L 29178-66 - EWT(1)/FCC/EWA(h) GW

ACC NR: AP6018864 SOURCE CODE: UR/0203/65/005/005/0817/0825

AUTHOR: Skripin, G. V.; Krivoshapkin, P. A.; Krymskiy, G. F.; Filippov, V. A.

ORG: Institute of Astrophysical Research and Aeronomy, Yakutsk Branch, SO AN SSSR (Institut kosmofizicheskikh issledovaniy i aeronomii Yakutskogo filiala SO AN SSSR)

TITLE: Study of the anisotropy of cosmic rays by the crossed telescopes method

SOURCE: Geomagnetizm i aeronomiya, v. 5, no. 5, 1965, 817-825

TOPIC TAGS: cosmic ray anisotropy, geomagnetic field, solar activity

ABSTRACT: A method is proposed for taking into account distortions of anisotropy of cosmic rays by the geomagnetic field and the directional diagram of the instrument. The authors have computed matrices restoring the true vector of anisotropy for instruments of the Yakutsk complex. Computations were made using coupling coefficients for different zenith angles and three forms of the energy spectrum of anisotropy. Using the matrices the authors have restored the true vectors of anisotropy for the neutron component for three epochs of solar activity (1958-1964). Readings of azimuthal telescopes were used in finding the true vectors and the vectors of the atmospheric influence for the earth's surface and for depths of 7.20 and 60 m (water equivalent). An evaluation is given of the degree of agreement between the derived vectors and three forms

Card 1/2 UDC: 523.165

L 04888-67 EWT(1)/FCC GD/AW

ACC NR: AT6027220 SOURCE CODE: UR/0000/66/000/000/0105/0110

AUTHOR: Krymskiy, G. F.; Almukhov, A. M.; Skripin, G. V.; Krivoshapkin, P. A.; Kuz'min, A. I.

27
B+1

ORG: none

TITLE: New method for studying the anisotropy of cosmic rays 17

SOURCE: AN SSSR. Sibirskoye otdeleniye. Sibirskiy institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln. Issledovaniya po geomagnetizmu i aeronomii (Studies in geomagnetism and aeronomy). Moscow, Izd-vo Nauka, 1966, 105-110

TOPIC TAGS: cosmic ray anisotropy, cosmic ray intensity, cosmic ray

ABSTRACT: A method is proposed for determining the instantaneous characteristics of the anisotropy of cosmic rays. The method will make it possible to obtain the anisotropy distribution in the meridional planes and to study the anisotropy of phenomena characterized by abrupt changes in the isotropic background (such as the Forbush decreases), all of which was not possible using the method of diurnal variations. The method proposed makes use of the fact that the world-wide network of stations established during the IGY makes it possible to determine the neutron component with an hourly statistical accuracy of 0.1% and, thereby,

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L 04888-67

ACC NR: AT6027220

to determine the anisotropy characteristics over a 2-hr observational period, provided that its amplitude exceeds the mean amplitude by a factor of more than 2. A distinctive feature of the method is the representation of the distribution of cosmic-ray intensity over the celestial sphere in the form of a series in spherical functions and the use of the first spherical harmonic of the series. The expression for the first harmonic yields the amplitude of the anisotropy vector and an expression for the intensity in an arbitrary direction at an angle to the direction of the anisotropy vector. The spherical analysis reduces to the solution of a system of linear equations with four unknowns. The solution of the system determines the isotropic portion of cosmic-ray intensity as well as three components of the anisotropy vector. The coefficients at the unknowns are calculated and tabulated for 38 stations, taking into account the effect of the geomagnetic field on the charged-particle trajectories, and also the energy spectrum of the variations. Orig. art. has: 6 formulas and 1 table.

SUB CODE: 04/ SUBM DATE: 25Dec65/ ORIG REF: 012/ OTH REF: 002

Card 2/2 egh

L 04886-67 EWT(1)/EWT(m)/FCC IJP(c) GD/GW

ACC NR: AT6027221 SOURCE CODE: UR/0000/66/000/000/0111/0118

AUTHOR: Kuz'min, A. I.; Krymskiy, G. F.; Krivoshapkin, P. A.; Skripin, G. V.; Chirkov, N. P.; Shafer, G. V.

ORG: none

TITLE: The nature of cosmic ray variations

SOURCE: AN SSSR. Sibirskoye otdeleniye. Sibirskiy institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln. Issledovaniya po geomagnetizmu i aeronomii (Studies in geomagnetism and aeronomy). Moscow, Izd-vo Nauka, 1966, 111-118

TOPIC TAGS: cosmic ray intensity, solar cycle, magnetic field

ABSTRACT: A brief survey is given of available data concerning the variation of cosmic ray intensity and the effect responsible for this variation. The effects of fluctuations of the magnetosphere and temperature fluctuations in the upper atmosphere on cosmic ray variations are examined. Cosmic ray flares with energies up to 10 Bev, and their association with Forbush decreases are discussed in relation to their effect on cosmic ray variations. The 11-year variations, 27-day variations, and solar diurnal and annual variations are shown to be closely interrelated, and to have modulation of galactic cosmic rays by the radial inter-

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L 04852-67

ACC NR: AT6027221

planetary field as their common source. All existing observations on the variation of cosmic ray intensity are seen to indicate the existence of an external (with respect to the sun) radial interplanetary magnetic field and the predominant contribution of the dynamic effects of the field's disturbances to the modulation of galactic particles. An important feature of the field's configuration (deduced from observations of the variation of cosmic ray intensity, and also from other unrelated data) is its oblateness with respect to the plane of the ecliptic or the solar equatorial plane.

SUB CODE: 04/ SUBM DATE: 25Dec65/ ORIG REF: 026/ OTH REF: 009

Card 2/2

ACC NR: AR6027539 SOURCE CODE: UR/0313/66/000/005/0044/0044

AUTHOR: Krymskiy, G. F.; Altukhov, A. M.; Krivoshapkin, P. A.; Kuz'min, A. I; Skripin, G. V.

TITLE: A new method for investigating cosmic ray anisotropy

SOURCE: Ref. zh. Issledovaniye kosmicheskogo prostranstva, Abs. 5.62.298

REF SOURCE: Sb. Issled. po geomagnetizmu i aeron. M., Nauka, 1966, 105-110

TOPIC TAGS: cosmic ray anisotropy, linear equation, earth magnetic field, particle trajectory, radiation spectrum, variational problem

ABSTRACT: A method using the spherical analysis of data from a worldwide network of stations is suggested in order to obtain the instantaneous characteristics of cosmic ray anisotropy. The analysis can be reduced to solving a system of linear equations with four unknowns. The solution determines the isotropic intensity and three components of the anisotropy vector. Introduced is a calculation for the coefficients for the unknowns in the equations for each station. The effect of the earth's magnetic field on particle trajectories, as well as differences in the energy spectra for isotropic and anisotropic variations, is considered. Abstract. [Translation of abstract]

SUB CODE: 04

Card 1/1

SKRIPINA, G.F.

Palynological characteristics of Mesozoic sediments in the Vilyuy Lowland. (MIRA 16:3)
Nauch.soob. IAFAN SSSR no.7:39-58 '62.
(Vilyuy Lowland--Palynology)

SHITOVA, A.Ye.; SKRIPINETS, G.M.

Drying of beech wood. Bum.i der.prom. no.1:45-47 Ja-Mr '62.
(MIRA 15:5)

1. L'vovskiy lesotekhnicheskiy institut (for Shitova).
2. Chinadiyevskiy domostroitel'nyy fanernyy kombinat (for Skripinets).

(Beech--Drying)

L 7923-66 EWT(1)/EWP(m)/EWT(m)/EWP(w)/EWA(d)/T-2/EWP(k)/FCS(k)/ETC(m)/EWA(1)
WW/EM

ACC NR: AP5026692 SOURCE CODE: UR/0258/65/005/005/0940/0945

52
B

AUTHOR: Skripinichenko, S. Yu. (Moscow) 44.55

ORG: None

TITLE: Longitudinal long-term perturaation movement of an airplane with a floating tail assembly

SOURCE: Inzhenernyy zhurnal, v. 5, no. 5, 1965, 940-945

TOPIC TAGS: aircraft tail, perturbation theory, aerodynamic stability, flight mechanics, supersonic aerodynamics 1.55

ABSTRACT: The presence of a floating tail assembly can exert a noticeable effect on not only the short-term, but also on the long-term movement, as a result of a significant change in the characteristics of its turning moments depending on the Mach number of the flight. This is particularly important in supersonic flight and in takeoff and landing (See Fig. 1)

UDC:533.0.013

Card 1/3

L 7923-66

ACC NR: AP5026692

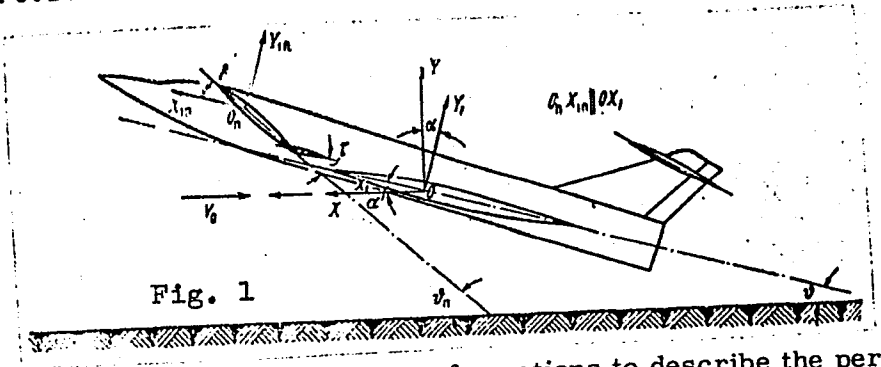

Fig. 1

The article derives and solves a system of equations to describe the perturbation movements. It is demonstrated that the long-term movement of an airplane with a floating leading tail assembly can, with sufficient accuracy for engineering purposes, be described by a system of differential equations of the second order. A floating tail assembly can exert a significant effect on the long-term movement of an airplane, especially under supersonic flight conditions. The effect of a floating tail assembly on the long-term movement depends basically on the magnitude of

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L 7923-66
ACC NR: AP5026692

the turning moments of the planes of the floating tail assembly, according to the Mach number of the flight. Orig. art. has: 16 formulas, 3 figures, and 2 tables

SUB CODE: ME/ SUBM DATE: 12Oct64/ ORIG REF 002/ OTH REF: 003

Card 3/3

SKRIPINSKIY, F., mekhanik

Small-size rice processing unit. Muk.-elev. prom. 25 no.5:23 My '59. (MIRA 12:8)
(Rice processing machines)

SKRIPITSYN, V.Ye.

