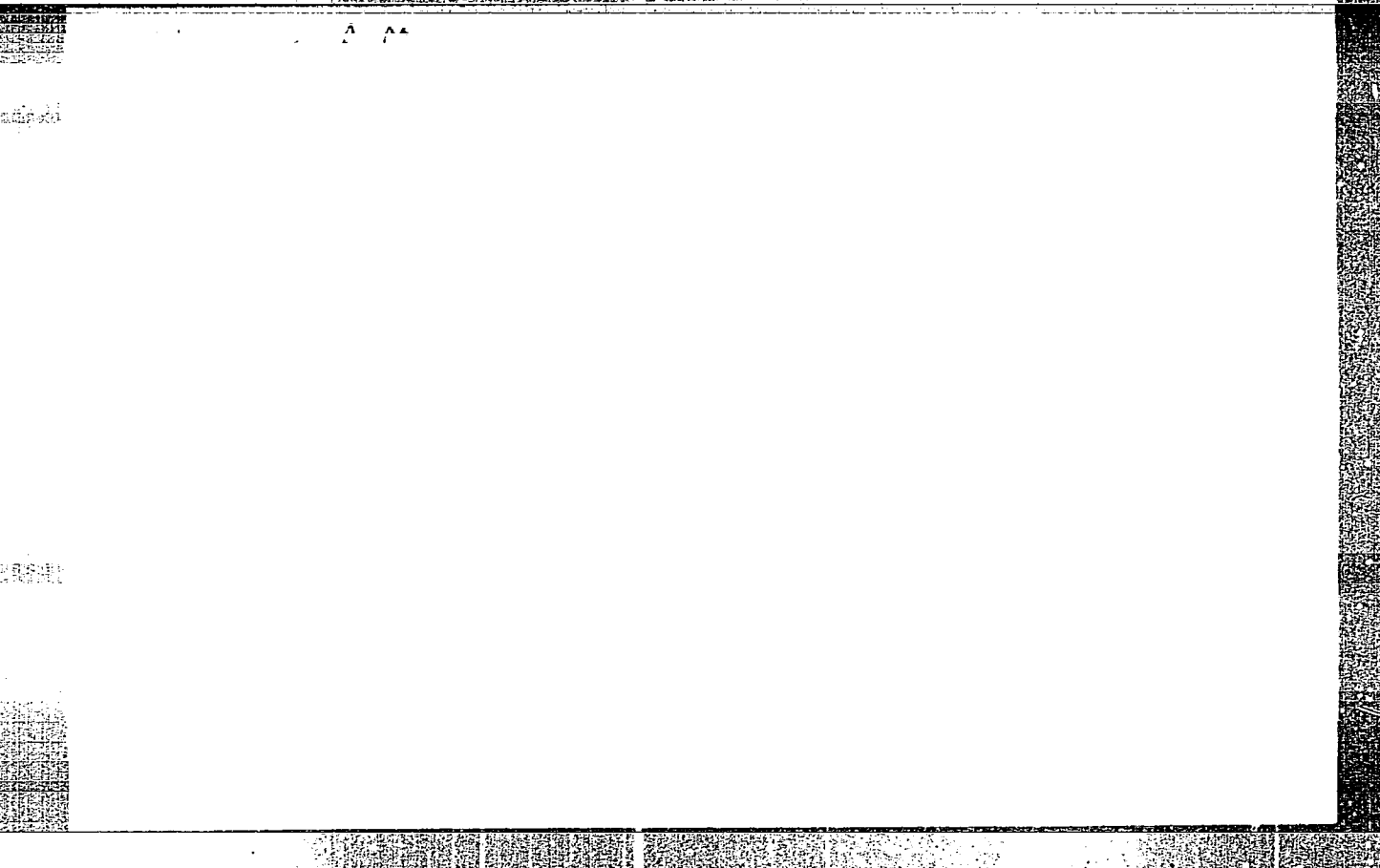
SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

FAYNZIL'BER, K. M.

"Integration of Boundary Layer Equations for a Compressible Fluid by the Method of Universal Variables," Dokl. AN SSSR, 48, No.8, pp 549-550, 1945

"APPROVED FOR RELEASE: 08/22/2000

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FAINZIL'BER, A.M.

Zakon raspredeleniia temperatur v pogranichnom sloe gaza i zhidkosti. (Akademiia Nauk SSSR. Doklady. Novaia seriia, 1946, v. 51, no. 8, p. 583-594)

Title tr.: The law of temperature distribution in the boundary layer of gases and liquids. Also published in English in Comptes rendus de l'Academie des Sciences de l'URSS. Nouvelle serie, 1946, v. 51, no. 8, p. 583-594 (Q60.A52).

AS262.S3663 v.51

SO. Aeronautical Science and Aviation in the Soviet Union. Library of Congress, 1955.

FAINZIL'BER, A. M.

Nekotorye osnovnye zavistimosti teplootdachi turbulentnogo pogranichnogo sloia szhimaemoi i neszhimaemoi zhidkosti. (Akademiia Nauk SSSR. Doklady. Novaia seriia, 1946, v. 52, no. 1, p. 21-24)

Title tr.: Some fundamental relationships of heat transfer of boundary layers in compressible and non-compressible fluids.

Also published in French in Comptes Rendus de l'Academie des Sciences de l'URSS. Nouvelle serie, 1946, v. 52, no. 1, p. 21-24 (Q60.A52)

AS262.S3663 v. 52

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955

FAYNZIL'BER, A.M.

Zakon soprotivlenii i zakon teplovykh napriazhenii v turbulentnom pogranichnom sloe.
(Akademiia Nauk SSSR. Doklady. Novaia seriia, 1946, v. 54, no.8, p. 673-676)

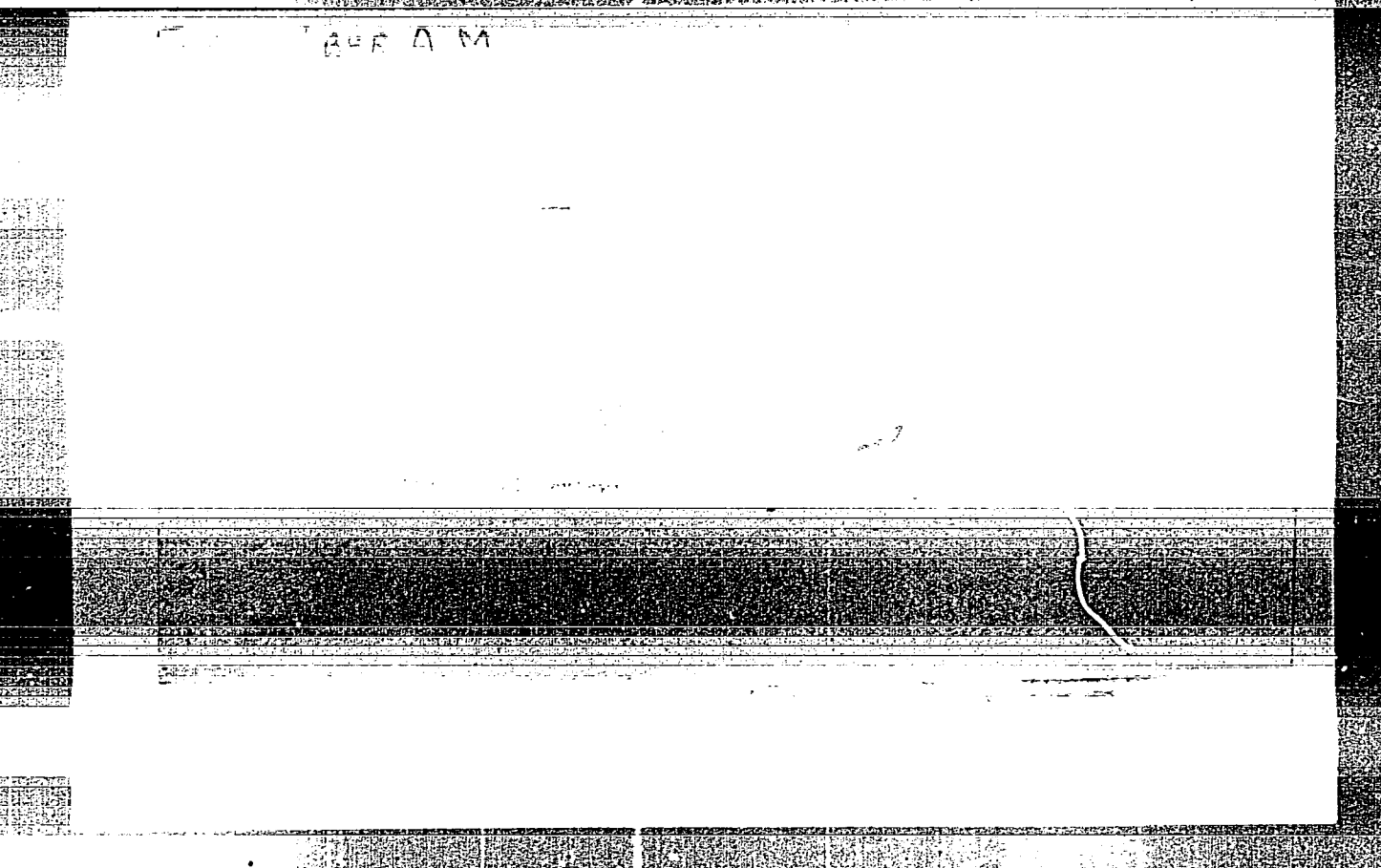
Title tr.: The law of resistance and the law of thermal tensions in the turbulent boundary layer.

