"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

3(8), 21(8)

AUTHORS: Kashkarov, L. L., Cherdyntsev, V. V. SOV/7-58-7-3/13

TITLE: Neutron Radiation of Minerals and the Formation of Ne^{21} in the Earth Atmosphere (Neytronnoye izlucheniye mineralov i proiskhozhdeniye [illegible] v zemnoy atmosfere)

PERIODICAL: Geokhimiya, 1958, Nr 7, pp 632 - 641 (USSR)

ABSTRACT: A ring system of 10 neutron counters [illegible]-8 was used for determination, the device [illegible]-3 served as amplifier and recording instrument. The bottom was lowered as much as possible by a paraffin embedment and a case consisting of a cadmium foil and lead. 10 samples of uranium and 11 samples of thorium minerals were examined (Table 1), furthermore mixtures of minerals with beryl, fluorite, Al_2O_3, MgO, SiO_2, and $BaSO_4$ (Table 2). In the case of ferrithorites the medium neutron yield is 0.9 - 0.2 neutrons per 10^6 alpha particles, in the case of uraninites 0.39-0.03 neutrons to 10^6 alpha particles. About 40% of the neutrons from uranium minerals originate from

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Neutron Radiation of Minerals and the Formation of Ne^{21} SOV/7-58-7-5/13
in the Earth Atmosphere

spontaneous fission. The remaining neutrons originate mainly from the reaction O^{18} $(\alpha,n)Ne^{21}$. In ferrithorites the neutrons are formed mostly according to the following process: $F^{19}(\alpha,n)Na^{22}$. The probability of a (α,n)-reaction decreases according to the following order: Be > F > Al > Mg > medium composition of ferrithorite > O > S. At least one quarter of the Ne^{21} of the earth atmosphere is formed by the (α,n)-reaction in th earth crust. The authors thank L.I.Shmonin, Docent, for his advice, and B.M.Naydenov and R.Sh. Yenikeyev, Kafedra eksperimental'noy fiziki Kazakhskogo gosudarstvennogo universiteta (Chair of Experimental Physics of Kazakh State University) for their help in selecting the material. There are 5 figures, 3 tables, and 12 references, 7 of which are Soviet.

Card 2/3

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

Neutron Radiation of Minerals and the Formation of He^{12} SOV/7-58-7- 3/13
in the Earth Atmosphere

ASSOCIATION: Kazakhskiy gosudarstvennyy universitet im.S.M.Kirova, Alma-Ata (Kazakh State University imeni S.M.Kirov, Alma-Ata)

SUBMITTED: July 9, 1958

Card 3/3

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, L.L., Cand Phys-Math Sci—(diss) "Study of neutron radiation of minerals." Alma-Ata, 1959. 15 pp with graphs; 1 sheet of tables (Kazakh State U im S.M. Kirov), 150 copies (KL,31-59,113)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

21(8), 3(8)

SOV/7-59-2-2/14

AUTHORS: Shmonin, L. I., Cherdyntsev, V. V., Kashkarov, L. L., Ostapenko, V. F. (Alma Ata)

TITLE: Investigation of the Neutron Flux of the Earth's Crust (Issledovaniye neytronnogo potoka zemnoy kory)

PERIODICAL: Geokhimiya, 1959, Nr 2, pp 1o5-1o9 (USSR)

ABSTRACT: In 1957 measurements of the neutron flux were carried out in the ore districts of the following Soviet Republics: Kazakhskaya SSR (Akchatau, Vostochnyy Kounrad and others), Armyanskaya SSR (Kadzharan, Dastakert, Kafan), Gruzinskaya SSR (Kvaysa), Kirgizkaya SSR (Ak-Kul'). In order to eliminate the effect of secondary cosmic radiation, the measurements were carried out in mines. Proportional counters of the SNM-8 type with amplifier and recording device and filled with BF_3 were used in the measurements. Three types of measurements were taken: 1) Slow neutrons and the background were measured by means of a counting tube without filter; 2) A counting tube with a paraffin filter as a moderator was used to measure fast neutrons and the background; 3) For measurements of the background alone a cadmium filter was attached.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

Investigation of the Neutron Flux of the Earth's Crust SOV/7-59-2-2/14

Results are listed in tables 1 and 2: besides geological formation, location, and genesis, the activity (in μr/h) and flux of slow and fast neutrons (in n/cm^2/h) are given. Gamma activity and the intensity of the neutron flux are usually proportional. In the Aktyuz deposit the intensity increases to 32.4 fast neutrons/cm^2/h and 28.2 slow neutrons/cm^2/h. A dependence of the intensity on humidity was observed in the Vostochnyy Kounrad mine. There are 2 tables and 7 references, 2 of which are Soviet.

ASSOCIATION: Kazakhskiy gosudarstvennyy universitet im. S. M. Kirova (Kazakh State University imeni S. M. Kirov)

SUBMITTED: June 10, 1958

Card 2/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

23328 S/058/61/000/006/010/053
A001/A101

24.6900 (1191, 1538, 1559)

AUTHORS: Cherdyntsev, V.V., Kashkarov, L.L., Ivanenko, V.M., Kudashev, Ye.P.

TITLE: Asymmetry of neutrons from μ-meson reaction in lead

PERIODICAL: Referativnyy zhurnal. Fizika, no. 6, 1961, 77, abstract 6B250 ("Tr. Mezhdunar. konferentsii po kosmich. lucham, 1959, v. 2", Moscow, AN SSSR, 1960, 346)

TEXT: Asymmetry in neutron distribution produced in weak interaction of (μ^-, n) type relative to direction of a μ-meson flux was studied on cosmic μ-mesons. The installation was located at an altitude of 3,860 m above sea level under a 7-m thick ground layer and consisted of two sections of neutron counters immersed into paraffin and separated by a 330-kg heavy lead block. Experiments discovered an excess of upward neutrons, i.e., opposite to direction of the μ-meson flux, and the ratio of upward neutrons to downward ones was 1.186 ± 0.024. It follows hence that the quantity $P\beta\alpha = 0.09 \pm 0.01$, where P is meson polarization degree, equal to 0.15-0.20; α is coefficient of asymmetry; β is a quantity dependent on the properties of the nucleus.

[Abstracter's note: Complete translation] V. Guzhavin

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

21.6000

S/058/62/000/003/033/092
A061/A101

AUTHORS: Kahskarov, L. L., Ivanenko, V. M., Cherdyntsev, V. V., Mozhayeva, V. G., Nurgozhin, N. N., Khomenko, G. S., Gafurov, V. O.

TITLE: Non-conservation of parity in nuclear fission by cosmic ray μ-mesons

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1962, 50, abstract 3B415 ("Sb. nauchn. rabot Kafedry optiki i Kafedy eksperim. fiz. Kazakhsk. un-t.", 1960, no. 2, 43 - 57)

TEXT: A device for measuring the spatially asymmetric departure of neutrons emitted when slow cosmic ray μ^--mesons are captured by atomic nuclei is described. Provisional results are presented.

[Abstracter's note: Complete translation]

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CHERDYNTSEV, V.V.; SHMONIN, L.I.; OSTAPENKO, V.F.; KHALDEYEV, O.D.; KASHKAROV, L.L.