"Truck frames" by D.B. Gel'fgat, V.A. Oshnokov. Reviewed by V.E. Skripitsyn. Avt. prom. 27 no. 5:48 My '61. (MIRA 14:5)

1. Moskovskiy avtozavod imeni Likhacheva.
(Motortrucks—Design and construction)
(Gel'fgat, D.B.) (Oshnokov, V.A.)

[illegible], Yu. I.

[illegible], Yu. I. -- "Training of the Oviducts in Chickens as One of the Methods of Diagnosing Salpingitis (Experimental-Clinical and Pathomorphological Investigation)." Min Higher Education USSR. Leningrad Veterinary Inst. Leningrad, 1955. (Dissertation for the Degree of Candidate of Veterinary Sciences)

SO: Knizhnaya Letopis', No. 4, Moscow, 1956

CA SKRIPITSYNA, N. Ye.

11D

Effect of 2,4-dichlorophenoxyacetic acid on tomatoes with variation of mineral diet. N. E. Skripitsyna (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 75, 457-60(1950).—Use of 2,4-D generally raises the beneficial effect of fertilizers on the tomato crop and the differences obtained with different orders of nutrition are magnified by 2,4-D. Its best effect shows up at the point of max. nutrition. In the presence of 2,4-D the fruit does not show the formation of phytin that accompanies usual seed development. The nutrients that flow into the plants under the effect of 2,4-D generally remain in the form of sugars in the ovaries, since no seeds form which would have utilized the sugars for their growth. G. M. Kosolapoff

SKRIPITSYNA, N. Ye:

SKRIPITSYNA, N. Ye.: "The selection of Maak Euonymus." Min Higher Education USSR. Moscow Forestry Engineering Inst. Moscow, 1956. (Dissertation for the Degree of Candidate in Biological Science.)

Knizhnaya Letopis'
No 32, 1956. Moscow.

SKRIPITSYNA, Ye.

True path to greater utilization of agricultural machinery. Vop. ekon. no.3:35-44 Mr '58. (MIRA 11:4)
(Collective farms) (Machine-tractor stations)

SKRIPKA, Anatoliy Grigor'yevich [Skrypka, A.]; PANCHENKO, V., red.; LUCHKIV, M., tekhred.

[Viticulture is a highly profitable branch of the economy] Vynohradarstvo - vysokoprybutkova haluz' hospodarstva. Uzhhorod, Zakarpats'ke obl.vyd-vo, 1958. 21 p. (MIRA 13:3)

1. Nachal'nik orgkolgospnogo viddilu oblasnogo upravlinnya sil's'kogo gospodarstva (for Skripka).
(Viticulture--Economic aspects)

PUCHKOVSKIY, B.S.; VERKHOVYKH, I.I.; SKRIPKA, A.I.

Protective action of gelatin and peptone towards sodium potassium tartrobismuthate. Ukr.khim.zhur. 20 no.5:523-526 '54. (MLRA 8:1)

1. L'vovskiy meditsinskiy institut, kafedra obshchey khimii.
(Gelatin) (Peptones) (Bismuthates)

SKRIPKA, L.I.

Effect of culture fluids of actinomycetes on the eggs of ascarids. Med. paraz. i paraz. bol. 33 no.6:685-689 N-D '64. (MIRA 18:6)

1. Laboratoriya po izyskaniyu novykh antibiotikov Kiyevskogo nauchno-issledovatel'skogo instituta epidemiologii i mikrobiologii.

SKRIPKA, L.I. [Skrypka, L.I.]; LYSENKO, Z.A.

Actinomycetes antagonists in peaty soils of Kiev Province.
Mikrobiol. zhur. 27 no.6:20-26 '65. (MIRA 19:1)

1. Kiyevskiy nauchno-issledovatel'skiy institut epidemiologii i mikrobiologii.

L 44270-66 EWT(1)/T JK

ACC NR: AR6011880 SOURCE CODE: UR/0299/65/000/022/B036/B036

AUTHOR: Skripka, L. I.; Lysenko, Z. A.; Sheveleva, K. Ye.

TITLE: Distribution of actinomycete antagonists in Poltavsk Oblast soils

SOURCE: Ref. zh. Biologiya, Abs. 22B240

REF SOURCE: Sb. Antibiotiki. Kiev, Zdorov'ya, 1965, 91-96

TOPIC TAGS: soil bacteriology, microorganism contamination

ABSTRACT: From 306 samples of chernozem, clay and sandy soils of Poltavsk Oblast, 5900 strains of actinomycetes were isolated belonging to 98 species of 15 series; among these 62.7% antagonists were found. The highest percentage of antagonists was found in low humus chernozem, sandy loam soil, and common chernozem soil. It was shown that plants exert a lesser influence on the general level of actinomycetes than soil type. The highest number of actinomycetes was found during the summer ($2019.3 \cdot 10^3/g$) and the lowest number was found during the spring ($1188.4 \cdot 10^3/g$). Representatives of the following dominated in the isolated cultures: Act. griseus var. purpurescens (11.3%), Act. griseolus (8.7%), Act. olivaceus (6.2%), Act. griseovariabilis (6.1%) and Act. lavendulae (6%). 94.7% of the isolated actinomycete cultures

UDC: 615.799.90

Card 1/2

[illegible] --"[illegible]" *([illegible])

JC: [illegible], [illegible], 11 Jun 65

* For Degree of Doctor of Technical Sciences

Itatskoye ugol'noye mestorozhdeniye (Coal deposits of Itat) Moskva, Ugletekhizdat, 1957.

72, (4) p. illus., diagrs., maps, tables.

"Literatura": p. 74

SKRIPKA L.V.

BUYANOV, Yu.D., inzh.; GAZYSOV, M.S., inzh.; DAVIDENKO, Yu.K., inzh.; DIONIS'YEV, A.I., inzh.; DEMIN, A.M., inzh.: KARPINSKIY, N.Ye., inzh.; RAZMYSLOV, Yu.S., kand.tekhn.nauk; SKRIPKA, L.V., kand. tekhn.nauk; TULOVSKIY, M.V., inzh.; YAMSHCHIKOV, S.M., inzh.; OKHRIMENKO, V.A., red.izd-va; BERLOV, A.P., tekhn.red.

[Problems in open-cut mining of coal] Voprosy otkrytoi razrabotki ugol'nykh mestorozhdenii. Pod obshchei red. IU.S.Razmyslova. Moskva, Ugletekhizdat, 1957. 338 p. (MIRA 11:4)
(Strip mining) (Coal mines and mining)

SKRIPKA, L., kand. tekhn.nauk.

New coal mining areas: Itat. Mast. ugl. 7 no.3:17 Mr '58.
(MIRA 11:3)

(Kemerovo Province--Lignite)

SKRIPKA, L.V.; RAZSMYSLOV, Yu.S.

Determining the productive capacity of open-cut coal mines at the Itat deposits. Ugol' 33 no.1:19-22 Ja '58. (MIRA 11:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy ugol'nyy institut.
(Itat--Lignite) (Kuznetsk Basin--Strip mining)

SKRIPKA, L. V.

11(2,7) PHASE I BOOK EXPLOITATION SOV/2416

Gazosnabzheniye vostochnykh rayonov SSSR na osnove gazifikatsii tverdykh topliv (Supplying the Eastern Regions of the USSR With Gas Produced by Solid Fuel Gasification) Moscow, Gostoptekhizdat, 1959. 214 p. 2,000 copies printed.

Ed.: N.V. Shishakov, Doctor of Technical Sciences; Executive Ed.: T. D. Yefremova; Tech. Ed.: A.V. Trofimov.

PURPOSE: This collection of articles is intended for designing, planning, and scientific research personnel, as well as for engineers, technicians, and students specializing in solid fuel gasification.

COVERAGE: This collection of articles describes the problem of supplying the eastern regions of the USSR with synthetic gas derived from the gasification of solid fuels to overcome that area's lack of natural gas. Individual articles discuss the distribution of the region's coal deposits, the quality and types of coal encountered, gasification process, and the economics involved in the production and supply of the synthetic gas product. The author thanks V.S. Al'tshuler, Doctor of Technical Sciences. References accompany each article.

Card 1/4

TABLE OF CONTENTS:

AVAILABLE: Library of Congress (TP735.R92537)

TM/fal
10-20-59

SKRIPKA, M.A.