Also published in French in Comptes rendus de l'Academie des Sciences de l'URSS.
Nouvelle serie, 1956, v. 54, no.8, p.669-672 (Q60.A52).

AS262.S3663 v. 54

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress,
1955

$$P = (k/(k-1))p^{-(k-1)/(k-1)}$$



111 AND 700 INDEX		180 AND 4TH INDEX	
PROCESSES AND PROPERTIES INDEX			
5730. THERMAL MODELLING OF WATER VAPOUR WITH AIR. Feinsilber, A. (Bull. Acad. Sci., U.S.S.R., Dept Tech. Sci., July 1948, (7), 1015-1022). The article deals with the problem of representing the thermal processes of one viscous medium on the basis of another, substituting for example, air for water vapour, liquid for vapour, etc. Main results indicate the practicability of modelling the thermal processes of water vapour using air, assuming either the absence or presence of heat exchange at the boundary. Theoretical methods are provided for modelling both non-isothermic and isothermic processes.			
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METALLURGICAL LITERATURE CLASSIFICATION			
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1430. A. M. Fainzilber, "Questions of thermal modeling" in <i>Russkii, Vopr. Teor. i SSR (Indust. Anal. Nost. SSR)</i>, Feb. 1, 1948, vol. 20, pp. 667-700. The present paper deals with the problem of the thermal phenomena occurring in an aggregate of viscous fluids in motion. Starting with the equation of the conservation of energy and the hydrodynamic equation, there results the differential equation $T''_{xx} + (1 - P')T_x T_x + (\mu - 1)P_x T_x = 0 \quad (*)$ in which u, T are the ratios of velocity and temperature to their values in sublimable flow, respectively; T_x is the intensity of viscous shear; μ is the kinematic viscosity; ρ is the density; P is Prandtl's number; and B the Mach (Mach) number. Putting $\tau = A_0(1 - u^2)$ so as to satisfy the boundary conditions, Equation (*) reduces to: $T''_{xx} - 2\mu T_x / (1 - u^2) = 0$ for $\mu = 1 - P$; $\mu = (\mu - 1)P_x / P$, a solution of which is given in the form of a series for T in powers of u. Tables of T are set up for water vapor and air and conclusions drawn concerning the temperature distribution obtaining in a mixture of air and water vapor in motion. In the case $B < \frac{1}{2}$, the motion of the fluids can be taken as being isothermal. Introducing the total energy as the dependent variable $Q = \frac{1}{2}u^2 + \int \rho^{-1} dp$, and $X = \mu \int \rho dx$, $Y = \rho(x, y)$ as the independent variables $[\rho(x, y)]$ being the stream function of Stokes the general equation becomes $\partial Q / \partial X = [X(Q - Q_0)]^{1/2} \partial Q / \partial Y \quad (**)$ The energy Q is measured from its value corresponding to an sublimable flow taken as zero. The boundary conditions applicable to (**) are $Q = Q_0$ at $Y = 0$ and $Q = 0$ at $Y = \infty$. Equation (**) is general in the sense that it holds for any fluid, the various viscous continua differing only in the form of the function X. Michael Danduff, USA			
AMR 149 1430. A. M. Fainzilber, "Questions of thermal modeling" in <i>Russkii, Vopr. Teor. i SSR (Indust. Anal. Nost. SSR)</i>, Feb. 1, 1948, vol. 20, pp. 667-700. The present paper deals with the problem of the thermal phenomena occurring in an aggregate of viscous fluids in motion. Starting with the equation of the conservation of energy and the hydrodynamic equation, there results the differential equation $T''_{xx} + (1 - P')T_x T_x + (\mu - 1)P_x T_x = 0 \quad (*)$ in which u, T are the ratios of velocity and temperature to their values in sublimable flow, respectively; T_x is the intensity of viscous shear; μ is the kinematic viscosity; ρ is the density; P is Prandtl's number; and B the Mach (Mach) number. Putting $\tau = A_0(1 - u^2)$ so as to satisfy the boundary conditions, Equation (*) reduces to: $T''_{xx} - 2\mu T_x / (1 - u^2) = 0$ for $\mu = 1 - P$; $\mu = (\mu - 1)P_x / P$, a solution of which is given in the form of a series for T in powers of u. Tables of T are set up for water vapor and air and conclusions drawn concerning the temperature distribution obtaining in a mixture of air and water vapor in motion. In the case $B < \frac{1}{2}$, the motion of the fluids can be taken as being isothermal. Introducing the total energy as the dependent variable $Q = \frac{1}{2}u^2 + \int \rho^{-1} dp$, and $X = \mu \int \rho dx$, $Y = \rho(x, y)$ as the independent variables $[\rho(x, y)]$ being the stream function of Stokes the general equation becomes $\partial Q / \partial X = [X(Q - Q_0)]^{1/2} \partial Q / \partial Y \quad (**)$ The energy Q is measured from its value corresponding to an sublimable flow taken as zero. The boundary conditions applicable to (**) are $Q = Q_0$ at $Y = 0$ and $Q = 0$ at $Y = \infty$. Equation (**) is general in the sense that it holds for any fluid, the various viscous continua differing only in the form of the function X. Michael Danduff, USA			

CA

2

Problem in chemical dynamics (viscous flow of colloidal solutions). A. M. Fainzil'ber. *Doklady Akad. Nauk S.S.S.R.* 62, 457-60 (1948). — A partial differential equation for the motion of a colloidal soln. is derived. In form it is identical with the equation for conduction of heat in a rod, which phenomenon can therefore serve as a model for viscous flow of a colloid. B. A.

Fainzil'ber, A. M. Solution of the equations of isothermal
gas flows by quadratures
VS 62 605 606 1978

By assuming isothermal flow, the
velocity and pressure fields are determined.

atmospheric Reviews.

4

FAINZIL'BER, A. M.

Nekotorye sluchai privedeniia uravnenii dvizheniia v pogranichnom sloe viakoi szhi-
maemoi zhidkosti k obyknovennym differentsial'nym uravneniam. (Akademiia Nauk SSSR.
Doklady. Novaia seria, 1949, v. 64, no. 6, p. 775-778)

Title tr.: Some cases of reduction of equations of motion in a boundary layer of a
viscous compressible fluid to ordinary differential equations.

Reviewed by G. F. Carrier in Mathematical Reviews, 1949, v. 10, no. 10, p. 756.

AS262.S3663 v.64

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress,
1955

2

CA

Some relations of hydrodynamic processes of chemical technology. A. M. Paimon'ber. *Doklady Akad. Nauk S.S.S.R.* 80, 4th 1960. — For gas with an admixt. flowing over solid electrodes and a heterogeneous reaction occurring on the surface (example of air and NH_3 flowing over surface covered with H_2PtCl_6), math. derivations are made of distribution of diffusion currents. Derivations are given for homogeneous reactions, for reactions of the n th order ($V = k^n$), and for vol. reaction not accompanied by surface reaction. B. Z. Kamich

1951

32

Thermal Energy Losses During Flow of Viscous Liquids at High Reynolds Numbers. (In Russian.)
A. M. Fainzil'berg, *Doklady Akademii Nauk SSSR* (Reports of the Academy of Sciences of the USSR), new ser., v. 60, Dec. 1, 1940, p. 503-508.

On the basis of theoretical considerations, a new formula for determination of the above is derived and interpreted for different values of the variables.

FAYNZIL'BER, A. M.

USSR/Physics

Card 1/1

Pub. 22 - 8/52

Authors :

Faynzil'ber, A. M.

Title :

Integrals for expressing similarity in turbulence and temperature fields

Periodical :

Dok. AN SSSR 100/2, 225-228, Jan 11, 1955

Abstract :

Integrals are derived for hydrodynamic equations expressing the stream lining profiles of any arbitrary shape by a viscous incompressible liquid at constant or variable temperature. The similarity of the integrals expressing a turbulent and thermal conditions of the streamlined profiles is indicated. Two USSR references (1945,1948).