Neutron radiation of the earth. Geokhimiia no.3:261-267 '60. (MIRA 14:5)

1. Kazakhskiy gosudarstvennyy universitet imeni S. M. Kirova, Alma-Ata.

(Neutrons)
(Nuclear geophysics)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

L 4487-66 EWT(m)/FCC/T IJP(c)

ACC NR: AP5024655 SOURCE CODE: UR/0048/65/029/009/1761/1764

19
B

AUTHOR: Kashkarov, L.L.; Gafurov, V.G.; Ivanenko, V.M.; Cherdyntsev, V.V.

ORG: Tadzhik State University im. V.I.Lenin (Tadzhikskiy gosudarstvennyy universitet); Physicotechnical Institute, Academy of Sciences, TadzhSSR (Fiziko-tekhnicheskiy Akademii nauk TadzhSSR)

TITLE: Investigation of the polarization of cosmic ray muons at 3860 meters above sea level /Report, All-Union Conference on Cosmic Ray Physics held at Apatity 24-31 August 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 9, 1965, 1761-1764

TOPIC TAGS: secondary cosmic ray, muon, particle polarization

ABSTRACT: The polarization of cosmic ray muons was investigated at 3860 m above sea level at Pamir. Muons incident at zenith angles less than 20° were filtered through 110 g/cm^2 of lead (limiting muon energy 0.25 BeV) or 1100 g/cm^2 of earth and lead (limiting muon energy 2.5 BeV) and decay positrons from muons brought to rest in a 45 g/cm^2 lead absorber were counted separately in the upper and lower hemispheres. Positrons were counted for 4 μsec, starting 1.7 μsec after the presence of a stopped muon was indicated by a triple coincidence-anticoincidence. Backgrounds recorded without the absorber and with the absorber but with the delay increased from 1.7 to 20 μsec were equal. The efficiency of the positron counters was monitored with a γ-ray source

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L 4487-66

ACC NR: AP6024655

and the upper and lower trays were interchanged from time to time. The ratio C of the number of upward-going to the number of downward-going decay positrons was found to be 1.20 ± 0.06 for the lower energy muons and 1.33 ± 0.12 for the higher energy muons. The muon polarization P was calculated with the formula $P = 3(C - 1)/a(C + 1)$ where $a = 0.91$ is a factor dependent on the positron counter geometry. The polarizations of the lower and higher energy muons were found to be 0.30 ± 0.08 and 0.47 ± 0.14, respectively. The polarization found for the lower energy muons is in satisfactory agreement with those found by other investigators at sea level but the polarization found for the higher energy muons exceeds the values found at sea level by other investigators for muons of similar energies by somewhat more than the experimental error. It is suggested that this discrepancy may be due to the presence of a larger fraction of muons of K-mesonic origin at the higher altitude. Orig. art. has: 2 formulas, 2 figures, and 1 table.

SUB CODE: NP/ SUBM DATE: 00/ ORIG REF: 008/ OTH REF: 007

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

L 4491-66 EWT(m)/FCC/T IJP(c)

ACC NR: AP5024658 SOURCE CODE: UR/0048/65/029/009/1772/1773

AUTHOR: Bobodzhanov, I.B.; Ivanenko, V.M.; Kashkarov, L.L.; Cherdyntsev, V.V.

ORG: Physicotechnical Institute im. S.U.Umarov, Academy of Sciences, TadzhSSR (Fiziko-tekhnicheskiy institut Akademii nauk TadzhSSR); Tadzhik State University im. V.I.Lenin (Tadzhiskiy gosudarstvennyy universitet)

TITLE: Asymmetry of neutrons emitted by nuclei with different spins consequent to absorption of negative cosmic ray muons /Report, All-Union Conference on Cosmic Ray Physics held at Apatity 24-31 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 9, 1965, 1772-1773

TOPIC TAGS: secondary cosmic ray, muon, particle polarization, nuclear reaction, neutron

ABSTRACT: The anisotropy of neutrons emitted by Pb, Bi, Cu, and Fe targets under 10^3 g/cm^2 of earth at Pamir (3860 m above sea level) consequent to absorption of negative cosmic ray muons was determined by a technique that has been described elsewhere by the authors and D.K.Ryazanov (Izv. geolog., Khim. i tekhn. nauk AN TadzhSSR, vyp. 1 (10), 9 (1963)). Correction was made for evaporation of neutrons from the paraffin moderator, for absorption of background neutrons in the target, and for geometric factors. Anisotropy of the emitted neutrons is due entirely to the polarization retained by the muons after absorption into K orbits. It was anticipated that the depolariza-

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L 4491-66

ACC NR: AP5024658

tion on absorption in the Bi and Cu (spins 9/2 and 3/2) targets would be greater than that on absorption in the Pb and Fe (spin 0) targets, owing to spin-spin interaction. No neutron anisotropy greater than the experimental error was observed with the Bi and Cu targets, and definite and approximately equal anisotropies were observed with the Pb and Fe targets. It is concluded that the depolarization of negative muons on absorption in Pb and Fe is about two times less than predicted by A.Ye.Ignatenko et al. (Zh. eksperim. i teor. fiz., 35, 894 (1958)) and that negative muons are practically completely depolarized on absorption in Bi and Cu. Orig. art. has: 3 formulas and 1 table.

SUB CODE: NP/ SUBM DATE: 00/ ORIG REF: 012/ OTH REF: 001

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Phosphoric acid. O. H. Kashkarov. Russ. 52,[illegible], Dec. 31, 1937. A mixt. of phosphorite, coal and silica is chlorinated at high temp. in the presence of chlorides of Si, Fe and Al. $POCl_3$ is sepd. by fractionation and converted to H_3PO_4.

COMMON ELEMENTS

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1ST AND 2ND ORDERS — 3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

18

The probable composition of the saline water of Lake Kuchuk. O. D. Kashkarov. *Byull. Inst. Halurgii* 1938, No. 3, 33-41; *Khim. Referat. Zhur.* 2, No. 4, 45(1939).—In a desire to find the probable compn. of the saline water of the Kuchuk lake at the beginning of the fall deposition of mirabilite, there were analyzed statistically the results of the 10-year investigations of the chem. compn. of the water. The results show that after 68 years the saline water will contain less than 12% Cl, which is the only factor which guarantees a fair purity of mirabilite. The ratio SO_4:Cl increases for the summer period simultaneously with an increase of the Cl content; this can be connected with the gradual soln. of the mirabilite which has been deposited during the winter. The depth and the dimensions of the lake det. the velocity of the process of soln. and at the same time limit the max. concn. of SO_4^{--} which can be reached during the summer period.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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CA

18

Conditions for the deposition of soda from the brines of the Mikhailov soda lakes. O. D. Kashkarov. *Hyull. Inst. Halurgii* **1938**, No. 4, 22-47; *Khim. Referat. Zhur.* 2, No. 4, 101-2(1939). The object of the expts. was to det. the optimum conditions for the deposition of soda and of the proper methods for its extn. Three methods were investigated: (a) crystn. with cooling, (b) solar evapn. and (c) flame evapn. Crystn. with cooling gives optimum results (90-3%). Up to 80% was obtained by this method when a purer product was desired. Considerable contamination of the product and low yields make flame evapn. the least successful. Solar evapn. gives low yields. Crystn. with cooling is less sensitive to the concn. change of the brine.