Wild ornamental herbaceous plants of the Maritime Territory and outlook for their introduction. Trudy Bot.inst.Ser.6 no.7: 480-482 '59. (MIRA 13:4)

1. Botanicheskiy sad Dal'nevostochnogo filiala im. V.L. Komarova AN SSSR, Vladivostok.
(Maritime Territory--Plants, Ornamental)

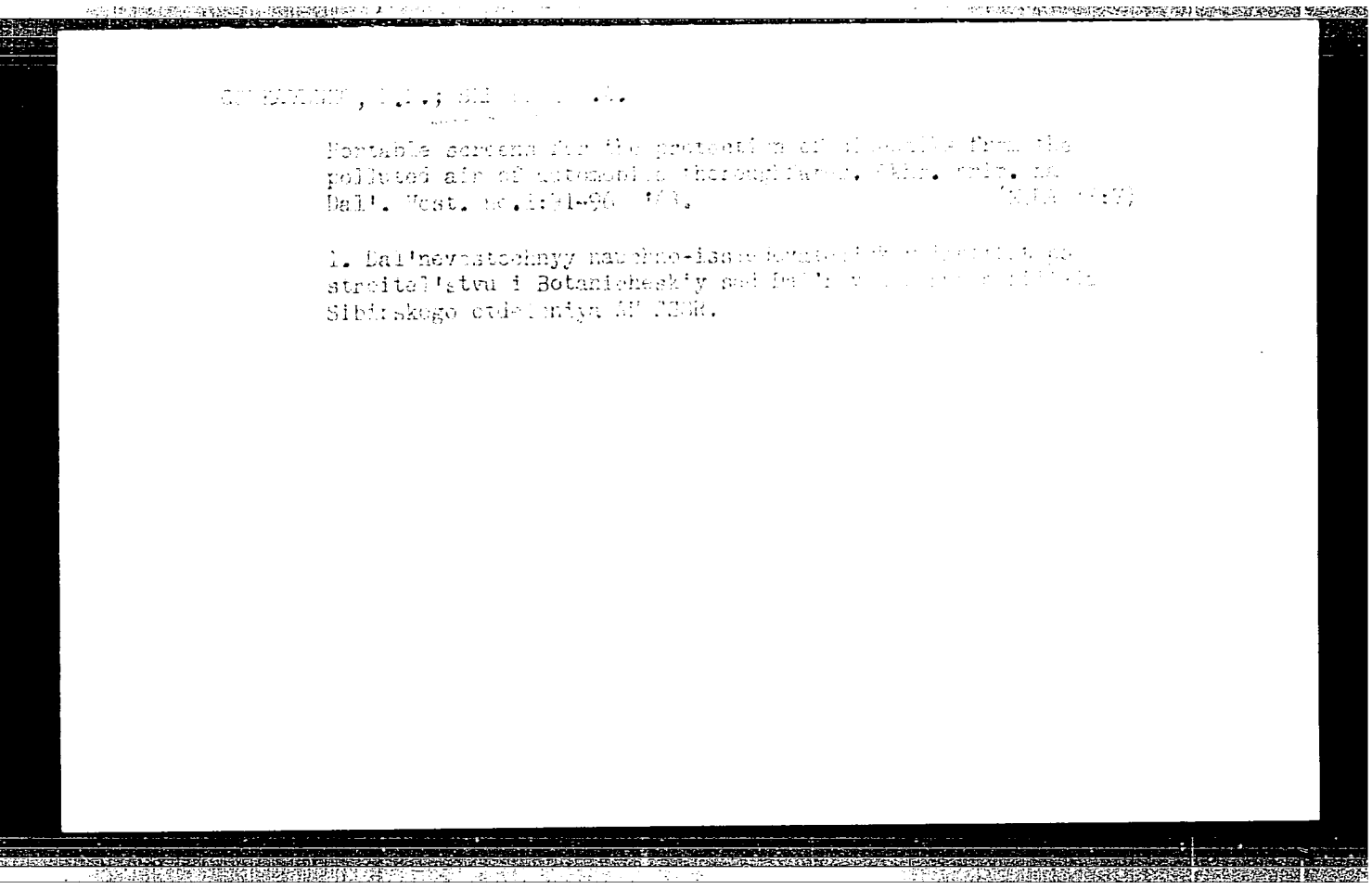
SKRIPKA, Mariya Alekseyevna; YAROSHENKO, P.D., otv.red.; BUTOVA, L., tekhn.red.

[Wild perennial decorative herbaceous plants from the southern part of the Far East, used in landscaping] Dikorastushchie mnogoletnie dekorativnye travianistye rasteniia iuga Dal'nego Vostoka dlia zelenogo stroitel'stva. Vladivostok, Primorskoe knizhnoe izd-vo, 1960. 35 p., 35 plates. (MIRA 13:10)
(Soviet Far East--Plants, Ornamental)

KURENTSOVA, G.E.; SKRIPKA, M.A.

Dynamics of the vegetative cover in the eastern part of Khanka Plain in connection with the changes in its water conditions. Bot. zhur. 46 no.8:1177-1182 Ag '61. (MIRA 15:1)

1. Dal'nevostrochnyy filial AN SSSR, Vladivostok.
(Khanka Plain--Botany)



Portable screens for the protection of animals from the polluted air of automobile thoroughfares. Zhur. prikl. biol. Dal'. Vost. no.1:91-96 '61.

1. Dal'nevostochnyy nauchno-issledovatel'skiy [illegible] stroitel'stvu i Botanicheskiy sad [illegible] Sibirskogo otdeleniya AN SSSR.

SKRIPKA, M. L., Cand Tech Sci -- (diss) "Study of dynamic forces and irregularity of load distribution in relation to the number of planet wheels of the planetary gear." [Odessa], 1956. 9 pp (Min of Higher Education Ukr SSR, Odessa Polytechnic Inst) (KL, 52-57, 108)

1. SKRIPKA, P.; ONISHCHUK, S.

2. USSR (600)

4. Cotton Growing

7. Deep plowing for cotton.
Khlopkovodstvo no. 8, 1952

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

SKRIPKA, P. A.

Forage Plants - Ukraine

Cultivation of feeding stuffs on the Aleshkovo sands. Les i step' No. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1952 ~~XXXX~~, Uncl.

SKRIPKA, P.A.

Soil Plowing

Useful book on sowing grasses on sand ("Sowing grass on sandy and sandy loam soils." A.K. Dudar'. Reviewed by P.A. Skripka). Les. i step' 4, 1952, no. 3.

9. Monthly List of Russian Accessions, Library of Congress, NOVEMBER 1952 ~~1953~~, Uncl.

SKRIPKA, P.A.

Dynamics of the growth of melons. Trudy Inst. fiziol. rast. 8 no.1:399-422 '53. (MLRA 6:12)

1. Ukrainskaya nauchno-issledovatel'skaya stantsiya vinogradarstva i osvoyeniya peskov. (Vine crops)

VASISHVILI, T.D., gornyy inzh.; SKRIPKA, P.F., gornyy inzh.; YATSYSHEN, G.N., gornyy inzh.

Experiment in hydraulic gob filling. Ugol' 36 no.5:31-33 My '61. (MIRA 14:5)

1. Institut gornogo dela im. A.A.Skochinskogo (for Vasishvili). 2. UkrNIIGidrougol' (for Skripka). 3. Khristoforovskoye shakhtoupravleniye (for Yatsyshen).

(Donets Basin--Mine filling) (Hydraulic mining)

SKRIPKA, V. G.; DYKHNO, N. M.

Application of the FEK-M photocolorimeter for the determination of microconcentration of oxygen in gases. Zav. lab. 28 no.12:1439-1440 '62. (MIRA 16:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kislorodnogo mashinostroyeniya.

(Oxygen—Analysis) (Gases—Analysis)
(Colorimeter)

L 24472-65 EWG(j)/EWT(m)/EPF(c)/EPF(n)-2/EPR/EWP(t)/EWP(b) Pr-4/Ps-4/Pu-4 IJP(c)/RPL JD/WW/JW

ACCESSION NR: AT5000854 S/2800/64/000/008/0163/0179 35 34 B+1

AUTHOR: Skripka, V. G. (Engineer); Dykhno, N. M. (Candidate of chemical sciences)

TITLE: Solubility of helium and neon in liquid oxygen, nitrogen and argon

SOURCE: Vsesoyuznyy nauchno-issledovatel'skiy institut kislorodnogo mashinostroyeniya. Trudy, no. 8, 1964. Apparaty i mashiny kislorodnykh ustanovok (Apparatus and machines of oxygen plants), 163-179

TOPIC TAGS: oxygen plant, oxygen production, helium solubility, neon solubility, noble gas, air fractionation

ABSTRACT: The authors, doing initial research on the solubility of helium and neon in liquid oxygen and adding to data on the helium-neon-liquid argon system, used the circulation method for investigating phase equilibria as developed by Inglis and improved by Dodge and Dunbar. Gas circulation was effected by a magnetic pump and controlled by manometers at key points. Phase equilibria of the ideal gas system were determined separately. Nitrogen was held at the desired temperatures by automatic evacuation. Gas analyses were performed by interferometers with optical bulbs of 1000 mm length. Tests on the oxygen-helium system

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L 24472-65

ACCESSION NR: AT5000854

were run over temperatures of 67.5-90.3K and pressures of 5.93-25.96 atm. abs.; on the helium-nitrogen system over identical temperatures and pressures of 5.93-25.92 atm. abs.; on the helium-argon and neon-argon systems at 90.5K and pressures of 5.95-25.92 atm.abs.; and on the neon-oxygen and neon-nitrogen systems at temperatures of 67-90.3K and pressures of 5.93-26.01 atm.abs. Graphs showing pressure as a function of composition for both liquid and gaseous states were drawn on the basis of the data obtained. The solubility of helium in liquid oxygen, nitrogen, and argon is only 10-20% of that of neon under similar conditions. As a rule, an increase in temperature increases the solubility of the light inert gases in liquid oxygen and nitrogen. This is not so, however, for the neon-nitrogen system. Orig. art. has: 14 figures and 8 tables.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut kislorodnogo mashinostroyeniya (All-union oxygen machine building scientific research institute)

SUBMITTED: 00 ENCL: 00 SUB CODE: IC, GC

NO REF SOV: 010 OTHER: 006

Card 2/2

L 63015-65 EWT(d)/EWT(l)/EWT(m)/EPF(c)/EEC(k)-2/EPF(n)-2/T/EWP(t)/EWG(c)/EWP(b) Pr-4/Ps-4/Pu-4 IJP(c) JD/WW

ACCESSION NR: AT5016473 UR/2800/65/000/009/0180/0185

56
55
B+1

AUTHOR: Skripka, V.G. (Engineer)

TITLE: An experimental determination of the partial molar volumes of neon dissolved in liquid nitrogen

SOURCE: Vsesoyuznyy nauchno-issledovatel'skiy institut kislorodnogo mashinostroyeniya. Trudy, no. 9, 1965. Apparaty i mashiny kislorodnykh ustanovok (Apparatus and machines of oxygen plants), 180-185

TOPIC TAGS: cryogenics, dissolved neon, liquid nitrogen, saturated solution density, molar volume

ABSTRACT: The constant-volume piezometer method was employed to measure volumetric relationships in the system Ne-N_2 at 90.25K and pressures of 8 to 29 kg/cm^2. The author has designed and illustrates a unit permitting the measurement of densities of solutions of poorly soluble gases at low temperatures, presents data on the densities of saturated solutions of Ne in liquid N_2 at the pressures and temperatures indicated above, and concludes that the molar volume of a saturated solution is a linear function of the molar fraction of the dissolved neon. "Engineer N.S.Minayeva and Senior Technician M.M. Aleksandrova took part in the work." Orig. art. has: 3 figures, 1 table and 3 formulas.