Institution :

.....

Presented by :

Academician A. I. Nekrasov, September 21, 1954

FAYNZIL'BER, A. M.

124-57-2-2094

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 2, p 89 (USSR)

AUTHOR: Faynzil'ber, A. M.

TITLE: ~~Some Mathematical Problems~~ of the Aerodynamics of the
Separation of Granular Mixtures (Nekotoryye matematicheskiye
voprosy aerodinamiki razdeleniya zernovoy smesi)

PERIODICAL: Dokl. Mosk. s.-kh. akad. im. K. A. Timiryazev, 1956, Nr 22,
pp 412-414

ABSTRACT: Bibliographic entry

1. Mixtures--Separation
2. Mixtures--Aerodynamic properties
3. Mathematics

Card 1/1

FAYNZILBER, A.M.

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/2 PG - 387
 AUTHOR FAJNSILBER A.M.
 TITLE Energetic forms of the equations of motion of a viscous fluid and the integral of slightly vortical flows.
 PERIODICAL Doklady Akad. Nauk 106, 793-796 (1956)
 reviewed 11/1956

The stationary plane flow of a viscous incompressible fluid is described by the equations

$$(1) \quad u_x \frac{\partial u_x}{\partial x} + u_y \frac{\partial u_x}{\partial y} = - \frac{1}{\rho} \frac{\partial p}{\partial x} - \frac{\partial U}{\partial x} + \nu \left(\frac{\partial^2 u_x}{\partial x^2} + \frac{\partial^2 u_x}{\partial y^2} \right)$$

$$(2) \quad u_x \frac{\partial u_y}{\partial x} + u_y \frac{\partial u_y}{\partial y} = - \frac{1}{\rho} \frac{\partial p}{\partial y} - \frac{\partial U}{\partial y} + \nu \left(\frac{\partial^2 u_y}{\partial x^2} + \frac{\partial^2 u_y}{\partial y^2} \right)$$

$$(3) \quad \frac{\partial u_x}{\partial x} + \frac{\partial u_y}{\partial y} = 0.$$

Here u_x and u_y are components of the velocity, p - pressure, ρ - density, ν - kinematic coefficient of viscosity, U - potential of the mass forces. If (1) is differentiated with respect to x , (2) with respect to y , and if the results are added and if (3) is taken into account, then an equation is obtained which does not contain

Doklady Akad. Nauk 106, 793-796 (1956)

CARD 2/2

PG - 387

$\frac{D(u_x, u_y)}{D(x, y)} = \frac{1}{2} \nabla^2 \left(\frac{p}{\rho} + U \right)$, where $\frac{D(u_x, u_y)}{D(x, y)}$ is the Jacobian of the transformation of x and y into u_x and u_y . If $H = \frac{v^2}{2} + \frac{p}{\rho} + U + a\omega$ is introduced as a new dependent variable ($a = \text{const}$, $\omega = \frac{\partial u_y}{\partial x} - \frac{\partial u_x}{\partial y}$ the vortex, $v = \sqrt{u_x^2 + u_y^2}$), then it is obtained for the determination of H

$$\frac{dH}{dt} = v(\nabla^2 H - \omega^2).$$

This equation can be linearized for slightly vortical flows: $\frac{dH}{dt} = v\nabla^2 H$.
The last equation possesses the integral

$$(4) \quad H = \frac{v^2}{2} + \frac{p}{\rho} + U + a\omega = \text{const}$$

which is a generalization of Bernoulli's integral. The author proposes to use this integral for a precision and development of the theory of boundary layers by dividing the whole range of flow into three zones: 1) Vortex zone (boundary layer); 2) Zone of weak vortices with the integral (4); 3) Zone free of vortices, where $\omega = 0$ and (4) passes over into the usual integral for ideal fluids.

AUTHOR: FAYNZIL'BER, A.M. PA - 2235
 TITLE: ~~Similarity Integrals~~ in the Hydrodynamic of Heterogeneous and
 Homogeneous Processes. (Integraly podobiya gidrodinamiki getero-
 gennykh i gomogennykh protsessov, Russian).
 PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 112, Nr 4, pp 607 - 610,
 (U.S.S.R.)
 Received: 4 / 1957 Reviewed: 4 / 1957
 ABSTRACT: In many problems in practice schemes of the motion of a viscous
 gas are found, which are accompanied by heterogeneous or homo-
 geneous chemical reactions.

At first the author investigates the similarity integrals of the
 rotational fields and of the concentration fields for hetero-
 geneous reactions. As in the problems under consideration the
 velocity of motion differs considerably from the velocity of sound,
 compressibility is not taken into consideration and ρ can be put
 equal to 1. The system of hydrodynamic diffusion equations is
 written down. $c = au_x + b$ is the only known integral for this
 system, which, however, is valid only for the special case of a
 lacking pressure gradient (boundary layer on a plate). Here an
 integral for the general case with an existing pressure gradient
 (circulation round a curvilinear profile) is obtained. By the aid

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PA - 2235

Similarity Integrals in the Hydrodynamic of Heterogeneous and Homogeneous Processes.

of a new dependent variable $\Omega = c - a(\frac{u_x}{y} - \frac{u_y}{x})$ (where a denotes a certain constant) the following equation for Ω is obtained from the above mentioned system of equations:

$$u_x(\partial\Omega/\partial x) + u_y(\partial\Omega/\partial y) = \mu(\frac{\partial^2\Omega}{\partial x^2} + \frac{\partial^2\Omega}{\partial y^2})$$

This equation has the integral $\Omega = b = \text{const}$, or, written down in a different way, $c = a\omega + b$. That is to say, a similarity integral of the rotational fields and of the concentration fields is obtained. This applies in the case of the flow round a profile of any shape. The problem is then investigated as to what boundary conditions the integral $c = a\omega + b$ corresponds. The solutions for such gas flows as are accompanied by a reaction on the surface and also for other cases, e.g. confusers, polygonal and exponential velocity distributions etc are obtained in a similar manner. In the special case of a flow round a plate a more general integral for the above deduced equation can be found.

Now the similarity integral for homogeneous reactions is taken into consideration. In the case of homogeneous reactions the

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Similarity Integrals in the Hydrodynamic of Heterogeneous and Homogeneous Processes. PA - 2235

equation for the concentrations (written down in the form of a boundary layer) runs as follows:

$$u \frac{\partial c}{\partial x} + v \frac{\partial c}{\partial y} = \mu \frac{\partial^2 c}{\partial y^2} + V_{ch}$$

Here V_{ch} denotes the velocity of the spatial chemical reaction. The solution of this equation can be found in form of a similarity integral of the concentration- and velocity-fields. Finally the homogeneous second class reaction in the case of flows in a confusor is briefly discussed.

ASSOCIATION: Not given
PRESENTED BY: Member of the Academy NEKRASOV, A.I.
SUBMITTED: 27.8.1957
AVAILABLE: Library of Congress
Card 3/3

3(2),3(4)

AUTHOR: None Given

SOV/6-59-6-21/22

TITLE: Chronicle (Khronika)

PERIODICAL: Geodeziya i kartografiya, 1959, Nr 6, pp 74-75 (USSR)

ABSTRACT: At the Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii (Moscow Institute of Geodetic, Aerial Survey and Cartographic Engineers), the Ordinary Scientific Conference took place on April 22-24. A. I. Ivanov, Docent, Candidate of Philosophic Sciences, spoke on "The Outstanding Work of Materialistic Philosophy". A. N. Baranov, Chief of the Glavnoye upravleniye geodezii i kartografii (Main Administration of Geodesy and Cartography) spoke "On the Seven-year Plan for the Development of Topographic-geodetic and Cartographic Work". The following reports were delivered in the geodetic section: A. M. Faynzil'ber, Professor, "Some Integrals of the Surface Theorems and Their Application to the Mechanics of Artificial Satellites of the Earth".- A. V. Kondrashkov, Docent, "Radio-electronics and Geodesy".- G. V. Bagratuni, Docent, "Accuracy in the Solution of Inverse Position Computations by the Coordinates of Different Geodetic Systems".- P. F. Shokin, Docent,