W. R. Henn

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1ST AND 2ND ORDERS

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CA

18

Laws of solar evaporation of salt solutions from observations in the Kulundin steppe. O. D. Kashkarov. *Byull. Inst. Halurgii* 1938, No. 6, 31-40; *Khim. Referat. Zhur.* 2, No. 4, 31(1939).—The adaptability of the equations of Meier, Parshal and Karkentner for the evapn. of water from large reservoirs was verified by calcg. the evapn. of a no. of fresh-water American reservoirs. Most suitable for the calcn. is the Meier equation, $E = 0.707(n/2)(H-h)(1 + 0.224\ V)$, where E is the amt. of the evapd. water in kg./sq. m., n the no. of days of evapn., H the vapor pressure of water, h the abs. humidity and V the velocity of the wind in m./sec. at a height of 4.5 m. Expts. were made on the evapn. of the saline water of Lake Kuchuk from 2 reservoirs (surface 500-600 sq. m.) and from crystallizers (surface 250-300 sq. cm.). The vapor pressure of the saline water was at the exptly. detd. b. p. *in vacuo*, and the amt. of the evapd. water was calcd. from the change of the compn. of the saline water and from the detn. of the amt. of salts and ppts. of the saline water. A satisfactory accuracy (8-9%) was obtained for these reservoirs by calcn. from $E = 0.372(H-h)(1 + 0.224\ V)n$. W. R. H.

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1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

CA

18

Purification of soda layer deposits of the Mikhailov soda lakes. O. D. Kashkarov. *Byull. Inst. Halurgii* 1939, No. 1, 21-34; cf. C. A. 34, 1823[illegible]. In the Mikhailov soda lakes Na_2CO_3 is present in brines, ground waters, layer deposits and cement-like solids formed by sands and silts. The object of lab. expts. was to develop a process for the sepn. and purification of Na_2CO_3 from the layer deposits, contg. over 90-98% pure $Na_2CO_3 \cdot 10H_2O$. The best results were obtained by fusing the product with the addn. of a little water at 50° and filtering hot through a Büchner funnel. By this method the contaminating sand and silt were completely removed; a colorless Na_2CO_3 results. It contains about 0.4% Na_2SO_4 and can be used in the *production of glass and soap.* Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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CA

18

Natural sources of soda. O. D. Kashkarov. *Byull. Inst. Halurgii* 1939, No. 3, 35-46.—A review of the literature, with 21 references.

Chas. Blanc

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1ST AND 2ND ORDERS

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PROCESSES AND PROPERTIES INDEX

18

CA

Dehydration of mirabilite by the weathering process under the conditions of the Kulundinsk steppe. O. D. Kashkarov. *Byull. Inst. Halurgii* 1939, No. 8, 10–17.—The results of dehydration of mirabilite, contg. 45% Na_2SO_4, in 10 summers by exposure of large heaps to weathering are tabulated and discussed. The yields of anhyd. Na_2SO_4 depend on the prevailing weather conditions. The method of covering the salt piles with a thin layer of powd. charcoal increases the rate of dehydration and gives a product with a greater content of insol. matter.

Chas. Blanc

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3RD AND 4TH ORDERS

A

2

Salt deposits in the salt lakes of Siberia. O. D. Kashkarov. *Byull. Inst. Halurgii* 1940, 13-25.—Phase-rule diagrams for several salt lakes are given, and the conditions governing the pptn. of salts by solar evapn. in summer and by freezing out in winter are discussed. The ppt. always carries down some salts with which the brine is not satd. This is most noticeable in the case of pptn. of soda and least in the pptn. of halite and mirabilite.

H. M. Leicester

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, O.D.

KASHKAROV, O.D.

Precipitation of salts in salt lakes. Trudy VNIIG 32:3-33 '56.
(MIRA 11:1)

(Salt)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

15-57-10-14363

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 10,

AUTHOR: Kashkarov, O.D.

TITLE: Surface Brine of Salt Water Lakes and its Alteration With Age (Poverkhnostnaya rapa solyanykh ozer i yeye izmeneniya vo vremeni)

PERIODICAL: Tr. Vses. n.-i. in-ta galurgii, 1956, Nr 32, pp 49-66

ABSTRACT: Bibliographic entry

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, O.D.

KASHKAROV, O.D.

"Graphic computation in the technology of minerals" by M.M. Viktorov. Reviewed by O.D. Kashkarov. Reviewed by O.D. Kashkarov. Zhur.prikl.khim. 29 no.7:1134-1136 Jl '57. (MIRA 10:10)
(Mineralogical chemistry)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, O.D.; ALLABERDYYEV, Yu.M.

Studying metastable equilibria in the system (Na; K; Mg^{II}), (Cl^{I}, SO^{II}_4), H_2O. Izv. AN Turk. SSR no.5:84-88 '58.
(MIRA 11:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut galurgii i Institut khimii AN Turkmenskoy SSR.
(Phase rule and equilibrium)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, O.D.; ALLABERDYYEV, Yu.M.

Investigating metastable equilibria in the system (Na, K, Mg), (Cl, SO_4), H_2O. Izv. AN Turk. SSR. no.1:118-124 '59. (MIRA 12:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut galurgii i Institut khimii AN Turkmenskoy SSR.
(Systems (Chemistry))

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, O.D.; ALLABERDYYEV, Yu.M.

Investigation of metastable equilibria in the system (Na^{+}, K^{+}, Mg^{++}), (Cl^{-}, $SO_4^{=}$), H_2O. Report No.3. . . Izv. AN Turk. SSR no.2:58-62 '59. (MIRA 12:6)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut galurgii i Institut khimii AN Turkmenskoy SSR.
(Phase rule and equilibrium)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

ALLABERDYYEV, Yu.M.; KASHKAROV, O.D.

Fields of crystallization of potassium salts during isothermic evaporation of solutions in the system (Na^{+}, K^{+}, Mg^{++})-(Cl^{-}, SO_4^{--})-H_2O at 50°. Izv.AN Turk.SSR no.3:15-22 '59. (MIRA 12:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut galurgii i Institut khimii AN Turkmenskoy SSR.
(Phase rule and equilibrium) (Crystallization)
(Potassium salts)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, Oleg Dmitriyevich; YAKOVKIN, G.A., kand. tekhn. nauk, otv. red.; TOMARCHENKO, S.L., red.; ERLIKH, Ye.Ya., tekhn. red.

[Graphic calculation of salt systems] Graficheskie raschety solevykh sistem. Leningrad, Gos. nauchno-tekhn. izd-vo khim. lit-ry, 1960. 438 p. (MIRA 14:9)

(Salts) (Systems (Chemistry))

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, Oleg Dmitriyevich; YAKOVKIN, G.A., kand.tekhn.nauk, otv.red.; TOMARCHENKO, S.L., red.; ERLIKH, Ye.Ya., tekhn.red.

[Graphic calculations of salt systems] Graficheskie raschety solevykh sistem. Leningrad, Gos.nauchnotekhn.izd-vo khim.lit-ry, 1960. 439 p. (Leningrad. Vsesoiuznyi nauchno-issledovatel'skii institut galurgii. Trudy, no.38) (MIRA 14:6)

(Salts) (Systems (Chemistry))

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

ALLABERDYYEV, Yu.M.; KASHKAROV, O.D.

Evaporation of water and brines in the region of Lake Kuuli. Izv. AN Turk.SSR.Ser.fiz.-tekh., khim.i geol.nauk no.1:45-50 '61. (MIRA 14:8)

1. Institut khimii AN Turkmenskoy SSR.
(Kuuli region—Evaporation)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, O.D., kand.khimicheskikh nauk

New improvements in the production of mineral salts. Zhur.VKHO 7 no.1:66-71 '62. (MIRA 15:3)

(Salts)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, O.D.; FIVEG, M.P.; ORLOVA, Ye.V., nauchn. red.; CHERNOSVITOV, Yu.L., nauchn. red.; FEDOROVA, L.N., red. izd-va; IVANOVA, A.G., tekhn. red.