Card 1/2

L 63015-65

ACCESSION NR: AT5016473

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut kislorodnogo mashinostroyeniya (All-Union Scientific Research Institute for Oxygen Machine Building)

SUBMITTED: 00 ENCL: 00 SUB CODE: GC

NO REF SOV: 004 OTHER: 002

Card 2/2

L 36281-66 EWT(m)/EWP(t)/ETI IJP(c) JW/NW/JD/JXT(CZ)
ACC NR: AT6016842 (A) SOURCE CODE: UR/2800/65/000/010/0163/0183

AUTHOR: Skripka, V. G. (Engineer)

ORG: None

TITLE: Virial coefficients of inert and associated gases in the low temperature region

SOURCE: Vsesoyuznyy nauchno-issledovatel'skiy institut kislorodnogo mashinostroyeniya. Trudy, no. 10, 1965. Apparaty i mashiny kislorodnykh ustanovok (Apparatus and machinery of industrial oxygen plants), 163-183

TOPIC TAGS: low temperature phenomenon, liquid oxygen, liquid nitrogen, argon, helium, neon, hydrogen, deuterium, krypton

ABSTRACT: Using data from 46, mostly Western, references, the author evaluates the second virial coefficients of oxygen, nitrogen, argon, helium, neon, hydrogen, deuterium, and krypton at temperatures in the 10—150K range. Following a brief outline of the method for the calculation of the virial coefficients of pure gases and mixtures, the paper presents a summary of the various data used and discusses at length each of the equations used for the determination of the temperature variations of the second virial coefficients under study. The results are

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L 36281-66
ACC NR: AT6016842

T °K	helium	neon	oxygen	nitrogen	argon	hydrogen	deuterium	krypton
10,00	23,6	—	—	—	—	—	—	—
15,00	8,2	—	—	—	—	227,5	—	—
20,00	1,8	—	—	—	—	148,5	184,5	—
25,00	—8,0	—	—	—	—	107,5	125,0	—
30,00	—3,10	98,7	—	—	—	81,6	93,7	—
35,00	—4,8	71,2	—	—	—	63,3	73,7	—
40,00	—6,2	55,0	—	—	—	50,4	58,8	—
45,00	—7,3	43,5	—	—	—	40,4	47,6	—
50,00	—8,2	34,8	—	—	—	32,6	38,7	—
55,00	—8,9	29,0	—	—	—	26,5	31,6	—
60,00	—9,5	24,3	—	—	—	21,5	25,7	—
65,00	—10,00	20,3	—	—	—	17,4	21,0	—
70,00	—10,40	17,4	—	306,4	—	14,0	17,0	—
75,00	—10,70	14,6	—	269,7	—	11,4	13,7	—
80,00	—10,90	12,2	277,5	238,6	179,2	8,8	11,0	—
85,00	—11,2	10,2	247,3	213,2	248,3	7,0	8,6	—
90,00	—11,4	9,5	221,9	192,9	221,7	5,4	6,5	—
95,00	—11,6	6,8	202,2	175,0	200,5	3,7	5,0	—
100,00	—11,7	5,3	185,7	159,5	182,5	2,3	3,6	—
105,00	—11,9	3,9	171,6	145,5	167,5	1,3	2,0	—
110,00	—12,0	2,6	158,5	133,7	154,0	—0,0	1,0	365,6
115,00	—12,1	1,5	148,5	122,7	142,5	—1,1	—0,0	333,4
120,00	—12,1	0,5	136,0	113,3	131,7	—2,2	—1,1	307,2
125,00	—12,1	—0,4	126,8	105,0	122,0	—3,3	—2,1	284,3
130,00	—12,1	—1,2	117,7	97,0	113,5	—3,9	—3,2	263,6
135,00	—12,2	—2,00	109,5	90,2	105,0	—4,5	—4,0	243,3
140,00	—12,2	—2,8	102,0	83,3	97,5	—5,1	—4,6	231,0
145,00	—12,2	—3,2	99,5	577,5	90,5	—5,6	—5,2	—
150,00	—12,2	—3,4	93,0	71,9	85,5	—6,0	—5,7	—

Table 1. The values of second virial coefficients of pure gases (-B in cm^3/mole).

Card 2/3

L 36281-66
ACC NR: AT6016842

summarized in Table 1. The article concludes with a discussion of the use of the law of corresponding states for the determination of the virial coefficients of pure gases. Orig. art. has: 36 formulas, 9 figures, and 3 tables.

SUB CODE: 07, 11/ SUBM DATE: 00/ ORIG REF: 001/ OTH REF: 045

Card 3/3 HS

SKRIPKA, V.G., inzh.

Virial coefficients of inert and accompanying gases in the low temperature region. Trudy VNIIKIMASH no.10:163-183 '65. (MIRA 18:9)

GAN, G.S., prof.; GRECHISHKIN, D.K., prof.; BONDAR', V.A., dotsent SKRIPKA, V.K., kand. med. nauk; BOLDYREV, Ye.N., kand. med. nauk; PASHCHENKO, M.F., kand. med. nauk; SYROYEZHKIN, P.V., inzh.; KLIMOV, D.D., inzh.

Hygienic conditions and labor safety at Donetsk hydraulic mines. Ugol' 39 no.9:37-38 S '64. (MIRA 17:10)

1. Luganskiy meditsinskiy institut (for Gan, Grechishkin, Bondar', Skripka, Boldyrev, Pashchenko). 2. Ukrainskiy nauchno-issledovatel'skiy institut gidrodobychi uglya (for Syroyezhkin, Klimov).

SKRIPKA, V. K. Cand Med Sci -- (diss) "Gonioscopic studies in ~~cases of~~ glaucoma." Stalino, 1958. 12 pp (Stalino State Med Inst im A. M. Gor'kiy), 220 copies (KL, 52 -59, 126)

SKRIPKA, V.K., ordinator

Significance of gonioscopy in the diagnosis of glaucoma. Oft.zhur. 13 no.7:419-422 '58. (MIRA 12:1)

1. Iz kafedry glaznykh bolezney imeni akademika V.P. Filatova (zav.-prof. S.F. Kal'fa) Odesskogo meditsinskogo instituta.
(GLAUCOMA) (GONIOSCOPY)

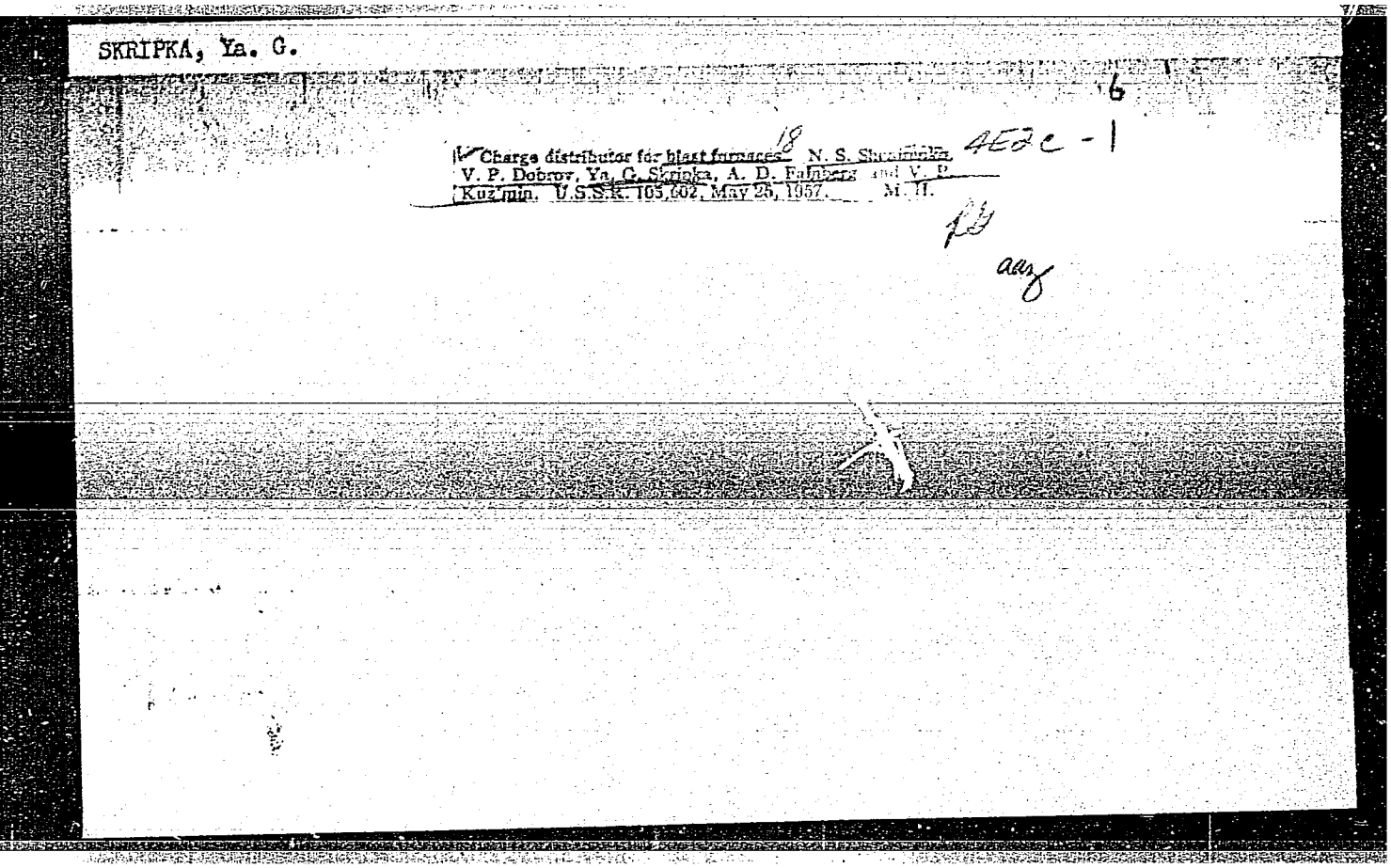
PETRUNYA, S.P., kand.med.nauk; SKRIPKA, V.K., vrach

Tissue therapy in therapeutic institutions of Lugansk Province.
Oft.zhur. 13 no.8:486-489 '58. (MIRA 12:2)
(LUGANSK PROVINCE--TISSUE EXTRACTS)
(EYE--DISEASES AND DEFECTS)

SKRIPKA, V.K., ordinator

Recording of gonioscopic observations. Oft.zhur. 15 no.7:431-432 '60.
(MIRA 13:11)

1. Iz kliniki glaznykh bolezney (zav. - prof. S.F.Kal'fa) Odesskogo meditsinskogo instituta imeni N.I.Pirogova.
(GONIOSCOPY)



SKRIPKA, Ya. G.