Card 1/4

Chronicle

SOV/6-59-6-21/22

"Gravimetry in the Present Stage of Development".- Yu. V. Mokhov, Assistant, reported on the influence of rounding errors on the accuracy of solution of linear equation systems.- V. D. Bol'shakov, Candidate of Technical Sciences, spoke on the "Investigation of the Rules of Distribution of Errors in Generalizing the Relief in Surveys".- N. D. Drozdov, Post-graduate Student, reported on the solution of linear systems for the adjustment of geodetic networks.- V. M. Korolevtsev, Docent, demonstrated an apparatus designed by him for parallactic traversing with a short constant vertical basis.- The following reports were delivered in the aerophotogeodetic section: A. S. Valuyev, Docent, reported on a parallactic reducer, an additional device to the stereo-comparator.- N. N. Veselovskiy, Docent, spoke on the possibility of generalizing the formulas for the air survey of outlines and altitudes.- B. N. Rodionov and N. P. Zakaznov, Docents, reported on a band-shaped central shutter for aerial cameras, B. N. Rodionov on a stroboscopic collimator sight, B. N. Rodionov and Engineer V. I. Yerkhov on the scheme of a computing device for the automatic entry of the airplane into the route for air surveys.- Ye. P. Arzhanov presented some simplifications for the computation of constants of aerial cameras.- Yu. N. Kuznetsov,

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Chronicle

SOV/6-59-6-21/22

Post-graduate Student, spoke on the use of rapid film recording for the investigation of aerial-camera shutters.- V. I. Grishin, Engineer of the Gektsekhkontora Gosplana RSFSR, spoke "On Some Results and Tasks in the Execution of Large-scale Photo-theodolite Surveys".- The following reports were delivered in the cartographic section: Professor V. I. Sukhov spoke on the content of the new map on a scale of 1 : 2,500,000.- Professor A. I. Preobrazhenskiy spoke on "Mineral Resources of the USSR and Their Representation on Economic Maps".- S. S. Sudakova, Assistant, reported on the method of geographic field research during the preparatory editorial work at the object of cartography.- A. S. Tolstoukhov, Assistant, reported on the improvement of relief representation of wooded flat country on the topographic map on a scale of 1 : 10,000.- Yu. S. Bilich, Assistant, reported on maps of apartment building in the atlases of the oblast'.- In the section of building of apparatus, I. I. Men'shikov, Docent, spoke on the life of A. S. Popov.- N. V. Yakovlev, Assistant, reported on reflecting lenses, Professor I. G. Sarkin on the increase in accuracy in measuring physical magnitudes, Engineer V. M. Nazarov on vertical axial systems for highly accurate optic theodolites, V. S. Usov, Assistant, on sighting with telescopes with zone plates,

Card 3/4

Chronicle

SOV/6-59-6-21/22

P. P. Zakharov, Assistant, on the automatization of
evaluation of image couples.

Card 4/4

FAYNZIL'BER, A. M. (Prof.)

"The Use of Some Mathematical Methods in Agriculture."

report presented at the 3rd Conference on the use of Mathematics in Biology,
Leningrad University, ~~Jan~~ 23-28 Jan 1961.

(Primeneniye matematicheskikh Metodov v Biologii. II, Leningrad, 1963, pp. 5-11

(Moscow Agricultural Academy imeni Timiryazev)

YANILBERG, A.M.

- 2) A.M. Zyurkov - The Differential Equations of Expanded Reproduction
 - 3) V.V. Kuznetsov - Optimal Planning and Economic Indicators
 - 4) A.A. Buzin - Mathematical Analysis of the Optimal Control of Production
 - 5) S.I. Zubov - Mathematical Analysis of Rates and Proportions in the National Economy (Primarily in Determining the Economic Efficiency of Capital Investment)
 - 6) S.I. Zubov, S.P. Maslov - Price Relationships in Expanded Reproduction
 - 7) S.I. Zubov and V.S. Vokhman - Mathematical (and) and Dynamic Models of a Socialist National Economic Balance in Physical Terms
- c. Reading Section - 15 December 1979, 1600 hours
- III. The Theory of Linear Programming
- 2) S.I. Zubov - Review of Methods for the Solution of Linear Programming Problems
 - 3) A.A. Buzin - Algorithmic Solutions of Transport Problems through Approximation by Means of Hypothetically Optimal Plans
 - 4) S.P. Gerasimov - The Algebra of Linear Programming
 - 5) V.V. Kuznetsov - Recommendation for a Method of Re-computing Metrics of Total Output Coefficients under Conditions of Changing Technology
 - 6) S. Chayvalin - A Practical Interpretation of Kantorovich's Controlling Multipliers
 - 7) S. Maslov - Linear Programming Methods and Material Supply
- d. Reading Section - 16 December 1979, 1000 hours
- III. Economic Models and Dynamic Programming
- 2) V.V. Kuznetsov - Mathematical Models of the National Economy in Economic Economics and a Critique thereof
 - 3) S.I. Zubov - Mathematical Methods of Determining the Maximum Efficiency of Capital Investment
 - 4) V.V. Kuznetsov - Concerning the Economic Cycle Models and Dynamic Economic Models of Dynamic Economics
 - 5) V.V. Kuznetsov - Problems in the Application of Dynamic Programming in Economic Research
 - 6) S.P. Gerasimov - Economic Models and the Analysis of Control
 - 7) S.I. Zubov - The Building (evolution) Models as a Model for the Application of Mathematical Methods in Long-Term Economic Planning
- e. Reading Section - 16 December 1979, 1600 hours
- IV. The Transportation Problem
- 2) S.I. Zubov - Finding the Best Suitable Assignment of Various Types of Fleet Vessels to Lines
 - 3) A.A. Buzin - Extremal Methods in Economic Research on the Optimum Spatial Distribution of Projects
 - 4) S.P. Maslov - The Application of Linear Programming to Air Transport Economics

Report submitted at the Soviet Conference on Problems in the Application of Mathematical Methods in Economic Research, Leningrad, 19-21 January 1980.

FAYNZIL'BER, A. M. (Moscow)

"The methods of integration of some differential equations of hydrodynamics including the effect of chemical reactions."

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964.

1ST AND 2ND YEARS		PROCESSES AND PROPERTIES INDEX	
F 411. CERTAIN PROBLEMS IN THEORY OF FLOW IN INTERNAL COMBUSTION ENGINES. Fainsil'berg, Lm. M. (Doklady Ak ad. Nauk SSSR (Rep. Acad. Sci. U.S.S.R.), 21 Dec. 1950, vol. 75, (6), 803-806). Presents theoretical, mathematical analysis and its graphical interpretation. B.L.R.			
411-414 METALLURGICAL LITERATURE CLASSIFICATION			
1950-1951		1952-1953	
1954-1955		1956-1957	
1958-1959		1960-1961	
1962-1963		1964-1965	
1966-1967		1968-1969	
1970-1971		1972-1973	
1974-1975		1976-1977	
1978-1979		1980-1981	
1982-1983		1984-1985	
1986-1987		1988-1989	
1990-1991		1992-1993	
1994-1995		1996-1997	
1998-1999		2000-2001	

FAYNZIL'BER, E. M.

"Efficiency of Low Horsepower Steam Engines and Optimal Temperature for
Superheating Steam," Za ekon. top., 9, No.6, 1952

FAYNZIL'BER, E. M.

"Power Driven Grain Dryer with Low Potential Heat," Dokl. AN SSSR,
17, No.6, 1952

FAYNZIL'BER, YE M., Prof.

Gas and Oil Engines

Problems of the theory of outflow in high speed piston engines. Vest. mash., 32,
No. 3, 1952.

Monthly List of Russian Acquisitions, Library of Congress, October 1952. UNCLASSIFIED.

1. FAINZIL'BERG, YE. M., Prof.
2. USSR (600)
4. Iurenev, V. N.
7. "Industrial steam turbine electric power plants." V. N. YUrenev. Reviewed by Prof. Ye. M. Fainzil'berg. Prom.energ No. 1 1953.

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

ACHERKAN, N.S., doktor tekhnicheskikh nauk, professor, glavnyy redaktor;
 ANTSYPEROV, M.S., kandidat fiziko-matematicheskikh nauk; ASTAKHOV, K.V.,
 professor; VUKALOVICH, M.P., professor, doktor tekhnicheskikh nauk;
 KOROLIN, A.I., kandidat tekhnicheskikh nauk; KRIPETS, E.S., inzhener;
 LAZAREV, L.P., kandidat tekhnicheskikh nauk; MAZYRIN, I.V., inzhener;
 MATYUKHIN, V.M., kandidat tekhnicheskikh nauk; NIKITIN, N.N., kandidat
 fiziko-matematicheskikh nauk; PANICHKIN, I.A., kandidat tekhnicheskikh
 nauk; PETUKHOV, B.S., kandidat tekhnicheskikh nauk; PODVIDZ, I.G.,
 kandidat tekhnicheskikh nauk; SIMONOV, A.F., inzhener; SMIRYAGIN, A.P.,
 kandidat tekhnicheskikh nauk; FAYZIL'BER, E.M., professor, doktor
 tekhnicheskikh nauk; KHALIZEV, G.P., kandidat tekhnicheskikh nauk;
 YAN'SHIN, B.I., kandidat tekhnicheskikh nauk; MARKUS, M.Ye., inzhener,
 redaktor; KARGANOV, V.G., redaktor graficheskikh materialov, inzhener;
 SOKOLOVA, T.F., tekhnicheskiiy redaktor.

