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PART III. RELATIVISTIC GAS DYNAMICS

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

AUTHOR: Kaplan, S.A. SOV/115-58-1-2/50

TITLE: On the Planning of Measuring Laboratories for Linear Measurements (O proyektirovanii izmeritel'nykh laboratoriy dlya lineynykh izmereniy)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 1, pp 5-7 (USSR)

ABSTRACT: The article contains detailed information on the basic standard layout for measurement laboratories of non-mass production machine-building plants, worked out by the Department of Measures and Measuring Devices of Vptistroydormash (formerly the Ministry of Construction and Road Machine-Building). The information includes a building layout, a basic minimum list of required laboratory equipment, and a distribution plan for this equipment within the building. Equations to be used for estimating the required quantities of instruments and the number of workers are given. There are 2 tables and 1 diagram.

1. Laboratories--Design 2. Laboratory equipment 3. Laboratories --Organization 4. Laboratories--Instrumentation 5. Mathematics

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SOV/169-59-4-4068

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 4, p 127 (USSR)

AUTHOR: Kaplan, S.A.

TITLE: Magnetic Gas Dynamics and the Problems of Cosmogony

PERIODICAL: V sb.: Vopr. kosmogonii. Vol 6, Moscow, AS USSR, 1958, pp 238-264 (Engl. Res.)

ABSTRACT: The basic principles and the general results obtained in the magnetic gas dynamics are discussed: 1) the existence of the "adhesion" integral; 2) the description of the "entanglement" and the "disentanglement" of the magnetic force lines; 3) the increase of the density of magnetic energy in gas dynamic shock waves; 4) the notion of the gas magnetic turbulence. Certain cosmogonic hypotheses are discussed, in which the methods and results of magnetic gas dynamics are used to some degree: a) the hypothesis of the connection between spiral arms and the regular magnetic field; b) the hypothesis of the formation of interstellar gas clouds as individual vortices - nuclei of the interstellar magnetic turbulence; c) the hypothesis of the

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KAPLAN, S.A.

Equation of the motion of artificial earth satellites and the control of observations. Astron. tsir. no.189:1-3 F '58.
(MIRA 11:8)

1.L'vovskaya stantsiya nablyudeniy iskusstvennogo Sputnika Zemli.
(Artificial satellites)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.

Approximate calculation of ephemerides and the determination of orbits of artificial earth satellites. Astron.tsir. no.192:5-8 My '58. (MIRA 11:10)

1. L'vovskaya stantsiya nablyudeniy Iskusstvennykh Sputnikov Zemli. (Artificial satellites)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S. A.

"Shock Waves in Stellar Interiors."

report to be submitted for the 9th Intl. Symposium, Belgian Inst. of Astrophysics, Liege, Belgium, 6-8 July 1959.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

FRANK-KAMENETSKIY, David Al'bertovich; KAPLAN, S.A., retsenzent; SAMSONENKO, L.V., red.; YERMAKOVA, Ye.A., tekhn.red.

[Internal physical processes in stars] Fizicheskie protsessy vnutri zvezd. Moskva, Gos.izd-vo fiziko-matem.lit-ry, 1959. 543 p. (MIRA 13:3)

(Astrophysics)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.; LOGVINENKO, A.A. [Logvynenko, O.O.]; PODSTRIGACH, T.S. [Pidstryhach, T.S.]

Calculation of gasomagnetic shock wave parameters. Ukr.fiz. zhur. 4 no.4:438-442 Jl-Ag '59. (MIRA 13:4)

1. L'vovskiy gosudarstvennyy universitet im.Iv.Franko. (Shock waves)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

3(1) SOV/33-36-2-21/27

AUTHORS: Kaplan, S.A., Klimishin, I.A.

TITLE: On the Correlation Between the Observed Differences of the Degree of Interstellar Polarization and the Angular Distance of the Corresponding Points on the Celestial Sphere

PERIODICAL: Astronomicheskiy zhurnal, 1959, Vol 36, Nr 2, pp 370-371 (USSR)

ABSTRACT: By evaluating the data of Hiltner [Ref 2] the authors obtain approximatively the relation

$$\overline{(p_1 - p_2)^2} \approx 5,2\,\alpha^{0,24},$$

where $\overline{(p_1 - p_2)^2}$ is the mean quadratic difference of the degrees of interstellar polarization (in per cents) in two points of the firmament, and α the angular distance of these points from each other. It is reservedly conjectured that this correlation can be explained by the turbulent character of the interstellar magnetic fields.

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SOV/33-36-2-21/27

On the Correlation Between the Observed Differences of the Degree of Interstellar Polarization and the Angular Distance of the Corresponding Points on the Celestial Sphere

There are 2 references, 1 of which is Soviet, and 1 American.