Charge distributor for blast furnaces. N. S. Shvetsov, V. P. Dobrov, Ya. G. Skripka, A. D. Fatkuzov and V. P. Kuz'min. U.S.S.R. 105,602, May 25, 1957.

NOVIKOV V.V., professor; SKRIPKAR',L.N., inzhener

Photoelectric measurement of the integral coefficient of parabolic mirror reflection. Svetotekhnika 1 no.5:21-22 O'55. (MLRA 8:12)

1. Gosudarstvennyy opticheskiy institut
(Photoelectric measurements)

NOVIKOV, V.V., prof.; BERSENEV, Ye.I., inzh.; SKRIPKAR', L.N.

Calculating the scattering for belt lenses. Svetotekhnika 5 no.2: 17-23 F '59. (MIRA 12:1)

1.Gosudarstvennyy opticheskiy institut.
(Lenses) (Light--Scattering)

SKRIPKIN, A.D.

Initiative helps our work. Put' i put. khoz. no.3:19-21 Mr '58.
(MIRA 11:4)

1. Nachal'nik Ulan-Udenskoy distantsii Vostochno-Sibirskoy dorogi.
(Railroads--Maintenance and repair)

SKRIPKIN, A.F. (g. Kovrov)

Clinical aspects and differential diagnosis of scarlet fever. Fel'd. i akush. 23 no.3:20-23 Mr '58. (MIRA 11:4)
(SCARLET FEVER)

L 7038-66 EWT(d)/EWP(1) IJP(c) BB/GG

ACC NR: AP5026811 SOURCE CODE: UR/0286/65/000/017/0092/0093

AUTHOR: Skripkin, A. Ya.; Pozdnyaov, V. A.

ORG: none

TITLE: A device for comparing binary numbers. Class 42, No. 17442

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 17, 1965, 92-93

TOPIC TAGS: binary number, computer component

ABSTRACT: This Author's Certificate introduces a device for comparing binary numbers, one of which is given in reverse code. The device is simplified by making the collector circuit and the coincidence circuit for like charges of the two numbers being compared in the form of a single divider made up of two-equal resistors. Each of these resistors is connected to the input for one of the numbers to be compared.

UDC: 681.142.07

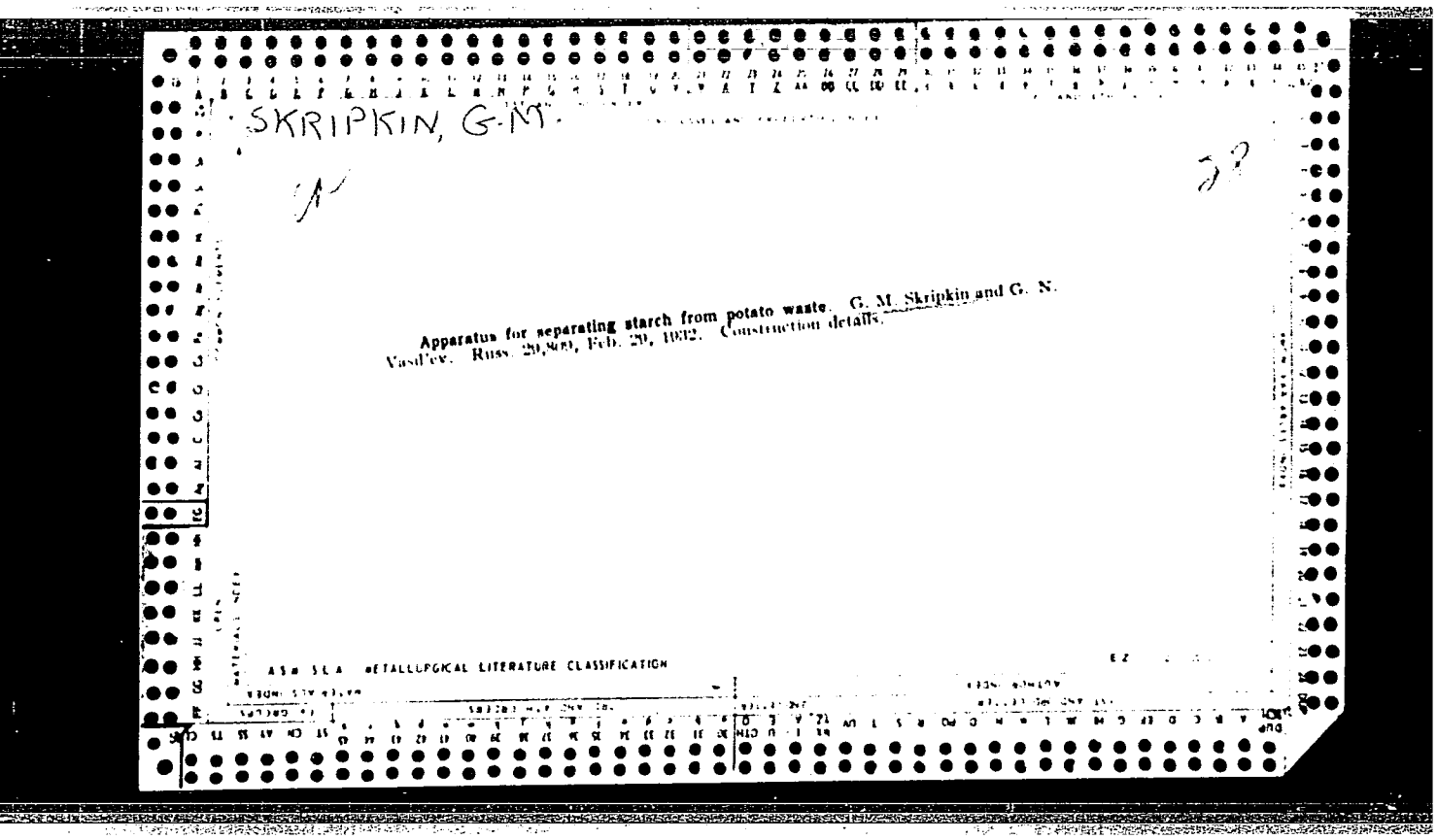
Card 1/2

Card 2/2

SMIRNOV, A.N., vrach; IGOSHIN, Yu.M., assistent; SMIRNOV, E.P., vrach

Dynamics of favus in Kalinin Province and ways for its eradication. Trudy KGMI no.10:57-60 '63. (MIRA 18:1)

1. Iz kafedry kozhnykh bolezney (zav. kafedroy - prof. G.Kh. Khachatur'yan [deceased]) Kalininskogo gosudarstvennogo meditsinskogo instituta.



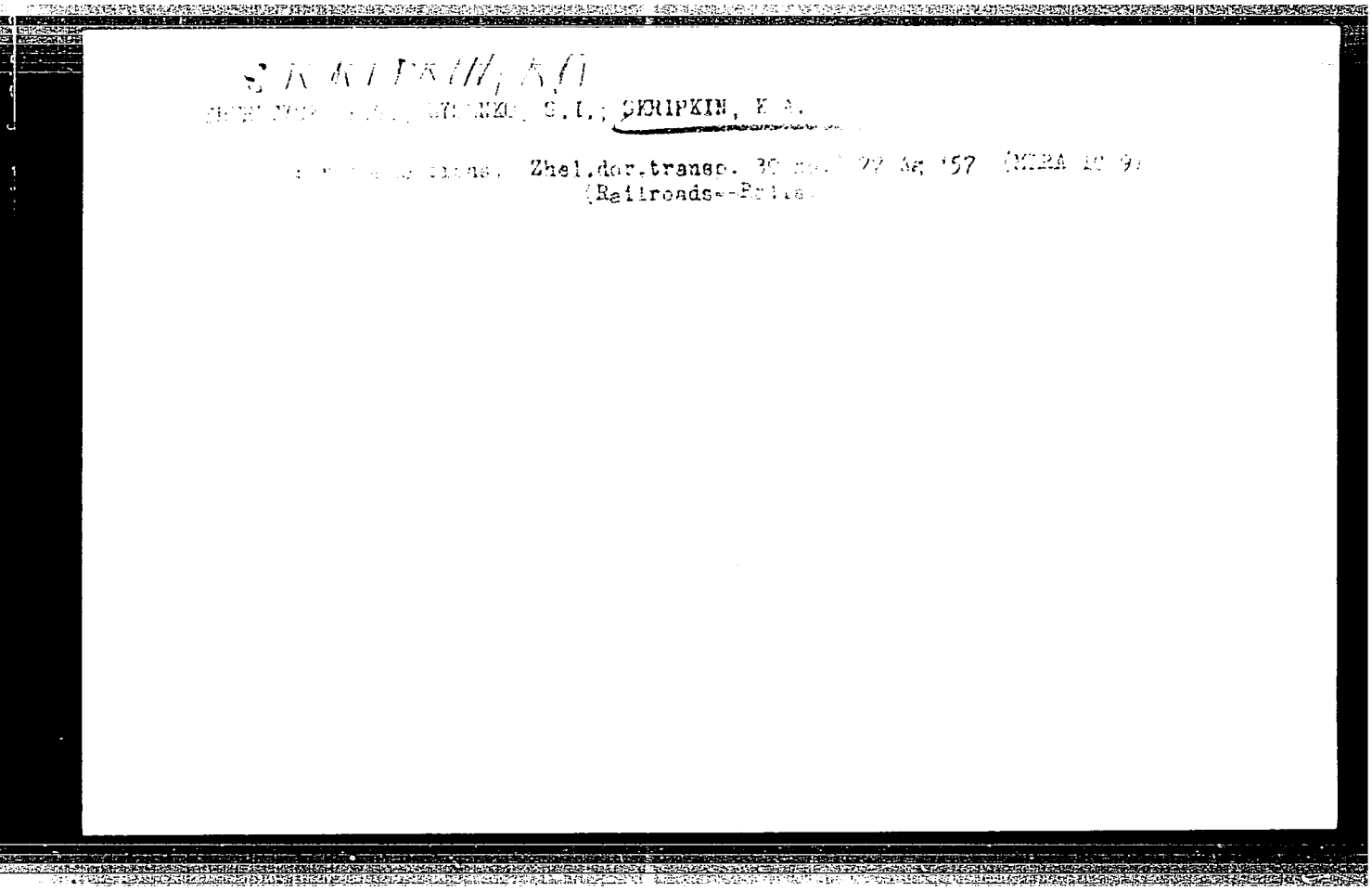
ANUFRIYEV, V.M.; NIKASHIN, F.F.; SKRIPKIN, G.M.; LOBANOV, D.I., professor, redaktor.