[Industry's requirement as to the quality of mineral raw materials] Trebovaniia promyshlennosti k kachestvu mineral'nogo syr'ia; spravochnik dlia geologov. Izd.2., perer. Moskva, Gosgeoltekhizdat. No.22. [Potassium and magnesian salts] Kaliinye i magnezial'nye soli. 1963. 54 p. (MIRA 16:12)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya.
(Potassium salts) (Magnesium oxide)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

VYAZOVOV, V.V., red.; KASHKAROV, O.D., red.; TOMARCHENKO, S.L., red.

[Problems of the production of potash fertilizers] Voprosy proizvodstva kaliinykh udobrenii. Moskva, Khimiia, 1964. 178 p. (Its Trudy) (MIRA 17:11)

1. Leningrad. Vsesoyuznyy nauchno-issledovatel'skiy institut galurgii.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, O.D.; SAPAROV, G.M.

Cocrystallization field of sylvine and halite on a diagram of metastable equilibrium in the system (Na^{+}, K^{+}, Mg^{++}), (Cl^{-}, SO_4^{--}), H_2O at 70°C. Izv. AN Turk. SSR. Ser. fiz.-tekh., khim. i geol. nauk no.6:99-104 '64.

(MIRA 18:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut galurgii.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

1862. KASHKAROV S.E., SIPOVSKII P.V. *The healing of experimental fractures during radiation illness using metal pins for their osteosynthesis (Russian text) MED.RADIOL. 1956, 1/5 (65-72)

Experiments were performed on rabbits subjected to general irradiation with X-rays using the 'RUM-3' machine (focus-skin distance 60 cm. voltage 180 kv., current 20 ma., filter 0.5 mm. Cu and 1 mm. Al, dose 800 r.). The presence of radiation illness was established by blood analyses. 1-1.5 hr. after the irradiation 3 ml. 1% morphine solution was injected subcutaneously; the right tibia was exposed, sawn through in its middle-upper third; a metal pin was placed within the bone, through a previously drilled hole in the upper part of the bone, joining the two bone fragments. The operative wound was completely closed with sutures. The fibula was also fractured but the two portions of the bone were not pinned. Fixation of fragments was controlled roentgenologically. The process of consolidation occurred in the main morphologically similarly to that in cases without irradiation, but rather more slowly. The authors conclude on the basis of these investigations that in cases of radiation illness it is possible to use metal pins as a method of osteosynthesis of fractures.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, S.Ye.

Surgical transposition of the ulnar nerve. Khirurgiia Supplement:67 '57. (MIRA 11:4)

1. Iz otdeleniya neotlozhnoy travmatologii TSentral'nogo gosudarstvennogo travmatologicheskogo instituta imeni prof. R.R.Vredena.
(NERVES--SURGERY)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, S.Ye.

Modification of osteosynthesis in the treatment of a false joint of the femoral neck. Trudy Len.gos.nauch.-issl.inst. travm.i ortop. no.7:99-104 '58. (MIRA 13:6)
(PSEUDARTHROSIS) (HIP JOINT--SURGERY)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, S.Ye.

Modification of the treatment for dislocations of the clavicle. Trudy Len.gos.nauch.-issl.inst.travm.i ortop. no.7:298-301 '58. (MIRA 13:6)

1. Iz otdeleniya neotlozhnoy travmatologii Leningradskogo gosudarstvennogo nauchno-issledovatel'skogo instituta travmatologii i ortopedii.

(CLAVICLE--DISLOCATION)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, S.Ye.

Results of surgery for habitual shoulder dislocations. Khirurgiia 35 no. 5:114-116 My '59. (MIRA 13:10)

1. Iz otdeleniya neotlozhnoy travmatologii (zav. - kand.med.nauk S.Ye. Kashkarov) Leningradskogo nauchno-issledovatel'skogo instituta travmatologii i ortopedii (dir. - prof. V.S. Balakina).
(SHOULDER JOINT—DISLOCATION)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, S.Ye., kand.med.nauk (Leningrad, Liteynyy pr., d.29 kv.6)

Osteoplast gluing in experimental fractures of the femoral condyle. Vest.khir. 85 no.12:54-60 D '60. (MIRA 14:1)

1. Iz otdeleniya neotloshnoy travmatologii (zav. - st. nauchn. sotr. S.Ye. Kashkarov) Leningradskogo nauchno-issledovatel'skogo instituta travmatologii i ortopedii (dir. - prof. V.S. Balakina).
(FEMUR--FRACTURE)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, S.Ye., kand.med.nauk (Leningrad, Liteynyy pr., d.29, kv.6)

Application of metal osteosynthesis in condylar fractures of the knee joint. Vest.khir. no.4:29-38 '61. (MIRA 14:4)
(KNEE—FRACTURE)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, S.Ye.

Surgical treatment of intra-articular fractures of the neck of the femur. Trudy Len.gos.nauch.-issl.inst.travm.i ortop. no.8:98-108 '61. (MIRA 15:9)

(FEMUR--FRACTURE)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

BALAKINA, V.S., prof.; VERINGER, Yu.V., doktor med. nauk; VAYNSHTEYN, V.G., prof.; YERETSKAYA, M.F., starshiy nauchnyy sotr.; KASHKAROV, S.Ya., starshiy nauchnyy sotr.; TITOVA, A.T., starshiy nauchnyy sotr.; FREYDLIN, S.Y., prof.; TAL'MAN, I.M., red.; KHARASH, G.A., tekhn. red.; SAFRONOVA, I.M., tekhn. red.

[Concise course in traumatology]Kratkii kurs travmatologii. Leningrad, Medgiz, 1962. 287 p. (MIRA 16:1)
(TRAUMATISM)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

FD-981

USSR/Physics - Gravitation theory

Card 1/1 Pub. 146 - 5/20

Author : Kashkarov, V. P.

Title : Equations of motion of a system of finite masses in Einstein's theory of gravitation

Periodical : Zhur. eksp. i teor. fiz., 27, No 5 (11), 563-570, Nov 1954

Abstract : By means of an approximate method developed by V. A. Fok (ibid., 9, 375, 1939) the author treats the problem of the equations describing the motion of bodies of arbitrary form in Einstein's theory of gravitation. He thanks Academician V. A. Fok for his consultation and N. M. Petrova for her posing of the subject. Four references (e.g. N. M. Petrova, ibid., 19, 989, 1949. V. A. Fok, Usp, fiz. bauk, 48, 2, 1952).

Institution : Kazakh State University, Alma-Ata

Submitted : January 18, 1954

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, V. P.

KASHKAROV, V. P.--"Some Auto-Model Current Movements of a Viscous Non-Compressible Liquid." Kazakh State U imeni S. M. Kirov. Physico-mathematical Faculty. Alma-Ata, 1955. (Dissertation for the Degree of Candidate of Physicomathematical Sciences).

SO: Knizhnaya Letopis' No. 27, 2 July 1955

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, V. P.