[A machinebuilder's manual in six volumes] Spravochnik mashinostroitel'ia
 v shesti tomakh. Izd. 2-e, ispr. i dop. Moskva, Gos. nauchno-tekhn.
 izd-vo mashinostroit. lit-ry, Vol. 2. 1954. 559 p. (MIRA 8:1)
 (Machinery--Construction) (Mechanical engineering)

FAYNZILBER, E. M.

USSR/Engineering-Valves

Card : 1/1

Authors : Faynzil'ber, E. M., Dr. Sci., Prof.

Title : ~~Study of regulating valves~~
Study of regulating valves

Periodical : Vest. Mash. 34/5, 28 - 32, May 1954

Abstract : Valves used on reciprocating and rotational machines, and, particularly, on internal combustion engines, are studied and analyzed. Methods for testing valves are given together with formulas and illustrations.

Institution :

Submitted :

AMTSYPEROV, M.S., kand.fiz.-mat.nauk; VUKALOVICH, M.P., prof., doktor tekhn.nauk, laureat Leninskoy premii; KRIPETS, E.S., inzh.; LAZAREV, L.P., prof., doktor tekhn.nauk; MAZYRIN, I.V., inzh.; NIKITIN, N.N., kand.fiz.-mat.nauk; OCHKIN, A.V., inzh.; PANICHKIN, I.A., prof., doktor tekhn.nauk; PETUKHOV, B.S., prof., doktor tekhn.nauk; PODVIDZ, L.G., kand.tekhn.nauk; SIMONOV, A.F., inzh.; SMIRYAGIN, A.P., kand.tekhn.nauk; TOMMAKOV, G.A., kand.tekhn.nauk; FAYNZIL'BER, E.M., prof., doktor tekhn.nauk; KHALIKOV, G.P., kand.tekhn.nauk; CHESACHENKO, V.F., kand.tekhn.nauk; YAN'SHIN, B.I., kand.tekhn.nauk; ACHERKAN, N.S., prof., doktor tekhn.nauk, red.; KUDRYAVTSEV, V.N., prof., doktor tekhn.nauk, red.; PONOMAREV, S.D., prof., doktor tekhn.nauk, laureat Leninskoy premii, red.; 'SATEL', E.A., prof., doktor tekhn.nauk, red.; SERENSEN, S.V., akademik, red.; RESHETOV, D.N., prof., doktor tekhn.nauk, red.; KARGANOV, V.G., inzh., red.graficheskikh materialov; GIL'DENBERG, M.I., red.izd-va; SOKOLOVA, T.F., tekhn.red.

[Manual of a mechanical engineer in six volumes] Spravochnik mashinostroitelia v shesti tomakh. Red.sovet N.S.Acherkan i dr. Izd.3., ispr. i dop. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry. Vol.2. 1960. 740 p. (MIRA 14:1)

1. AN USSR (for Serensen).
(Mechanical engineering) (Machinery--Construction)

FAYNZIL'BERG, E.M., doktor tekhn. nauk, prof.; REZNIKOV, B.L., dots.,
retsensent; MAKHON'KO, M.G., dots., retsensent; SOLOV'YEVA,
N.P., red.; KLEYMAN, L.G., tekhn. red.

[Internal combustion engines (fundamentals of the theory and
their parts); lecture course] Dvigateli vnutrennego sgoraniia
(osnovy teorii i elementy konstrukttsii); kurs lektsii. Mo-
skva, Vses. zaochnyi in-t inzhenerov zhel-dor. transporta,
1961. 74 p. (MIRA 15:8)

1. Moskovskiy institut inzhenerov zheleznodorozhnogo tran-
sporta im. I.V.Stalina (for Resnikov, Makhon'ko).
(Gas and oil engines)

L 37916-66 EWT(1)/EEC(k)-2 WH/AT

ACC NR: AP6023212

(A)

SOURCE CODE: UR/0113/66/000/007/0009/0010

AUTHOR: Faynzil'ber, E. M. (Doctor of technical sciences); Drabkin, L. M.

62

ORG: All-Union Correspondence Institute of Railroad Transportation Engineers
(Vsesoyuznyy zaochnyy institut inzhenerov zheleznodorozhnogo transporta)

B

TITLE: Use of engine exhaust heat in a thermoelectric generator for powering the electrical equipment of automobiles

SOURCE: Avtomobil'naya promyshlennost', no. 7, 1966, 9-10

TOPIC TAGS: heat sensitive element, thermocouple, thermoelectric power, thermoelectric equipment

ABSTRACT: An experimental study of the use of exhaust gases of internal-combustion engines for feeding thermocouple elements has been carried out using thermocouple elements mounted on the exhaust pipe of a one-cylinder 6-hp diesel engine. Optimal branch sections S_n and S_p were selected according to the formula

$$\frac{S_n}{S_p} = \sqrt{\frac{\rho_n \lambda_p}{\rho_p \lambda_n}}$$

where ρ_n and ρ_p are the specific resistances of branches n and p, and λ_n and λ_p are their thermal conductivities; for the investigated materials, $S_n/S_p = 0.73$. The measured values of the differential thermal emf and electrical conductivity of 5

Card 1/2

UDC: 621.431.73:621.43.019.9.001.8

L 37916-66

ACC NR: AP6023212

thermocouples were used to determine their characteristics at the following temperature regimes: $T_1 = 206^\circ$; $\Delta T = 167^\circ$; $T_1 = 292^\circ$; and $\Delta T = 246^\circ$. The thermoelectric efficiency is shown relative to ΔT . The experiments revealed the possibility of utilizing exhaust heat to power thermoelectric generators for use in the automobile and tractor industry. Their feasibility depends on the possibility of obtaining inexpensive materials possessing the required high-quality factor z ($z = \frac{\alpha^2}{\lambda\rho}$,

where α is the differential thermal emf) at temperatures between 900 and 1100K.

Orig. art. has: 5 figures and 2 tables.

[GE]

SUB CODE: 09, 13/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001/ ATD PRESS: 5047

Card 2/2 MLP

Isomerization of unsaturated hydrocarbons in contact with metal oxides. VII. Isomerization of allylbenzene, diallyl, and 4-phenyl-1-butene in the presence of chromic oxide deposited on aluminum oxide. R. Ya. Levina, L. A. Derendyayeva and A. A. Fanzil'berg (Moscow State Univ.) J. Gen. Chem. (U.S.S.R.) 16, 817-20(1946); cf. C.A. 35, 6936².—At 225-300° $\text{Al}_2\text{O}_3\text{-Cr}_2\text{O}_3$ catalyst is effective in isomerizing allylbenzene, diallyl, and 4-phenyl-1-butene into propenylbenzene (60%), bipropenyl (73%), and 4-phenyl-3-butene (57%), with best results being obtained at 250° and a flow rate of 0.12-0.15 g./min. Thus the isomerization from α - to γ -olefin is readily achieved.

G. M. Kosolapoff

CA
10
Synthesis of olefin and paraffin hydrocarbons with iso structure. V. 2,4-Dimethyl-1,3-pentadiene is the synthesis of hydrocarbons with a quaternary carbon atom. R. Ya. Levina, A. A. Fainzil'berg, and N. P. Shusharina. *Zhur. Obshch. Khim.* (J. Gen. Chem.) 18, 1775-80 (1948); cf. C. 42, 1000; 41, 1500. The best prepn. of 2,4-dimethyl-1,3-pentadiene (I) is: 0.5 mole mesityl oxide in Et₂O is added with stirring to 0.5 mole ice-cooled MeMgI, refluxed 2 hrs., let stand overnight, refluxed 3 hrs., treated with ice-NH₄Cl, and the org. layer sep'd. rapidly, washed, dried, and dist'd. after preliminary heating 1 hr. to complete the dehydration; I (82% yield), *b_m* 93.4°, *n_D²⁰* 1.4118, *d₄²⁰* 0.7370. Addn. of 7-8 g. dry HBr to 10 g. I with ice-cooling gives *Me₂C=CHCMe₂Br*, which is treated, with Dry-Ice cooling, with a few pieces of fused KOH and blown with N until HBr is eliminated and the purified bromide is immediately treated with the Grignard reagents: iso-PrMgBr gives 26% 2,4,4,5-tetramethyl-2-hexene, *b_m* 153-3.7°, *n_D²⁰* 1.4385, *d₄²⁰* 0.7083 (some 1 dimer, *b_m* 218-19°, is also obtained); hydrogenation over Ni-Al₂O₃ gave 2,4,4,5-tetramethylhexane, *b_m* 153-3.4°, *n_D²⁰* 1.4280, *d₄²⁰* 0.7487. Similarly iso-AmMgBr gave 30% 2,4,4,7-tetramethyl-2-octene, *b_m* 70.2-70.5°, *n_D²⁰* 1.4375, *d₄²⁰* 0.7085, hydrogenated over Ni-Al₂O₃ at 170° to 2,4,4,7-tetramethyloctane, *b_m* 67.5°, *n_D²⁰* 1.4217, *d₄²⁰* 0.7597; similarly, PhMgBr gave 26% 2,4-dimethyl-4-phenyl-2-pentene, *b_m* 93.7°, *n_D²⁰* 1.4063.

d₄²⁰ 0.8701, hydrogenated over Pt-C in EtOH to 2,4-dimethyl-4-phenylpentane, *b_m* 92.5°, *n_D²⁰* 1.4813, *d₄²⁰* 0.8920.
G. M. Kosolapoff

ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION

FEINZIL'BERG, A. A.