[Technology of food preparation] Tekhnologiia prigotovleniia pishchi. Pod.red. D.I.Lobanova. Moskva, Gostorgizdat, 1951. 352 p. (MLRA 7:6)
(Cookery for institutions)

MOLCHANOVA, O.P., prof.; LOBANOV, D.I., prof.; MARSHAK, M.S., prof.; GANETSKIY, I.D.; BEREZIN, N.I., laureat Stalinskoy premii; KONNIKOV, A.G., laureat Stalinskoy premii; LIFSHITS, M.O.; METLITSKIY, L.V., doktor sel'skokhoz.nauk; NAMESTNIKOV, A.F., kand.tekhn.nauk. Prinimali uchastiye: ANAN'YEV, A.A.; GROZNOV, S.R.: YEFIMOV, V.P.; KIKNADZE, N.S.; NIKASHIN, F.P.; PIROGOV, N.M.; SKRIPKIN, G.M.; TSYPLENKOV, N.P. SIVOLAP, I.K., red.; SKURIKHIN, M.A., red.; BETSOFEN, Ya.I., red.; DAMASKINA, G.B., red.; PRITYKINA, L.A., red.; KISINA, Ye.I., tekhn.red.

[Book on tasty and healthy food] Kniga o vkusnoi i zdorovoi pishche. Moskva, Pishchepromizdat, 1961. 423 p. (MIRA 15:2)

1. Chlen-korrespondent AMN SSSR (for Molchanova).
(Cookery)



SHUPKIN, K.I.; SHUPKIN, V.A.

Zhel.dor.transp. 30 no. 12 D '57 (MIRA 11:2)
(Railroads--Rails)

GEL'FOND, S. (g.Odessa); SHIGANOV, A. (g.Chernigov); SMETANINA, Z., pryadil'-shchitsa, udarnik kommunisticheskogo truda; DIL'DIN, M., rabochiy; SKRIPKIN, P. (g.Ulan-Ude); FILIPPOV, A. (g.Petropavlovsk); CHERNYKH, Vl. (g.Kursk)

From letters to the editors. Sov. profsoiuzy 16 no.21:54-57 N '60. (MIRA 13:10)

1. Fabrika imeni Balashova, g.Ivanovo (for Smetanina). 2. Sovkhoz "Teplichnyy", Moskovskaya obl. (for Dil'din).
(Trade unions)

SKRIPKIN, S.P.

Seed disinfector with an electromagnetic batcher for poisonous chemicals. Zashch. rast. ot vred. i bol. 6 no.8:13-15 Ag '61. (MIRA 15:12)

1. Glavnyy inzh. uchkhoza Kostromskogo sel'skokhozyaystvennogo instituta "Zavolzhskoye".
(Seeds—Disinfection)

L 07348-67 EWT(d)/EWT(m)/EWP(f) IJP(c)
ACC NR: AP6012163 (A) SOURCE CODE: UR/0413/66/000/007/0087/0087

38
B

AUTHOR: Skripkin, S. P.

ORG: none

TITLE: A system for injecting fuel in an internal combustion engine. [21] Class 46, No. 180432

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 7, 1966, 87

TOPIC TAGS: fuel injection, internal combustion engine, valve

ABSTRACT: This Author Certificate presents a system for injecting fuel in an internal combustion engine. The system contains a fuel tank and a pump for feeding the fuel into sprayers placed on the inlet collector. The fuel is fed with the help of an electromagnetic valve operated by the breaker of the ignition system (see Fig. 1). To

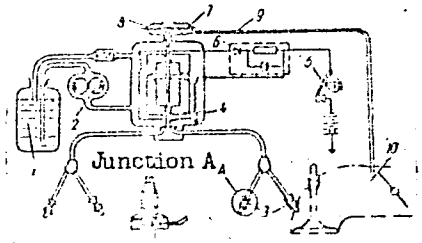


Fig. 1. 1 - fuel tank; 2 - pump; 3 - sprayers; 4 - electromagnetic valve; 5 - breaker; 6 - diode grid leak; 7 - valve shaft; 8 - regulator; 9 - pipe; 10 - collector

Card 1/2

UDC: 621.43-421-441.2

L 07348-67
ACC NR: AP6012163

decrease the cost of engine operation, the shaft of the valve is connected to a membrane of a pneumatic regulator lifting the valve in response to the evacuation of the inlet collector. Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 13Jan65

Card 2/2 afs

USSR

Skripkin, V. A. On transsonic flow of a plane gas jet from a nozzle with parallel walls. Prikl. Mat. Mch. 19, 89–98 (1955). (Russian)

MS 62

1-F/W

The author considers oscillatory motion of a slightly supersonic jet into an atmosphere of slightly lower pressure. Entropy changes are ignored and equations of motion simplified by use of transonic approximation. Analytical solutions are developed in parts of the expanding half of the first wave of the jet. Solutions in the simple wave regions centered on the edges of the nozzle unit can be written down immediately and determine conditions on the upstream sides of the quadrilateral in which these centered waves interact. The motion in the region of interaction is then found in the hodograph plane by solving the Euler-Poisson equation by Riemann's method. In the general case the analytical solution is terminated at the downstream vertex of the quadrilateral, but, in the special case of a sonic jet, the analytical solution is extended to cover the whole of the expanding half of the wave.

The author incorrectly states that the flow pattern in the second, compressive half of the first wave is a mirror image of that in the expanding half. In fact, as is well known, this

compression is achieved through shocks passing through nodal points in the free streamlines. Only the part of this motion ahead of the shock can be determined by reflection of the expanding flow pattern. *M. Holt* (Sevenoaks).

SKRIPKIN, V.A.

AUTHOR: SKRIPKIN, V.A. (Moscow) 40-5-16/20

TITLE: Approximative Formulas for the Rotary Vector for Small Deformations (Priblizhennyye formuly dlya vektora povorota pri maloy deformatsii)

PERIODICAL: Prikladnaya Mat. i Mekh.,1957,Vol.21,Nr 5,pp.715 (USSR)

ABSTRACT: Starting from the expression for homogeneous deformations in a connected medium in the neighborhood of a single point of this medium the author carries out simplifications of the deformation expressions which are based on certain properties of the deformation tensor. If the deformation is sufficiently small, then the components of the deformation tensor can be neglected against the value of the angle of rotation, so that explicit approximative formulas can be obtained. If in this formulas also the angle of rotation is put so small that the sine can be taken equal to the angle, then one obtains the well-known formulas of the linear theory of deformation. But also for finite deformations the expression for the rotary tensor is given.
There are no figures, no tables, and no references.

SUBMITTED: May 30, 1957
AVAILABLE: Library of Congress

Card 1/1

10(2)

AUTHOR: Skripkin, V. A. SOV/20-123-5-8/50

TITLE: Conditions on Shock Waves in the General Theory of Relativity (Usloviya na udarnykh volnakh v obshchey teorii otnositel'nosti)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 5, pp 799 - 802 (USSR)

ABSTRACT: The author deduces conditions on shock waves for an ideal compressible medium in the general theory of relativity. For the case of a central symmetrical field, the components of the metrical tensor of the four-dimensional space are assumed to be continuous (and that their derivatives - discontinuous) in the transition through the wave. The author finds the conditions for the first and second derivatives of the components of the metrical tensor on a shock wave in the general case. First the equations for the motions of an ideal liquid in the general theory of relativity are given explicitly. These differential equations are then transformed into integral equations. The conditions on the surface of a strong discontinuity are deduced according to the method of L. I. Sedov (Ref 2). Expressions are deduced for the discontinuities of the energy

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flux, momentum flux, and mass flux through the surface Σ. The author then investigates the special case of a central-symmetrical field. The equations of gravitation are specialized for this case and the components of the energy-momentum pseudotensor (which are different from zero) are given explicitly. According to the results of the calculations, the components of the metrical tensor remain continuous if a surface of strong discontinuity is passed. The following part of this paper deals with Cauchy's (Koshi) problem. It is shown that the values of the derivatives $\dot{\lambda}_{(2)}$, $\lambda'_{(2)}$, $\dot{\nu}_{(2)}$, $\nu'_{(2)}$ on one side of the discontinuity surface can be expressed by equations by the values of the same derivatives on the other side: $\dot{\lambda}_{(1)}$, $\lambda'_{(1)}$, $\dot{\nu}_{(1)}$, $\nu'_{(1)}$. The last part of this paper deals with a gravitation field of the general type. The problem can be reduced to the solution of 6 equations with respect to the 6 functions $g_{ik}(x^k)$. In the general case, the continuity equation will contain the third derivatives of the functions $g_{ij}(x^k)$. 60 conditions, therefore, have to be given for the

second derivatives. In this way, also in the general case there is a problem with Cauchy data on the surface of strong discontinuity. There are 3 references, 2 of which are Soviet.