PERIODICAL ABSTRACTS

Sub.: USSR/Engineering AID 4172 - P

VULIS, L. A., and V. P. KASHKAROV.
O SMESHENII DVUKH ODNORODNYKH POTOKOV VYAZKOY ZHIDKOSTI (On mixing two homogeneous flows of viscous liquids). Teploenergetika, no. 2, F 1955: 41-46.

A study on laminary and turbulent flows of two parallel or opposite flows of viscous liquids. A mathematical analysis leads to a formula derived from the analysis of the asymptotic layer. The velocity and temperature distribution is presented. Five diagrams.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASKAROV, V. P.

CARD 1 / 2 PA - 1824

SUBJECT USSR / PHYSICS

AUTHOR VULIS, L.A., KASKAROV, V.P.

TITLE The Propagation of a Laminar Vortex Beam of a Noncompressible Liquid along the Surface of a Cone.

PERIODICAL Žurn.techn.fis, 26, fasc.12, 2705-2708 (1956)

Issued: 1 / 1957

The laminar flow on an incompressible liquid flowing along a conical surface is investigated. An orthogonal system of coordinates is selected in which the x-axis is located in the direction of the generating line of the cone, the y-axis is vertical to the former, and the coordinate θ is read off the axis of the cone. Zero point is located on the point of the cone. In this system of coordinates the equations of NAVIER-STOCKS, and those for the untearability of an axial-symmetric motion is set up for the case that spatial forces are lacking. These equations are then generalized by means of LAME'S coefficients. On the assumption that the flow is far from the source, ordinary differential equations are obtained from which the velocity profiles (the longitudinal- and rotation components) for the first approximation is obtained for a solution corresponding to an automodel motion. It would not be difficult to obtain even higher approximations. For this purpose it would, however, be necessary to do without the universality of the profiles of the velocity- and pressure-components. For the task under discussion here also the solutions of the heat problems for a noncompressible liquid hold good, which were obtained in a work by VULIS and TROFIMENKO (Žurn.techn.fis 26, 2709, fasc.12, (1956)). The results

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KASHKAROV, V.P.

p. 3, 4

5(1) PHASE I BOOK EXPLOITATION SOV/1659

Akademiya nauk Kazakhskoy SSSR, Alma-Ata

Issledovaniye fizicheskikh osnov rabochego protsessa topok i pechey (Investigation of the Physical Bases of Operational Processes of Combustion Chambers and Furnaces) Alma-Ata, Izdat AN Kazakhskoy SSR, 1957. 369 p. 800 copies printed.

Additional Sponsoring Agency: Alma-Ata. Kazakhskiy gosudarstvennyy universitet im. S.M. Kirova.

Ed. (Title page): L.A. Vulis, Doctor of Technical Sciences, Professor; Ed. (Inside book): D.M. Glazyrina; Tech. Ed.: Z.P. Rorokina.

PURPOSE: This book is intended for a wide circle of scientists and industrial engineers.

COVERAGE: The twenty-nine articles of this collection report on experimental and theoretical investigations of different physical

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phenomena which constitute an integral part of the complex operational processes of modern combustion engineering equipment, and also, the entire process applicable to different types of burners and furnaces (cyclone combustion chambers, muffle burners, burners with automatic stokers, etc.). Articles in Part I treat laminar and turbulent jets of liquids and compressible gas. Part II reviews methods of modeling combustion processes (light, hydraulic and electrical), enthalpy, temperature measurement, calorimetry, etc. Part III relates to different problems and theories of fuel combustion and special operational features of combustion and furnace equipment. No personalities are mentioned.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

Investigation of the Physical (Cont.) SOV/1659

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AUTHOR: Kashkarov, V. P.

TITLE: Some exact solutions in the theory of flow of incompressible fluid

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 1, 1962, 58-59, abstract 1B443 (V sb. Issled. fiz. osnov rabochego protsessa topok i pechey. Alma-Ata, AN KazSSR, 1957, 54-63)

TEXT: A short summary is first given of known exact solutions: (1) problems on totally immersed viscous stream emerging from a thin tube into an infinite space filled with the same fluid; (2) problems on the streamlined motion of viscous incompressible fluid inside the cone. The author then states and investigates the problem on velocity and pressure field in the totally immersed stream of a viscous incompressible fluid emerging from the vertex of the conical diffuser in the axial direc-

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Some exact solutions...

tion. The walls of the diffuser are taken as streamlines. Navier-Stokes and continuity equations in spherical coordinates are used in solving the problem. Absence of volume forces and axial symmetry of the flow are assumed. Solution of the equations is taken in self-modeling form used earlier in a particular case by H. B. Squire (Quart. J. Mech. and Appl. Math., 1951, 4, 3). With such assumption about the stream, velocity components are

$$v_r = \frac{\upsilon}{r} \frac{F(\theta)}{\sin\theta}, \quad v_\theta = -\frac{\upsilon}{r} \frac{f(\theta)}{\sin\theta},$$

$$\frac{p}{\rho} = \frac{\upsilon^2}{r^2} g(\theta), \quad v_\varphi = 0,$$

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Translation from: Referativnyy zhurnal. Mekhanika, 1959, Nr 4, p 81 (USSR)

AUTHOR: Kashkarov, V.P.

TITLE: The Problem of the Plane Jet Edge of a Compressible Gas

PERIODICAL: V sb.: Issled. fiz. osnov rabochego protsessa topok i pechey. Alma-Ata, AS KazSSR, 1957, pp 166-174

ABSTRACT: The theoretical solution of the problem of a plane laminar jet edge for an arbitrary value of the Prandtl number is adduced under the assumption that the coefficient of dynamic viscosity is a linear function of temperature. For the integration of the equations of the boundary layer, the author utilized the coordinate transformation of A.A. Dorodnitsyn, which allows one to reduce the problem of seeking the velocity field of the compressible gas in the mixture region to the analogous problem for an incompressible liquid.

A.S. Ginevskiy

Card 1/1

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KASHKAROV, U.R.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

VULIS, L.A.; KASHKAROV, V.P.

Simulating streamlined motion. Part 1. Izv. AN Kazakh. SSR. Ser. mat. i mekh. no.6:3-10 '57. (MIRA 11:4)

(Hydrodynamics)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, V.P.

VULIS, L.A.; KASHKAROV, V.P.

Simulating streamlined motions. Part 2. Izv. AN Kazakh. SSR. Ser. mat. i mekh. no.6:11-19 '57. (MIRA 11:4)
(Hydrodynamics)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, V.P.

Streamlined motion of viscous liquid in a conical diffuser. Izv. AN Kazakh. SSR Ser. mat. i mekh. no.6:20-26 '57. (MIRA 11:4)
(Hydrodynamics)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

31577
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10.3200 also 1327

AUTHOR: Kashkarov, V.P.