R. Ia. Levine, A. A. Feinzil'berg and N. P. Shusherina, Synthesis of the isostructure of olefin and paraffin hydrocarbons. V. 2, 4-di-methyl-penta-diene-1, 3 in the synthesis of hydrocarbons with a quaternary carbon atom. p. 1775

The method of synthesis of 2, 4-di-methyl-pentadiene-1,3 was perfected which increased its yield to 62.5% of the theoretical.

The Zelinskii Lab. of Organic Chem. of the Moscow State University, Holder of the Lenin Order, October 8, 1947

SO: Journal of General Chemistry (USSR) 28, (80) No. 10 (1948):

FAYNZIL'BERG, A. A.

"Allyl Rearrangement of Ternary B, V-Unsaturated Halogenides Upon Their Reaction With Magnesium-Organic Compounds." Thesis for degree of Cand. Chemical Sci. Sub. 30 Nov 49, Moscow Order of Lenin State U imeni M. V. Lomonosov.

Summary 82, Dec 52, Dissertations Presented For Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.

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LA

Synthesis of hydrocarbons. 2,3-Dimethyl-1,3-butadiene in the synthesis of 2,3-dimethyl-2-alkenes and 2,3-dimethyl-alkanes. N. Ya. Levin, A. A. Fainzil'berg, and K. V. Iitenberg. *Doklady Akad. Nauk S.S.S.R.* 79, 30-32 (1950), cf. C.A. 44, 6336s.—2,3-Dimethylalkenes or alkanes are obtained from Grignard reagents with 2,3-dimethyl-1,3-butadiene hydrochloride or hydrobromide; the 2 halides exist in 2 forms representing an allylic system. $\text{Me}_2\text{C}(\text{X})\text{CMe}(\text{CH}_3)\text{CH}_2$ and $\text{Me}_2\text{C}(\text{X})\text{CMe}(\text{CH}_3)\text{CH}$; even at -20° with deficiency of RMgX most of the reaction product corresponds to the primary halide reaction. To 125 g. $[\text{CMe}_2\text{CH}]_2$ and 460 g. Ac_2O was added 4 g. H_3PO_4 in 36 g. Ac_2O ; when the temp. rise ceased (40-60 min.) the mixt. was heated to 65° for 8 hrs. and after quenching in H_2O gave 65% pinacol diacetate, m. $65-5.2^\circ$ (from petr. ether); 2 moles Ac_2O per mole pinacol gave the monoacetate, 75%, b. $81-2^\circ$, n_D^{20} 1.4340, d_4^{20} 0.9902. Pyrolysis of the diacetate in a Pyrex tube with glass-wool tube filler at $430-30^\circ$ in a N atm. gave 84% 2,3-dimethyl-1,3-butadiene, b. 68.6° , n_D^{20} 1.4360, d_4^{20} 0.7202; this (0.25 mole) with 0.18 mole HCl at -15° gave the hydrochloride, $\text{C}_6\text{H}_{12}\text{Cl}_2$, b. $43-5^\circ$, n_D^{20} 1.4603, d_4^{20} 0.9031; treatment of this at -60° in Et_2O with EtMgBr , followed by 2.5 hrs. at -20° and heating 4 hrs., and standing overnight, gave 45% hydrocarbons, b. $117-21.5^\circ$, shown by Raman analysis to consist of 93% 2,3-dimethyl-2-hexene and 7% 2,3,3-trimethyl-1-pentene. Addn. of an equiv. amt. of HBr to 2,3-dimethyl-1,3-butadiene gave the hydrobromide, which was treated directly with RMgX ; the alkenes were hydrogenated over Pt-C to yield the said. analogs. The products obtained included: 2,3-dimethyl-2-hexene, b. $121-1.5^\circ$, n_D^{20} 1.4272, d_4^{20} 0.7404; 2,3-dimethyl-2-heptene, b. $145.3-5.4^\circ$, n_D^{20} 1.4316, d_4^{20} 0.7823; 2,3-dimethyl-2-octene, b. $169.1-0.3^\circ$, n_D^{20} 1.4386, d_4^{20} 0.7609; 2,3,6-trimethyl-2-heptene, b. $161.1-2.3^\circ$, n_D^{20} 1.4333, d_4^{20} 0.7561; 2,3-dimethylhexane, b. $115-16.3^\circ$, n_D^{20} 1.4013, d_4^{20} 0.7120; 2,3-dimethylheptane, b. 140° , n_D^{20} 1.4087, d_4^{20} 0.7366; 2,3-dimethyloctane, b. $164.4-4.6^\circ$, n_D^{20} 1.4108, d_4^{20} 0.7377; 2,3,6-trimethylheptane, b. $155-5.3^\circ$, n_D^{20} 1.4137, d_4^{20} 0.7300. G. M. K.

FAINSILBERG, A. A.

R. Ia. Levina, T. I. Tantsyreva, A. A. Fainsilberg and N. N. Mezentsova. Synthesis of hydrocarbons. XXIV. Synthesis of alkanes of isostructure. P. 161.

N. D. Zelinskii Lab.
of Organic Chem.
Moscow State Univ.
Dec. 1, 1950.

SO: Bulletin of the Acad. of Sciences, Izvestia (USSR) Section on Chemical Sciences,
No. 2. (March-April 1951)

C.A.

Synthesis of hydrocarbons. XXV. Synthesis of alkenes with a quaternary carbon atom by means of pyrolysis of the acetates. R. Ya. Levina, A. A. Fajzullberg, T. I. Tantsyeva, and E. G. Tredebova (Moscow State Univ.). *Izv. Akad. Nauk S.S.S.R., Otd. Khim. Nauk* 1951, 321-7; cf. C.A. 46, 9336; 49, 9455g. — Me_2EtCOH (70% yield from Me_2CO and $EtMgBr$), b_p 100-1°, n_D^{20} 1.4011, d_4^{20} 0.8100, shaken 1 hr. with a small excess of concd. HCl with ice cooling, yielded 80% Me_2EtCCl , b_p 51-2.5°, n_D^{20} 1.4043, d_4^{20} 0.8704. This (0.8 mole) and 12 g. Mg treated at -30° to -40° with $EtCHO$ (a higher temp. for the condensation of the aldehyde with $RMgX$ gave very poor yields), and refluxed 4 hrs. gave about 25% *4,4*-dimethyl-3-hexanol, b_p 160-60.4°, n_D^{20} 1.4345, d_4^{20} 0.8411, which (70 g.) and 80 g. Ac_2O , treated with a previously made (24 hrs.) soln. of 1 g. H_3PO_4 in 6 g. Ac_2O , with occasional cooling, gave the 80% acetate, b_p 178.5-80.0°, n_D^{20} 1.4288, d_4^{20} 0.8728. Passage of the ester through a glass-wood filter tube at 400° in a N atm. gave 87% hydrocarbon, *4,4*-dimethyl-3-hexene, b_p 100.3-0.7°, n_D^{20} 1.4155, d_4^{20} 0.7922. The Raman spectrum is reproduced and on the basis of the intensity of 1609 cm^{-1} and 1653 cm^{-1} lines, the substance is 90% *trans*- and 4% *cis*-isomer mixt. Hydrogenation gave $EtCMe_2Pr$, b_p 111-11.3°, n_D^{20} 1.4010, d_4^{20} 0.7980; its Raman spectrum checks that of a previous prepn. (Bazhulin, *et al.*, C.A. 37, 5115°). G. M. Komolov