ASSOCIATION: Matematicheskiy institut im. V. A. Steklova Akademii nauk SSSR (Mathematical Institute imeni V. A. Steklov of the Academy of Sciences, USSR)

PRESENTED: August 1, 1958, by L. I. Sedov, Academician

SUBMITTED: February 18, 1958

SOV/20-127-2-15/70

10(2)

AUTHOR: Skripkin, V. A.

TITLE: Algebraic Integrals for the Application of the Law of Similarity to the Flow of an Ideal Medium in the Relativistic Case

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 2, pp 287-289 (USSR)

ABSTRACT: The continuity equation, the energy equation, and the momentum equation, which were developed by the author in an earlier paper (Ref 1) are referred to in the introduction for the relativistic case of flow of an ideal fluid. The following is restricted to the investigation of a one-dimensional flow, the unknown functions being dependent only on a space coordinate r and on the time t. For these premises the mass integral, the energy integral, the adiabatic integral, and the momentum integral are then calculated. Finally, the continuity equation, the adiabatic equation, and the momentum equation applying to the special case investigated here are derived from the above results. There are 2 Soviet references.

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SOV/20-127-2-15/70

Algebraic Integral for the Application of the Law of Similarity to the Flow of an Ideal Medium in the Relativistic Case

ASSOCIATION: Matematicheskiy institut im. V. A. Steklova Akademii nauk SSSR
(Mathematical Institute imeni V. A. Steklov of the Academy of Sciences, USSR)

PRESENTED: April 2, 1959, by L. I. Sedov, Academician

SUBMITTED: March 31, 1959

Card 2/2

S/058/61/000/010/002/100
A001/A101

AUTHOR: Skripkin, V. A.

TITLE: Discontinuous central-symmetrical motions of ultrarelativistic gas in the general theory of relativity

PERIODICAL: Referativnyy zhurnal. Fizika, no. 10, 1961, 10, abstract 10A122 ("Zh. prikl. mekhan. i tekhn. fiz.", 1960, no. 4, 3-12)

TEXT: The problem is considered in self-modeling formulation. Conditions in a shock wave are investigated. The asymptotic set of solutions is given in vicinities of the values $t = 0$, $r = \infty$ and $t = \infty$, $r = 0$ for the case when a moving gas is conjugated, through the shock wave, with the gas at rest. The problem is solved on concentration of ultra-relativistic gas to the center, which describes schematically the process of origination of a central nebula.

[Abstracter's note: Complete translation]

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S/033/60/037/02/007/013
E032/E914

AUTHOR: Skripkin, V. A.

TITLE: Relativistic Corrections in the Problem of a Point Explosion in an Ideal Gravitating Continuous Medium

PERIODICAL: Astronomicheskiy zhurnal, Vol 37, Nr 2, pp 284-296(USSR) 1960.

ABSTRACT: In the case of a centrally symmetric gravitational field due to an ideal liquid characterized by the energy-momentum tensor given by Eq (1.1) where p is the pressure, ρ is the residual density of the rest mass, and ε is the internal energy per unit residual mass, the Einstein equations can be written down in the form given by Eqs (1.4)-(1.7) if the system of coordinates defined by Eq (1.3) is employed. In these equations differentiation with respect to time is indicated by a dot, and differentiation with respect to r by a dash. These equations must be supplemented by the continuity equation given by Eq (1.8). It may be shown that if the field equations exist, the latter equation is equivalent to the adiabatic condition given by Eq (1.9). If the internal energy is given by an equation

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of the form of Eq (1.10), where γ is the specific heat ratio, then the residual rest mass density is given by Eq (1.11) which follows from Eqs (1.5), (1.6), (1.2) and (1.10). Only those solutions are considered which can be written down in the form of series in powers of c^{-2}, where c is the velocity of light. These expansions are defined by Eqs (2.1)-(2.5), where functions which are independent of c^2 carry a subscript. If these expansions are substituted into the basic equations (Eqs (1.4), (1.5), (1.7), (1.11) and (1.9)), and the coefficients of equal powers of c are equated, one can obtain the equations representing the zero order approximation, and these are given by Eqs (2.6)-(2.10). In addition to Eq (2.7), Eq (1.5) gives the further result given by Eq (2.11) which, as can be

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Relativistic Corrections in the Problem of a Point Explosion in an Ideal Gravitating Continuous Medium

easily verified, is a solution of Eq (2.6). Thus, the first order approximation is described by Eqs (2.12)-(2.16), and the second order approximation by Eq (2.17). If Eq (2.12) is integrated one obtains Eq (2.18) in which $\Phi_0(t, r)$ denotes the right-hand side of Eq (2.12) and $A_0(t)$ is an arbitrary function. If the functions ψ_0 and ψ_1 are eliminated from the zero order equations, using Eqs (2.11) and (2.18), one obtains Eqs (2.19)-(2.21). It is easy to verify that the latter equations satisfy the continuity and momentum equations given by Eqs (2.22) and (2.23) respectively. The function $\varphi_0/2$ plays the role of the Newtonian potential in these equations. Eqs (2.19) and (2.21) differ from the formulae obtained by McVittie in Ref 3 for the case

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Relativistic Corrections in the Problem of a Point Explosion in an Ideal Gravitating Continuous Medium

in which gravitation is absent, only by the presence in the pressure equation (2.21) of the second and fourth terms. In order to determine the function φ_0 it is necessary to obtain the third order equation and to substitute Eqs (2.19)-(2.21) into the adiabatic condition which can be written down in the form of Eq (2.24) where f is an arbitrary function of specific entropy. It may be shown from the above equations that the equation defining φ_0 is of the form given by Eq (2.29). Coming back to the first order approximation, it follows from Eq (2.17) that Φ_1 is given by Eq (2.31) where $\Phi_1(t,r)$ denotes the right-hand part of Eq (2.17) and $A_1(t)$ is an arbitrary function. By

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V/C

Relativistic Corrections in the Problem of a Point Explosion in an Ideal Gravitating Continuous Medium

eliminating the functions ψ_2, φ_2, ψ_1 from Eqs (2.13)-(2.15) with the aid of Eqs (2.31) and (2.18), one can express p_1, ρ_1, v_1 in terms of φ_1 and its derivatives up to the second order inclusively. If these expressions for p_1, ρ_1, v_1 are substituted into the first order adiabatic equation given by Eq (2.16), one obtains the third order equation for the function $\varphi_1(r,t)$.

In this way the relativistic energy equation gives the classical continuity equation (2.22) as its zero order approximation. If one abandons the requirement that the residual rest mass must be conserved (Eq (1.8)), one obtains motion associated with transformations of matter into energy and only first order or higher mass will take part in these processes. In the Newtonian approximation, on the other hand, one has simply non-adiabatic motion for which the continuity equation is satisfied. In a previous paper (Ref 1), the author showed that the requirement that

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V/C

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Relativistic Corrections in the Problem of a Point Explosion in an Ideal Gravitating Continuous Medium

the flux of energy-momentum of matter, the gravitational field, and the residual mass, through the surface of a shock wave leads to the relations given by Eqs (3.1) and (3.2) where D is the velocity of propagation of the discontinuity, t^{ik} is the gravitational field energy-momentum pseudotensor, n_α denotes the external normal to the shock wave, and the square brackets indicate discontinuities in the quantities included by them. In a centrally symmetric field, and using the system of coordinates defined by Eq (1.3), it follows from (3.1) and (3.2), and from equations (1.5)-(1.7), that Eqs (3.3) and (3.4) must be satisfied. If one omits in Eq (3.1) terms referring to quantities which are continuous across the shock wave, one is led to Eqs (3.5) and (3.6), in which

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E032/E914

Relativistic Corrections in the Problem of a Point Explosion in an Ideal Gravitating Continuous Medium

(3.5) expresses the continuity of the energy flux and (3.6) the continuity of momentum of given matter. If the law of motion of the shock wave is expressed by $r = r^*(t)$, then substituting the expansions given by Eqs (2.1)-(2.5) and (3.7)-(3.8) into Eqs (3.3)-(3.6), one obtains the expressions given by Eqs (3.9)-(3.16) in which all the functions are taken at $r = r^*_o(t)$. The relation given by Eq (10) is the zero order approximation of Eqs(3.4) and (3.6). The determinant Δ of Eqs (3.14)-(3.16) is given by Eq (3.17), which shows that this determinant vanishes either when the discontinuity moves with the velocity of the particles, or when the velocity of the shock wave is equal to the velocity of sound. The above theory is then applied to the special case in which the zero order approximation is Sedov's solution of the problem of a point explosion in an ideal gravitating medium at rest.

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for which the specific heat ratio is $\gamma = 4/3$. The state of matter and radiation in the Universe as a whole approximately corresponds to this value of γ. It is shown that a gravitational wave is propagated in front of the shock wave and perturbs the medium at rest before it is reached by the shock wave. There is 1 figure and 8 references of which 5 are Soviet and 3 are English.

ASSOCIATION: Matematicheskiy in-t, Akademii nauk SSSR (Mathematical Institute, Academy of Sciences USSR)

SUBMITTED: June 23, 1959.

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S/020/60/135/005/009/043
B019/B067

AUTHOR: Skripkin, V. A.

TITLE: Point Explosion in an Ideal Incompressible Fluid in the General Relativity Theory

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 5, pp. 1072-1075

TEXT: The radial motion of a gravitating ideal incompressible fluid which was originally in equilibrium is studied after a point explosion in the center. For this case Einstein's equation of gravitation is set up according to a paper by Taub (Ref. 1). The propagating ball has two surfaces, one limiting it to the outside, the other limiting the vacuum formed in the center. If the moving fluid borders on the vacuum along the world lines of the particles of the two surfaces, the motion may be regarded as an explosion of an incompressible fluid. The conditions under which the fluid performs oscillatory movements are briefly dealt with. Finally, Newton's approximation for low particle velocities is discussed. There are 2 figures and 3 references: 1 Soviet, 1 German, and 1 US.