TITLE: On the motion of a viscous fluid within a cone with a porous side

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 11, 1961, 70, abstract 11B495 (Sb. issled. protsessov perenosa. Vopr. teorii otnositel'nosti, Alma-Ata, 1959, 153 - 161)

TEXT: The problem is solved by a method of successive approximations proposed by N.A. Slezkin for the theoretical investigation of viscous flow in the cone with non-permeable walls (Matem Sb. 1935, 42, no. 1). A spherical coordinate system is used with the origin at the vertex of the cone and polar axis along the axis of the cone Assuming that the stream function ψ can be represented as a series

$$\psi(r, x) = \sum_{k=1}^{\infty} f_k(x)/r^{k-1} \quad (x = \cos\Theta) \qquad (1)$$

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On the motion of a viscous fluid ...

and substituting ψ into the Navier-Stokes equation, the author obtains a system of ordinary differential equations, determining $f_k(x)$. It is noted that in the 1st approximation (k = 1) injection or removal of fluid does not affect the velocity field. The 2nd approximation gives

$$f_2(x) = C_1(1 - x^2) + C^2(1 - x^2)(1 - 5x^2) + \frac{C^2}{2\nu}[3(2x_0^2 - 1)x + 2(2 - 3x_0^2)x^3 - x^5] \quad (2)$$

for $f_k(x)$ where $C = Q_1/2\pi(2x_0 + 1)(1 - x_0^2)$, Q_1 - amount of fluid flowing out, x_0 - corresponds to the angle of cone, ν - coefficient of kinematic viscosity. For the 2nd approximation, distribution of pressure and velocities in the cone was found utilizing the relation between the stream function and velocity components, and it was found that injection or removal of the fluid influenced the velocity field and pressure. 3 references. [Abstractor's note: Complete translation].

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

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D251/D301

26.2135

AUTHOR: Kashkarov, V.P.

TITLE: On an exact solution of the energy equation

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 10, 1961, 74-75, abstract 10 B537 (V sb. Issled. protsessov perenosa. Vopr. teorii otnositel'nosti, Alma-Ata, 1959, 162-166)

TEXT: A temperature field is defined in a steady stream of incompressible viscous fluid flowing in the interior of a circular cone from a source situated at its vortex. In addition, the distribution of velocity of the flow is considered to be independent of the temperature field (the coefficient of viscosity is considered constant) and the values of the component of velocity follow from the solution of the corresponding problem obtained by N.A. Slyozkin (Matem. sb., 1935, 42, no. 1). The distribution of temperature is expressed in the form of a series set out in negative powers of the

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D251/D301

On an exact solution...

distance from the vortex of the cone. The calculation is carried out to the second approximation. [Abstracter's note: Complete translation]

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KASHKAROV, V.P.

10(2) PHASE I BOOK EXPLOITATION SOV/2271

Soveshchaniye po prikladnoy gazovoy dinamike. Alma-Ata, 1956

Trudy (Transactions of the Conference on Applied Gas Dynamics) Alma-Ata, Izd-vo AN Kazakhskoy SSR, 1959. 235 p. Errata slip inserted.

Sponsoring Agency: Kazakhskiy gosudarstvennyy universitet imeni S.M. Kirova.

Ed.: V.V. Aleksandriyskiy; Tech. Ed.: Z.P. Rorokina; Editorial Board: L.A. Vulis (Resp. Ed.), V.P. Kashkarov, T.P. Leont'yeva, and B.P. Ustimenko.

PURPOSE: This book should be of interest to scientists and engineers working on problems of applied gas dynamics and may be of use to students.

COVERAGE: This book presents reports and brief summaries of the discussions which took place at the Conference on Applied Gas Dynamics in Alma-Ata in October 1956. The conference was subdivided into three areas of applied gas dynamics: jet flows of fluids and gases, the aerodynamics of heating processes, and the discharge of a fluid. The practical value of the "Transactions of the Conference" consists in the development of theory, methods of technical calculation and methods for systematic measurement applied to heating, furnace, and other industrial processes for which, in most cases, aerodynamic phenomena are decisive factors.

Vulis, L.A. Basic Results and Further Problems in the Investigation of Jet-like Motions of Fluids and Gases 29

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Session of October 24, 1956 (morning)

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Kashkarov, V.P. On the Motion in the Same and in Opposite Directions of Two Uniform Compressible-gas Flows 55

Leont'yeva, T.P. Propagation of Axially Symmetrical Jets in Flows in the Same and in Opposite Directions 62

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PHASE I BOOK EXPLOITATION SOV/5179

Alma-Ata, Kazakhstan. Universitet.

Issledovaniya protsessov perenosa. Voprosy teorii otnositel'nosti (Study of Transfer Processes. Problems in the Theory of Relativity) Alma-Ata, 1959. 236 p. Errata slip inserted. 1,000 copies printed. (Series: Its Trudy)

Sponsoring Agency: Ministerstvo vysshego obrazovaniya SSSR and Kazakhskiy gosudarstvennyy universitet im. S.M. Kirova.

Editorial Board: V.P. Kashkarov, N.D. Kosov, and N.M. Petrova; Resp. Ed.: L.A. Vulis; Tech. Ed.: L.D. Kashkarov.

PURPOSE: This collection of articles is intended for research physicists and engineers. It can also be used by instructors and students at universities.

COVERAGE: The articles of this collection contain the results of 19 studies in transport problems and the general theory of relativity made from 1956 to 1958 by the staff of the kafedra obshchey fiziki i teoreticheskoy fiziki Kazakhskogo universiteta im. S.M. Kirova (Department of General Physics and Theoretical Physics of the S.M. Kirov Kazakh State University). The articles are arranged in two groups. Group one contains 16 articles concerning the research activity of the teplofizicheskaya laboratoriya pri kafedre obshchey fiziki (Heat Physics Laboratory of the Department of General Physics) in the investigation of transport processes of matter, impulse and energy; group two contains three articles reporting on studies of the Department of Theoretical Physics on problems of the theory of relativity. Article one of the collection is an introduction and reviews the problems of transport processes and gives a fairly detailed bibliography of contributions of members of physics department of Kazakh State University. No personalities are mentioned. References accompany each article.

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AVAILABLE: Library of Congress (QC71.A45)

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11,7200

AUTHORS Vulis, L. A. and Kashkarov, V. P.

TITLE Boundary layer on a burning cone

PERIODICAL Referativnyy zhurnal, otdel'nyy vypusk. 42. Silovyye ustanovki, no. 11, 1962, 34, abstract 42.11.158. (Tr. Kazakhsk. un-ta), no. 2, 1960, 19–24

TEXT: Investigations were carried out on the laminar flow of a compressible gas stream emerging from a nozzle mounted at the apex of a right cone and forming a jet spreading along the cone surface. The reactions taking place are assumed to be of endothermic character. For calculation of the velocity profile, temperature and concentration of the reacting gas, the motion in the boundary layer is assumed to be a flow in a semi-confined source-jet, the cone surface to be non-conducting, and its reactivity—to vary with the distance from the apex. The system of differential equations thus obtained is integrated by means of Doronitsyn variables Solution of this problem permitted determination of the relationship between the hydrodynamics of a compressible gas stream and the combustion theory; results give a qualitative picture of the interaction of a burning gas and the surface of a body. There are 7 references.

[Abstracter's note: Complete translation.]

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, V. P., VULIS, L. A. (Alma-Ata)

"Boundary Layer of Compressible Gases on the Surface of a Burning Body."

report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, V. P., VULIS, L. A., ISATAEV, S. I. (Alma-Ata)

"The Propagation of Viscous Streams (Jets) on the Surface of Bodies."

report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

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25412
S/137/61/000/006/001/092
A006/A101

11.7200

AUTHORS: Vulis, L.A., Kashkarov, V.P.