CA

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isomerization of unsaturated hydrocarbons on contact with metal oxides. XII. Formation of methylpentadienes by dehydration of dimethylallylcarbinol over chromium oxide on aluminum oxide. M. Ya. Levina, A. A. Fainzilberg, V. M. Fateevskii, and E. G. Treshchova (M. V. Lomonosov State Univ., Moscow). *Zhur. Obshch. Khim.* (1. Gen. Chem.) 21, 243-9 (1951); cf. C.A. 41, 10236; 44, 7730d. Alg., activated by CH_3CHCl_2 and treated with a mixt. of CH_3CHCl_2 and Me_2CO yielded 67-70% dimethylallylcarbinol, b.p. 117-19°, n_D^{20} 1.4279, d_4^{20} 0.8429. This, passed over Cr oxide on Al_2O_3 (cf. the reference above) in a N atm., best at 250° and 0.1-0.12 ml./min. gave 70% 2-methyl-1,4-pentadiene (I), b.p. 56.5°, n_D^{20} 1.4053, d_4^{20} 0.6932, and a mixt. of 2-methyl-2,4-pentadiene (II) with 2-methyl-1,3-pentadiene (III), b.p. 72.5-8.5°, n_D^{20} 1.4474, d_4^{20} (omitted in print), containing about 33% II; sepn. by treatment with maleic anhydride gave pure residual III, b.p. 76.3°, n_D^{20} 1.4520, d_4^{20} 0.7280, while the adduct of the III on hydrolysis gave the dimethyltetrahydrophthalic acid, m. 153-4°. Passage of I over Cr oxide on Al_2O_3 at 250° in a N atm. gave 90-95% of a mixt. of II and III, indicating almost complete isomerization. Raman examn. of the products (complete spectra presented) reveal in I the frequencies 1031 cm^{-1} and 1043 cm^{-1} characteristic for $\text{RR}'\text{C}=\text{CH}_2$ and $\text{RCH}=\text{CH}_2$; II shows a wide band at 1000

cm^{-1} , while the detn. of the III in mixts. could be done by the relative intensity of its lines against the 600 cm^{-1} of CHCl_3 , the best lines being 1330, 1216, and 437 cm^{-1} . Thus, the dehydration yields as the primary product I, which then isomerizes on the catalyst. G. M. Kosolapoff

1951

RAY, H. B. G., A. A.

Oct 51

USSR/Chemistry - Antiknock Fuels

"Spectra of Combination Scattering of Certain C₈-C₁₁ Isoalkanes With Tertiary Carbon Atoms," Ye. G. Treschova, V. M. Tatevskiy, T. I. Tantsyeva, A. A. Faynzil'berg, R. Ya. Levina, Moscow State U imeni M. V. Lomonosov.

"Zhur Fiz Khim" Vol XXV, No 10, pp 1239-1247.

Measurements of number and intensity of lines in spectra of combination scattering of 2, 4-dimethylhexane, heptane, octane, and nonane, 2, 4, 5-trimethylhexane, 2, 4, 6-trimethylheptane, and 2, 4, 7-trimethyloctane, in agreement with theoretical conclusions of B. I. Stepanov, showed that different types of branchings of alkane C skeleton are represented by sp characteristics of spectrum.

PA 194T18

FAYNZIL'BERG, A. A.

USSR/Chemistry - Hydrocarbons

Mar 52

"Synthesis of Hydrocarbons. XVIII. Hydrobromides and Hydrochlorides of 2-Methylpentadiene-1,3 and of 4-Methylpentadiene-1,3 in the Synthesis of Hydrocarbons of Iso-Structure," P. Ye. Levina, A. A. Faynzil'berg, Ye. G. Treshchova, Lab of Org Chem Imeni Acad N. D. Zelinskii, Moscow Order of Lenin State U

"Zhur Obshch Khim" Vol XXII, No 3, pp 430-439

These tertiary allyl halides are characterized by the presence of a methyl group in the gamma position with reference to the mobile halogen atom. They are much more stable than the other tertiary allyl halides hydrobromides and hydrochlorides of isoprene

209740

USSR/Chemistry - Hydrocarbons (Contd)

Mar 52

and 2,3-dimethylbutadiene) which do not have a similar structure. Their stability in reactions with org magnesium compds allows their use in the synthesis of hydrocarbons with quaternary carbon atoms.

209740

FAYN IL FOR, H N.

Chemical Abst.
Vol. 48 No. 5
Mar. 10, 1954
Organic Chemistry

Synthesis of hydrocarbons. XVIII. The hydrobromide
and the hydrochloride of 2-methyl-1,3-pentadiene and 4-
methyl-1,3-pentadiene in the synthesis of hydrocarbons
with iso structure. R. Ya. Levina, A. A. Palniz'berg,
and B. G. Trushchova (Moscow State Univ., J. Gen.
Chem. U.S.S.R. 22, 497-504 (1952) (Engl. translation).—
See C.A. 47, 2678d. XX. Synthesis of alkenes and
alkanes with a quaternary carbon atom. R. Ya. Levina,
T. I. Tantsyreva, and A. A. Palniz'berg (Lomonosov
State Univ., Moscow). *Ibid.* 635-9.—See C.A. 47,
2679d. XXI. Hydrobromides of diene hydrocarbons in
the synthesis of olefinic and paraffinic hydrocarbons with
a quaternary carbon atom. R. Ya. Levina and N. P.
Shusharina. *Ibid.* 641-6.—See C.A. 47, 2679a. XXII.
Transformation of diene hydrocarbons into cyclopropane
hydrocarbons. R. Ya. Levina and B. M. Gladshtein.
Ibid. 647-52.—See C.A. 47, 2680b. H. L. H.

6-4-54
EJP

FAYNZIL'BERG, A.A.

USSR/Chemistry - Hydrocarbons, Fuels

Apr 52

"Synthesis of Hydrocarbons, XX. Synthesis of Alkenes and Alkanes With a Quaternary Carbon Atom," A. Ya. Levina, T. I. Tantsyreva, A. A. Faynzil'berg, Moscow Order of Lenin State U imeni M. V. Lomonosov, Lab of Org Chem imeni Acad N. D. Zelinskiy

"Zhur obshch Khim" Vol XXII, No 4, pp 571-577

By the action of tertiary alkyl magnesium chloride on allyl bromide, 3 ethylene hydrocarbons with a quaternary c-atom were synthesized: 4,4-dimethylheptene-1, 4,4,5-trimethylhexene-1, and 4,4-dimethyloctene-1. By catalytic hydrogenation of the alkenes, alkanes with a quaternary C-atom were obtained.

224T31

FAYNZIL'BERG, A. A.

Combination scattering spectra of hydrocarbons of various classes. III. Combination scattering spectra of several alkadienes with a system of isolated or conjugated double bonds. B. G. Treshchova, V. M. Tatevskii, R. Ya. Levina, A. A. Faynzil'berg, and E. A. Viktorova (M. V. Lomonosov State Univ., Moscow). Zhur. Fiz. Khim. 26, 1280-71 (1962); cf. C.A. 43, 7346 (1949).—Raman spectra have been studied of 2-methyl-1,4-pentadiene (I), 2-methyl-2,4-pentadiene (II), 2,3-dimethyl-1,3-butadiene (III), 2,4-pentadiene (IV), 2,4-octadiene (V), and 2,4-hexadiene (VI). The b.p., n_D^{20} , and d_4^{20} in that order are: for I, 58.5°, 1.4063, 0.6832; II, 70.3°, 1.4520, 0.7200; III, 68.6°, 1.4390, 0.7283; IV, 105°, 1.4477, 0.7323; V, 133°, 1.4580, 0.7439. Wave nos. and corresponding intensities for I-V are tabulated between 240 and 3131 cm^{-1} . The characteristic lines of II and III are 1630 and 1654 cm^{-1} , resp., with intensities of 678 and 1050 units, resp. IV has 2 characteristic lines at 1654 and 1653 cm^{-1} with intensities of 1200 and 1050 units, resp. It is concluded that in the 1600-1680- cm^{-1} region alkadienes with isolated double bonds have either 2 lines or a single line, the total intensity being about twice that of the corresponding alkene line. The characteristic lines in the 1600-1680- cm^{-1} region of alkadienes with conjugated double bonds are stronger than those of alkenes. IV, V, and VI have spectra almost identical in wave nos. and rather similar in relative line intensities. J. W. L., Jr.

FAYNZIL'BERG, A. A.

"Popular Pamphlets oh Chemistry," Reviewed by A. A. Faynzil'berg, Priroda,
41, No.8, 1952.

FAYNZIL'BERG, A. A.

USSR .