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86824

Point Explosion in an Ideal Incompressible Fluid in the General Relativity Theory

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B019/B067

ASSOCIATION: Matematicheskiy institut im. V. A. Steklova Akademii nauk SSSR (Institute of Mathematics imeni V. A. Steklov of the Academy of Sciences USSR)

PRESENTED: June 22, 1960, by L. I. Sedov, Academician

SUBMITTED: June 15, 1960

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SKRIPKIN, V. A., Cand. Phys-Math. Sci. (diss) "Problems of Relativistic Hydrodynamics with Central Symmetry." Moscow, 1961, 7 pp (Moscow State Univ.) 200 copies (KL Supp 12-61, 253).

89335

S/033/61/038/001/018/019
E032/E314

24.1400

AUTHOR: Skripkin, V.A.

TITLE: Discontinuous Centrosymmetric Motions of Ultra-relativistic Gas in the General Theory of Relativity

PERIODICAL: Astronomicheskiy zhurnal, 1961, Vol. 38, No. 1, pp. 192 - 195

TEXT: The present author has used the Einstein equations:

$$R^{ik} - \frac{1}{2} g^{ik} R = -\varkappa\left[(\varepsilon + p)u^i u^k - g^{ik} p\right] \qquad (1)$$

to solve the problem of the motion of ultra-relativistic gas, having the equation of state $\varepsilon = 3p$, towards the centre of symmetry. The gas moving from the periphery towards the centre is separated from the gas which is at rest in the central part of the region by a shock wave. If one uses a system of coordinates in which:

$$ds^2 = Y(t, r; \sigma)dt^2 - x(t,r,\sigma)dr^2 - r^2(d\theta^2 + \sin^2\theta d\Phi^2) \qquad (2)$$

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where t and r are the time and space coordinates and σ is a constant having the dimensions of velocity, then the equilibrium state is represented by the following simple solution of Eq. (1):

$$Y = b\sigma r, \quad x = \frac{7}{4}, \quad \varkappa p = \frac{1}{7r^2}, \quad \varkappa \varepsilon = \frac{3}{7r^2} \tag{3}$$

where b is a dimensionless constant, and in the region occupied by moving gas (Sedov - Ref. 1):

$$Y = \frac{r^2}{t^2}\, y(\xi), \quad x = x(\xi), \quad \xi = \frac{\sigma t^2}{r} \tag{4}$$

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where x and y are dimensionless functions of . Using the notation q = (dx/d), Eq. (1) can be reduced to the following set of equations:

$$\frac{d^2y}{dx^2} = \frac{2\frac{y}{q}(x-3)+3\left(\frac{dy}{dx}-\frac{y}{x}\right)+\left(\frac{dy}{dx}-4\right)\left[\frac{q}{2}\left(\frac{1}{y}\frac{dy}{dx}+\frac{1}{x}\right)-\frac{\partial q}{\partial x}-\frac{dy}{dx}\frac{\partial q}{\partial y}\right]}{q+\left(\frac{dy}{dx}-4\right)\frac{\partial q}{\partial (dy/dx)}}, \quad (5)$$

$$q = 2\times$$

$$\times\frac{4-\frac{9}{x}-\frac{1}{y}\frac{dy}{dx}(4x-7)+2\sqrt{\left[\frac{1}{y}\frac{dy}{dx}(x-1)+\frac{x-3}{x}\right]^2-\frac{4}{xy}(4x^2-16x+15)}}{\frac{3}{y^2}\left(\frac{dy}{dx}\right)^2-\frac{10}{xy}\frac{dy}{dx}+\frac{3}{x^2}+\frac{16}{xy}}, \quad (6)$$

$$\frac{dr}{dt} = \frac{r}{t}y\left[\frac{2x-5}{2q}+\frac{1}{4}\left(\frac{3}{y}\frac{dy}{dx}-\frac{1}{x}\right)\right], \quad (7)$$

$$\varkappa p = \frac{1}{2xr^2}\left[2x-4+q\left(\frac{1}{y}\frac{dy}{dx}-\frac{1}{x}\right)\right], \quad (8)$$

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In these equations, Eq. (5) defines y as a function of x and the values of q, ∂q/∂x, ∂q/∂y and ∂q/∂(dy/dx) are given by Eq. (6). When the state of equilibrium (3) exists on the inner surface (with respect to the centre of symmetry) of the shock wave, one finds that on the outer surface of the wave ($\xi = 1$):

$$q_* = \frac{21\sqrt{4n^2-3}\,(2n+\sqrt{4n^2-3})}{16\,(n+\sqrt{4n^2-3})^2}, \qquad (9)$$

and

$$\left(\frac{dy}{dx}\right)_* = \frac{16\,(n+\sqrt{4n^2-3})^2\,(2n+\sqrt{4n^2-3})}{3\sqrt{4n^2-3}} + 4, \qquad (10)$$

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S/033/61/038/001/018/019
E032/E314

Discontinuous Centrosymmetric Motions of Ultra-relativistic Gas in the General Theory of Relativity

where $\sqrt{3/2} \leqslant n \leqslant 1$. As a result of the numerical solution of the above Cauchy problem for $n = 0.9$, the functions $y = y(x)$ and $q = q(x)$ were determined. The dependence of these functions on ξ is defined by the equation:

$$\xi = \exp \int_{7/4}^{x} \frac{d\lambda}{q(\lambda)} \qquad (11)$$

while $\varkappa p$ and dr/dt are given by Eqs. (7) and (8). The asymptotic expansion of $x(\xi)$ and $y(\xi)$ in the neighbourhood of $\xi = \sigma t^2/r = 0$ is of the form :

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Discontinuous Centrosymmetric Motions of Ultra-relativistic Gas in the General Theory of Relativity

$$x = a_o + a_1\xi^{\alpha} + a_2\xi^{2\alpha} + \ldots,$$
$$y = \xi^{2\alpha}(b_o + b_1\xi^{\alpha} + b_2\xi^{2\alpha} + \ldots), \qquad (12)$$

where a_i, b_i and α are constants. The pressure and the velocity of particles U_c measured in the proper time for each point of space are given by ($\xi = 0$)

$$\varkappa p = \frac{1}{a_c}(a_o - 2 + \alpha)r^{-2}, \quad \frac{U_c}{c} = \frac{\sqrt{a_o b_o}}{2\alpha a_1}(2a_o - 5 + 3\alpha) \qquad (13).$$

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Discontinuous Centrosymmetric Motions of Ultra-relativistic Gas in the General Theory of Relativity

The numerical results are shown in Figs. 1 - 5. A detailed account of this work is given by the author in Ref. 4. There are 5 figures and 4 references: 3 Soviet and 1 non-Soviet.

ASSOCIATION: Matematicheskiy institut Akademii nauk SSSR (Mathematical Institute, Academy of Sciences, USSR)

SUBMITTED: June 14, 1960

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88401

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S/020/61/136/004/007/026
B019/B056

AUTHOR: Skripkin, V. A.

TITLE: A Class of Progressing Motions in an Ultrarelativistic Gas

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 4, pp. 791 - 794

TEXT: The relativistic equations of motion of an ideal homogeneous medium have the form

$$\nabla\{(\varepsilon + p)u^i u^k - g^{ik}p\} = 0 \qquad (1.1)$$

$$\nabla_k(\rho u^k) = 0 \qquad (1.2).$$

The author applies the theory of dimensions when investigating the central-symmetric motion of an ultrarelativistic gas by means of the equation of state

$$\varepsilon = 3p \qquad (1.3).$$

This equation is an approximation for ideal monatomic gases if the temperature $\theta = p/\rho c^2 \gg 1$. For the problem studied here, (1.1) may be represented by two equations:

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$$\frac{\partial}{\partial t}\left(\frac{\varepsilon+pv^2/c^2}{1-v^2/c^2}\right) + \frac{\partial}{\partial r}\left(\frac{(p+\varepsilon)v}{1-v^2/c^2}\right) + \frac{2}{r}\frac{(p+\varepsilon)v}{1-v^2/c^2} = 0 \qquad (1.5)$$

$$\frac{1}{c}\frac{\partial}{\partial t}\left(\frac{(p+\varepsilon)v}{(1-v^2/c^2)c}\right) + \frac{\partial}{\partial r}\left(\frac{\varepsilon v^2/c^2+p}{1-v^2/c^2}\right) + \frac{2}{r}\frac{\varepsilon v^2/c^2+p}{1-v^2/c^2} = \frac{2p}{r} \qquad (1.6) .$$

Here, $t = x^0$ denotes time, and $r = x^1$ the particle radius. By means of (1.3) it is possible, by elimination of ε, to solve equations (1.5) and (1.6) independently of (1.2). By introduction of the reduced functions $P(\lambda) = p/p_0$, $V(\lambda) = v/c$, where $\lambda = r/ct$, the following equation is obtained for $V(\lambda)$ in the above-described manner:

$$dV/d\lambda = \frac{2V(1-V^2)(1-\lambda V)}{\lambda\{V^2(\lambda^2-3)+4\lambda V+1-3\lambda^2\}} \qquad (2.3),$$

which offers solutions to $V = \pm 1$, $V = 0$, and $\lambda = 0$. On the basis of the integral curves shown in Fig.1, the author discusses (2.3) in detail, after which he studies the concrete problems of contraction, of expansion, and of the plunger by means of the theory developed here. There are 1 figure and

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A Class of Progressing Motions in an Ultra-relativistic Gas

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4 Soviet references.

ASSOCIATION: Matematicheskiy institut im. V. A. Steklova Akademii nauk SSSR (Institute of Mathematics imeni V. A. Steklov, Academy of Sciences USSR)

PRESENTED: September 21, 1960, by L. I. Sedov, Academician

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