TITLE: Heat conditions of the boundary layer during heterogeneous combustion

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 6, 1961, 1, abstract 6B1 (V sb. "3-ye Vses. soveshchaniye po teorii goreniya, v. 2, Moscow, 1960, 98 - 106)

TEXT: The authors solved a system of equations for a flat laminar boundary layer of compressible gas, consisting of equations of motion, continuity, energy, diffusion and state. Dependences were obtained which made it possible to find the distribution of velocities, temperature and concentration, and also ignition and extinction conditions in the boundary layer for a plate passed around by a homogeneous flow of viscous gas. An analogous problem for the jet flow around a cone is briefly mentioned. The authors present correlations between two dimensionless parameters, determining the combustion process, for 2 different types of process, i.e. a "hysteresis" and a "non-crisis" process. For the rapid motion

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ARTYUKH, L.Yu.; BULIS, L.; KASHKAROV, V.P.; YARIN, L.P.; ATENKOV, S., tekhn. red.

[Thermal boundary layer problems in the case of heterogenous and diffusion combustion; Conference on Heat and Mass Transfer, Minsk, January 23-27, 1961] Teplovye zadachi pogranichnogo sloia pri geterogennom i diffuzionnom gorenii; soveshchanie po teplo-i massoobmenu, g. Minsk, 23-27 ianvaria 1961 g. Minsk, 1961. 18 p. (MIRA 15:2)

(Boundary layer) (Combustion) (Thermodynamics)

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B117/B209

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11.7200

AUTHORS: Artyukh, L. Yu., Vulis, L. A., Kashkarov, V. P.

TITLE: Flow of gas around a plate with burning surface

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 3, 1961, 39-45

TEXT: The authors investigated the flow of a homogeneous compressed gas around a burning plate. The variation in velocity, temperature, and concentration profiles along the plate was considered in the approximation obtained. The studies were devoted mainly to laminar flow in the boundary layer along the plate. In order to find the "quasi-progressing" profiles u, T, and c, solutions of transcendental equations of the heat theory of combustion are used, which are reduced to the boundary conditions on the surface of reaction. For this purpose, the boundary conditions of the surface of the plate are transformed into the form usually employed in problems of the thermal conditions of combustion. The transcendental equation (8) from Ref. 6 (Vulis, L. A. Teplovoy rezhim goreniya, GEI, M. -L., 1954) $\phi = \tau/[\tau + \exp(1/\theta_w) = (1/\lambda)[\theta_w - \chi\theta_\infty + \beta\tau(\theta_w - \theta_{o\,\infty})]$ was graphically solved

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Flow of gas around ...

in a $\phi - \theta_w$ plane. Figs. 1 and 2 illustrate typical results of these solutions. The schematic representation of the graphically determined results (Fig. 1) gives a clear picture of the dependence of the surface temperature on the velocity of the incoming flow, when the parameters of heat exchange β and of the length x are given and various values of heat generation $\vartheta_4 > \vartheta_3 > \vartheta_2 > \vartheta_1 = 0$ are assumed (B - point of ignition, Π-point of extinction, A and T - adiabatic and heat exchange, respectively). When the values of heat generation are given for two velocities of the incoming flow, the temperature variation along the burning plate shows (Fig. 2) that ignition of the plate takes place, if any at a certain distance from the front edge of the plate. The values of temperature θ_w and of concentration c_w determined by a graphical solution of Eq. (8) according to the coordinate x, make it possible to construct the profiles of u, T, and c in the cross sections of the flow if all the other parameters are given. Fig. 3 shows the profiles for two cross sections (before and after ignition) as an example of such a construction. It was further shown that the state before ignition belongs to a kinetic combustion according to the nature of the process, and after ignition to the diffusion zone. This result is typical of a hysteretic

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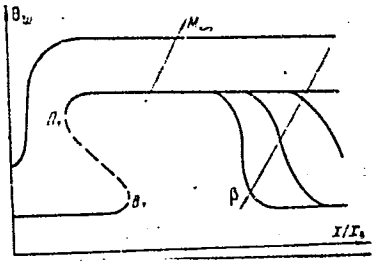
Flow of gas around ...

process of an exothermic heterogeneous reaction if combustion takes place only in the vicinity of the diffusion zone. The authors point out that, in principle the obtained solution may be generalized to the case of a burning plate with a turbulent boundary layer. More details about this case will be published in a special paper. From the practical standpoint, the present problem has to be treated as one of the limiting schemes of ignition and burning of bodies which move at high speed through the atmosphere. Mention is made of Dorodnitsyn, Ya. B. Zel'dovich. There are 3 figures and 7 references: 6 Soviet-bloc.

ASSOCIATION: Kazakhskiy gosudarstvennyy universitet, Alma-Ata (Kazakh State University, Alma-Ata)

SUBMITTED: June 21, 1960



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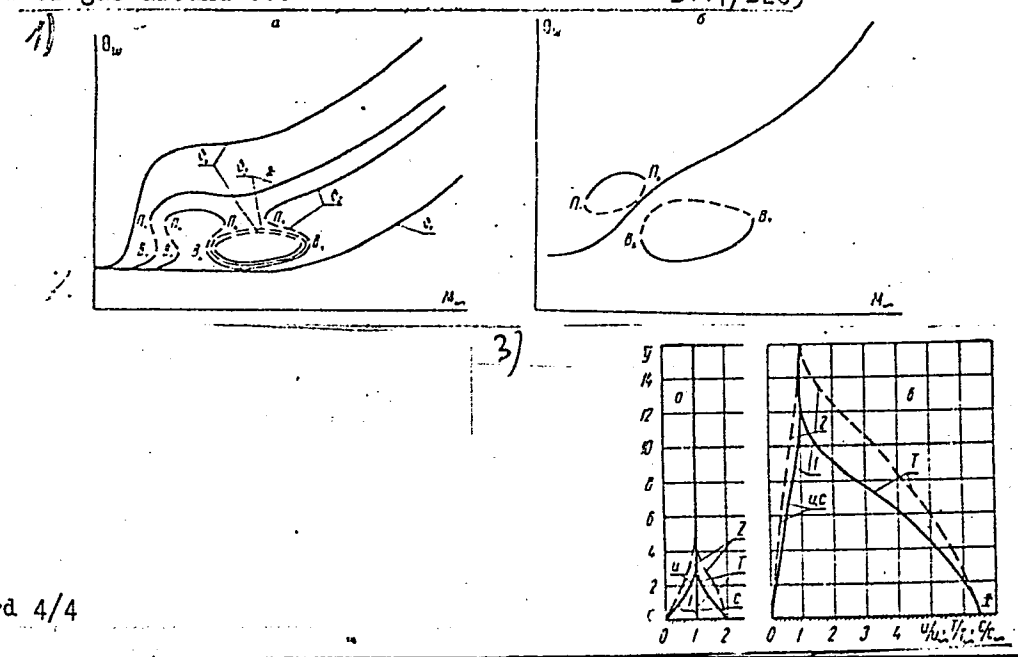
Flow of gas around ...



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31724
S/057/61/031/012/011/013
B104/B112

AUTHORS: Vulis, L. A., and Kashkarov, V. P.