✓Combination scattering spectra of hydrocarbons of various classes. IV. Spectra of combination scattering of several branched alkanes with tertiary carbon atoms. E. G. Trushchinskii, V. M. Tatevskii, A. A. Faynzil'berg, N. P. Shishchenko, and R. Ye. Leyva (M. V. Lomonosov State Univ., Moscow). *Zhur. Fiz. Khim.* 27, 1564-71 (1953); cf. *C.A.* 47, 4200a; 48, 6332a. The Raman spectra were observed of 2,3-dimethylhexane (I), 2,3-dimethylheptane (II), 2,3-dimethyloctane (III), 2,3,6-trimethylheptane (IV), 3,5-dimethylheptane (V), and 3-methyl-5-ethyloctane (VI). The b.p., n_D^{20} , d_4^{20} , and molar refraction in that order were for I, 115-5.3° (768 mm.), 1.4012, 0.7120, 38.96; for II, 140° (760 mm.), 1.4087, 0.7258, 43.60; for III, 164.4-4.0° (764 mm.), 1.4152, 0.7377, 48.32; for IV, 155-5.3° (764 mm.), 1.4137, 0.7360, 48.28; for V, 134.8-5.0° (760 mm.), 1.4070, 0.7199, 43.86; for VI, 176-6.5° (765 mm.), 1.4204, 0.7486, 52.88. The wave nos. and intensities of the Raman lines in the interval 290-3200 cm^{-1} are tabulated for I-VI. The spectrographic data are compared with the predictions of Stepanov (*C.A.* 41, 2334f); the latter are in the main fulfilled in the doubly branched compds. I, II, and III. However, the Raman spectra of I, II, and III contain some lines which in the theory of S. are characteristic of quaternary C atoms, as well as singly branched chains, while those of V and VI contain some lines proper to doubly branched chain and some lines proper to quaternary C. Predictions of S. with regard to CH₃ groups are not always fulfilled. J. W. Lowenberg, Jr.

5(3)

AUTHORS:

Novikov, S. S., Faynzil'berg, A. A., SOV/20-124-3-27/67
Korsakova, I. S., Babiyeviskiy, K. K., Shevelev, S. A.,

TITLE:

On an Interesting Case of Isomerization in the Series of Saturated Aliphatic Nitro-Compounds (Ob interesnom sluchaye izomerizatsii v ryadu nasyshchennykh alifaticheskikh nitro-soyedineniy)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 3, pp 589-591 (USSR)

ABSTRACT:

In the presence of ammonia, 1,1,1,3-tetranitropropane is rearranged into the symmetric isomeric 1,1,3,3-tetranitropropane, which is precipitated as a diammonium salt. Besides, a small quantity of 1,1,3-trinitropropane is formed. If ammonia is replaced by stronger organic or inorganic bases, no symmetric tetranitropropane but only 1,1,3-trinitropropane is formed. The formation of the last-mentioned compound is effected by the splitting-off of a nitro group by the action of the bases. Whereas, in the presence of ammonia, the isomerization of 1,1,1,3-tetranitropropane into symmetric tetranitropropane occurs parallel to this splitting-off reaction, it is suppressed in the presence of strong bases. - The reaction occurs at 0°C

Card 1/3

SOV/20-124-3-27/67

On an Interesting Case of Isomerization in the Series of Saturated Aliphatic Nitro-Compounds

in an aqueous alcohol solution (it can not be effected in non-polar solvents). The yield of the symmetric diammonium salt was 40%. This salt is transformed, by potassium chloride, into the potassium salt, the latter being eventually converted into 1,3-dibromo-1,1,3,3-tetranitropropane. In the paper under review, these compounds have been described for the first time. The transformation of 1,1,1,3-tetranitropropane into the symmetric isomer is the first so far observed case of an isomerization by change of place of a nitro group in saturated aliphatic nitro-compounds. - The paper contains a detailed recipe for the isomerization of 1,1,1,3-tetranitropropane, for the preparation of the symmetric potassium salt, as well as of the 1,3-dibromide, and for the preparation of 1,1,3-trinitropropane in the presence of dimethylamine. There is 1 reference.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy
Card 2/3 of the Academy of Sciences, USSR)

5(4)

AUTHORS:

Mayranovskiy, S. G., Faynzil'berg, SOV/20-125-2-31/64
A. A., Novikov, S. S., Klimova, V. A.

TITLE:

On the Influence of Negative Groups on the
Electrochemical Reduction of the Bond Carbon - Halogen
in Organic Compounds (O vliyani otritsatel'nykh grupp
na elektrokhimicheskoye vosstanovleniye svyazi uglerod -
galoid v organicheskikh soyedineniyakh).
The Polarographic Behavior of Halide-nitroalkanes
(Polyarograficheskoye povedeniye galoidnitroalkanov)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 2,
pp 351-353 (USSR)

ABSTRACT:

The present paper deals with the influence exercised by the
nitro groups in α -position on the easiness of the
electrochemical reduction of the carbon-halide bond. Even though
the nitro group itself is easily polarographically reduced,
its presence (as the experiment shows) facilitates the
electrochemical breaking of the C-Hal bond to such an extent
that the wave corresponding to its reduction becomes a wave of
the reduction of the nitro group. The investigation was carried
out by means of the recording polarograph of the TsLA

Card 1/4

On the Influence of Negative Groups on the
Electrochemical Reduction of the Bond Carbon - Halogen
in Organic Compounds. The Polarographic Behavior of
Halide-nitroalkanes

SOV/20-125-2-31/64

Energochermet (State All-union Trust for the Design, Planning, Assembly and Adjustment of Power Installations and Control- and Measuring Instruments of the Ministry of Ferrous Metallurgy, USSR). Measures for increasing measuring accuracy are discussed in short. A comparison between the polarograms of the halogenized nitro-compounds and the waves of the analogous nitroproducts containing no halide shows that the first wave of nitrohalide alkanes corresponds to the reduction of the C-Hal bond. This is proved by the independence of $E_{1/2}$ of the first wave of the pH of the solution. The second wave, which corresponds to the reduction of the nitro group, shifts with increasing pH of the solution towards negative potentials. The experimental data corresponding to the reduction of the C-Hal bond are given in a table. In irreducible processes (including the electrochemical reduction of the bond carbon - halide) the potential of the semiwave is only an approximated criterion

Card 2/4

On the Influence of Negative Groups on the
Electrochemical Reduction of the Bond Carbon - Halogen
in Organic Compounds. The Polarographic Behavior of
Halide-nitroalkanes

SOV/20-125-2-31/64

of the easiness of the reduction of the C-Hal-bond. The existence of a nitro group in α -position facilitates the reduction of the carbon - halide bond considerably, and the influence exercised by the nitro groups also increases with an increase of their number. As expected, bromides are reduced more easily than the corresponding chlorides. Of the iodides only iodotrinitromethane was investigated. Interest is caused by the variation of the product αn_a of the number n_a of electrons participating in the potential-determining stage of the process and the conversion coefficient α in some substances in which the polarity of the C-Hal-bond varies. The influence exercised by the structure of the investigated substance upon αn_a of their waves will be investigated in the course of a future investigation. There are 1 table and 10 references, 6 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D.

Card 3/4

On the Influence of Negative Groups on the SOV/20-125-2-31/64
Electrochemical Reduction of the Bond Carbon - Halogen
in Organic Compounds. The Polarographic Behavior of
Halide-nitroalkanes

Zelinskiy of the Academy of Sciences, USSR)

PRESENTED: November 10, 1958, by A. N. Frumkin, Academician

SUBMITTED: November 10, 1958

Card 4/4

NOVIKOV, S.S.; FAYNZIL'BERG, A.A.; SHVEDOVA, S.N.; GULEVSKAYA, V.I.

Condensation of gem-dinitroalkanes with aliphatic aldehydes and amines. Izv. AN SSSR. Otd. khim. nauk no.11:2056-2058 N '60.

(MIRA 13:11)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Paraffins) (Aldehydes) (Amines)

S/020/60/132/04/31/064
B011/B003

5.3610
AUTHORS:

Novikov, S. S., Faynzil'berg, A. A., Shevelev, S. A.,
Korsakova, I. S., Babiyskiy, K. K.

TITLE:

Isomerization of Tetranitroalkanes

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 4,
pp. 846-849

TEXT: In the article under review the authors found that 1,1,1,3-tetra-
nitropropane is isomerized to a symmetrical tetranitropropane (II)
not only in the presence of ammonia but also by the action of some
other alkaline agents such as potassium acetate and -methylate. The
nature of the solvent determines the course of reaction. In alcohol
the reaction of 1,1,1,3-tetranitropropane leads to isomerization
with potassium acetate, thus forming 1,1,3,3-tetranitropropane (yield
33.4 per cent). Isomerization does not occur in an alcohol-acetone
mixture; only the nitro group is split off, and 1,1,3-trinitropropane
is obtained. In the presence of potassium methylate (in methanol),
1,1,1,3-tetranitropropane (I) is isomerized to the symmetrical

Card 1/4