TITLE: The local redistribution of the total energy in the boundary layer of a compressible gas on the surface of a burning body

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 12, 1961, 1477-1484

TEXT: A study has been made of the local redistribution of the total energy (total of kinetic energy plus physical and chemical enthalpy) in the boundary layer of a compressible gas which passes around the surface of a plat of a plate in a laminar flow and reacts with it by an infinitely fast heterogeneous reaction. The system of equations

$$\left.\begin{aligned} u\frac{\partial u}{\partial \xi}+\vartheta\frac{\partial u}{\partial \eta}&=\nu_\infty\frac{\partial^2 u}{\partial \eta^2},\\ \frac{\partial u}{\partial \xi}+\frac{\partial \vartheta}{\partial \eta}&=0,\\ u\frac{\partial T}{\partial \xi}+\vartheta\frac{\partial T}{\partial \eta}&=a_\infty\frac{\partial^2 T}{\partial \eta^2}+\frac{\nu_\infty}{C_p}\left(\frac{\partial u}{\partial \eta}\right)^2,\\ u\frac{\partial C}{\partial \xi}+\vartheta\frac{\partial C}{\partial \eta}&=D_\infty\frac{\partial^2 C}{\partial \eta^2}. \end{aligned}\right\} \quad (1),$$

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derived by Ye. P. Vaulin (DAN SSSR, 113, 6, 1957) is started from. For the boundary conditions

$$\left.\begin{array}{c} u=v=0,\ \lambda_w \frac{\partial T}{\partial \eta}\Big|_w + q\rho_w D_w \frac{\partial C}{\partial \eta}\Big|_w = 0;\ C=0 \text{ при } \eta=0, \\ u=u_\infty,\ T=T_\infty,\ C=C_\infty \text{ при } \eta\to\infty \end{array}\right\} \quad (2),$$

this system may be transformed into a system of ordinary differential equations

$$\left.\begin{array}{c} 2F''' + FF'' = 0, \\ 2T'' + \sigma FT' = -2\sigma \frac{U_\infty^2}{C_p}(F'')^2, \\ 2C'' + \sigma_D FC' = 0 \end{array}\right\} \quad (3)$$

by the substitution $u = u_\infty F'(\varphi)$, $T = T(\varphi)$, $C = C(\varphi)$, where $\varphi = \sqrt{U_\infty/\nu_\infty}\,\xi$; u and v are the components of the velocity vector;

$v = \frac{\varrho}{\varrho_\infty} v + u\frac{\partial \eta}{\partial x}$, $\xi = x$, $\eta = \int_0^y \frac{\varrho}{\varrho_\infty} dy$ are the Dorodnitsyn variables, T and C

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B104/B112

The local redistribution of...

are temperature and concentration, ϱ the gas density, q the heat of reaction, λ the thermal conductivity of the gas, σ and σ_D are Prandtl's heat and diffusion numbers, and C_p is the specific heat of the gas. As solutions of this diffusion and heat-conduction problem, the profiles of velocity, temperature, and concentration of the reacting gas are plotted for different Prandtl numbers. B. A. Fomenko of the Laboratory for Problems of Thermal Physics of Kazakh State University is thanked for numerical calculations and plots. Ya. B. Zel'dovich (Teoriya goreniya i detonatsiya gazov. Izd. AN SSSR, M., 1944) is mentioned. There are 9 figures and 10 references: 8 Soviet and 2 non-Soviet.

ASSOCIATION: Kazakhskiy gosudarstvennyy universitet im. S. M. Kirova (Kazakh State University imeni S. M. Kirov)

SUBMITTED: October 17, 1960

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D234/D308

10.1200

AUTHORS: Artyukh, L. Yu. and Kashkarov, V. P.

TITLE: Propagation of a laminar jet of compressible gas along the surface of a cone

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 6, 1962, 78, abstract 6B513 (Tr. Kazakhsk. un-ta, 1960, no. 2,41-54)

TEXT: The system of equations describing the propagation of a laminar jet of compressible gas coming out of a small attachment along the surface of a cone, is simplified on the basis of well-known assumptions of the boundary layer theory and is transformed to Dorodnitsyn's variables. The dynamical and the thermal problem in the new variables are separated owing to the assumption about linear dependence of the viscosity coefficient on temperature. The thermal problem is solved for three forms of boundary conditions for temperature: a) The surface of the body is maintained at a temperature equal to that of the medium distant from the body, b) there is no heat exchange at the surface of the body, c) con-

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D234/D308

11.7000

AUTHORS: Vulis, L. A. and Kashkarov, V. P.

TITLE: Heat regime of the boundary layer in heterogeneous burning

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 10, 1962, 91, abstract 10B563 (In collection: 3-ye Vses. soveshchaniye po teorii goreniya, v. 2, M., 1960, 98-106)

TEXT: The authors consider a laminar boundary layer on a plate with chemical reaction. The following assumptions are made: The mixture is binary, the viscosity coefficient is proportional to the temperature and is independent of the concentration of the mixture components, the specific heats of the components are equal and constant, the thermal and diffusional Prandtl numbers are constant, the velocity of reaction at the surface is $V = k_0 \exp(-E/RT)C$, where C is the concentration of the reacting gas, the coefficient k_0 is a function of the length of the plate, and the

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form of this dependence is chosen in such a way that the problem becomes self-modelling. Analytical solution of the equations of the boundary layer is obtained and the conditions of ignition and extinction are derived from it. The authors also obtain the dependence of the regime of burning ('hysteresis' or 'noncritical' regime) on dimensionless parameters which determine the process. [Abstracter's note: Complete translation.]

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

VULIS, L.A.; KASHKAROV, V.P.

Local redistribution of the total energy in the boundary layer of a compressible gas near the surface of a burning body. Zhur. tekh. fiz. 31 no.12:1477-1484 D '61. (MIRA 15:1)

1. Kazakhskiy gosudarstvennyy universitet imeni S.M.Kirova.
(Boundary layer) (Gas flow)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

IBRAGIMOV, I.I.; KASHKAROV, V.P.

Laminar boundary layer of a fluid of variable viscosity.
Trudy Sekt. mat. i mekh. AN Kazakh. SSR 2:161-168 '63.
(MIRA 16:10)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, V.P.; LUK'YANOV, A.T. (Alma-Ata)

"The flow of a variable-viscosity liquid past a plate".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, V.P. (Alma-Ata)

"The plane jet of a variable-viscosity liquid"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

VULIS, L.A., otv. red.; KASHKAROV, V.P., red.; KOSOV, N.D., red.; PETROVA, N.M., red.; KASHKAROV, L.D., tekhn. red.

[Study of transfer processes. Problems in the theory of relativity] Issledovanie protsessov perenosa. Voprosy teorii otnositel'nosti. Alma-Ata, Uchpedgiz Kazakhskoi SSR. 1960. 161 p. (Its Trudy, no.2) (MIRA 17:3)

1. Alma-Ata. Universitet.

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EWT(1)/EWP(m)/EPF(n)-2/EWA(d)

river velocity

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are shown graphically for several particular cases. Orig. art. has: 42 equations and 5 diagrams.

ASSOCIATION: none

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721020004-5

KASHKAROV, V.P.; LUK'YANOV, A.T. (Alma-Ata)

Calculating the flow of a dropping liquid of variable viscosity past a plate. PMTF no.5:132-134 S-O '64. (MIRA 18:4)

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along a flat plate. The temperature T_0 is constant and differs from that of the

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parameter M is determined from mass conservation conditions, giving $\int_0^\infty uCdy = N = \text{const}$.

The equation for the concentration distribution becomes

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VULIS, Lev Abramovich; KASHKAROV, Vasiliy Petrovich; PATRON, V.S., red.

[Theory of jets of viscous fluids] Teoriia strui viazkoi zhidkosti. Moskva, Nauka, 1965. 431 p. (MIRA 18:9)

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boundary layer, finite difference approximation, mathematical model

result that it is impossible to obtain an analytic solution in this case. At the same time,

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A large volume of compact

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