ASSOCIATION: L'vovskaya astronomicheskaya observatoriya (L'vov Astronomical Observatory)

SUBMITTED: June 2, 1958

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

3(1),10(1)

AUTHORS: Kaplan, S.A., and Klimishin, I.A. SOV/33-36-3-3/29

TITLE: Shock Waves in Stellar Envelopes

PERIODICAL: Astronomicheskiy zhurnal, 1959, Vol 36, Nr 3, pp 410-421 (USSR)

ABSTRACT: The authors consider physical properties of stellar shock waves, the possibility of separation of the envelopes etc. The shock waves are assumed to by stationary, at the other hand, the interaction with the radiation is considered. §1 contains the derivation of the formula for the Hugoniot-adiabatic curves and other general relations. Because of the complicatedness of the obtained system in the following paragraphs, the authors restrict themselves to especially interesting special cases. §2 is devoted to the so-called detonation-recombination shock waves in a gas-radiation-mixture (these waves move due to the energy liberated during the recombination of ions in the wave front). The waves are described by the equations

$$x^4(6\Gamma_2-3\Gamma_2\beta_2-1) - x^2\left[3\Gamma_2^{\,2}(2-\beta_1) + 6\Gamma_2(\beta_2-\beta_1) + 8-3\beta_1 + \frac{2qg_1}{P_1}(\Gamma_2+1)^2\right] + \Gamma_2(\Gamma_2+8-3\beta_2) = 0$$

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$$\frac{P_2}{P_1} = \frac{x^2+1}{\Gamma_2+1} ; \quad \frac{\varrho_2}{\varrho_1} = \frac{(\Gamma_2+1)x^2}{\Gamma_2(x^2+1)} , \quad x = \frac{v_1}{\sqrt{P_1/\varrho_1}}$$

$$\Gamma = \beta + \frac{4(4-3\beta)^2}{3\beta+24(1-\beta)} ; \quad \gamma = 5/3 .$$

The indices 1 and 2 denote the values before and after the passage of the wave. $\beta = P_g/P$ is the ratio of the gas pressure to the full pressure; q is the set of nascent energy, v is the gas velocity with respect to the front of the wave, ϱ is the density. The system is solved by successive approximation, where the fact, that the detonation-recombination waves are weak, facilitates the solution. In §3 the conditions are found under which a separation of the outer part of the envelope of a red giant taking place with a small velocity is possible. An undisturbed separation of an envelope mass amounting ca. $10^{-3} \div 10^{-5}$ solar masses is possible e.g. if the radius of the giant is 80 - 100 times greater than the solar radius, the mass of the giant nearly equals the solar mass and its absolute magnitude is $-4^m.5$ or

$-5^m.8$. The velocity of the separating part is 50 km/sec, the

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velocity of the shock wave 110 km/sec. The place of the separation lies nearly in the center of the radius. §4 treats the influence of radiative cooling on the parameters of a shock wave. It is stated that this influence is essential even at optical depths of ~ 30 and that it leads to a 10 - 100-fold diminution of the temperature behind the wave. §5 is devoted to the properties of shock waves in a degenerated gas.
There are 15 references, 12 of which are Soviet, 1 American, 1 English, and 1 German.

ASSOCIATION: L'vovskaya astronomicheskaya observatoriya (L'vov Astronomical Observatory)

SUBMITTED: June 2, 1958

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24 (5), 21 (7)

AUTHOR: Kaplan, S. A.

SOV/56-36-6-44/66

TITLE: On the "Larmoron" Theory of the Plasma (O "larmoronnoy" teorii plasmy)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 6, pp 1927 - 1928 (USSR)

ABSTRACT: The wide-spread use of introducing quasiparticles into the modern quantum theory gave rise to the introduction of effective particles into the plasma theory. In this case they are called "larmorons"; they are effective particles with the magnetic moment μ, which are in the leading center of the Larmor motion of real particles. $\mu = mv_{\perp}^2/2H$ (m is the particle mass and $v_{\perp}$ - the velocity component which is perpendicular to H). The energy of the larmoron is equal to the total energy of the real particle. Spitser, Belyayev et al. (Refs 1,2) already used the conception of larmorons, without, however, defining it so rigorously. The author of the present "Letter to the Editor" gives a number of equations, which represent the components of the progressive motion velocity of larmorons (the components u, v, w, where w is in the H direction, and u and v are perpendicular to it) as

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functions of the velocity components of the real particles, the larmor frequency and larmoron life time, and further also expressions for the total energy of the larmorons, the velocity distribution, the equation of motion and its solution. The results obtained are discussed. The author thanks A. Ye. Glauberman for discussing the subject. There are 2 Soviet references.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet (L'vov State University)

SUBMITTED: January 30, 1959

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S. A. (L'vov)

"The Structure of a Shock Wave in Plasma."

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

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, Samuil Aronovich, doktor fiz.-matem.nauk; CHEREDNICHENKO, V.I., kand.fiz.-matem.nauk, otv.red.; STAROSTENKO, T.N., red.

[New data on cosmic space; results of the International Geophysical Year] Novye dannye o kosmicheskom prostranstve; itogi MGG. Kiev, 1960. 37 p. (Obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.5, no.16). (MIRA 14:2)

(Cosmography)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.; KLIMOVSKAYA, A.I.

Equation of the motion of an artificial earth satellite in horizontal coordinates. Biul.sta.opt.nabl.isk.sput.Zem. no.1: 10-12 '60. (MIRA 13:5)

1. L'vovskaya stantsiya nablyudeniy iskusstvennykh sputnikov Zemli.
(Artificial satellites)

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3.1530

78002
SOV/33-37-1-2/31

AUTHORS: Kaplan, S. A., Klimishin, I. A., Sivers, V. N.

TITLE: A Theory of Light Scattering in a Medium With a Moving Boundary

PERIODICAL: Astronomicheskiy zhurnal, 1960, Vol 37, Nr 1, pp 9-15 (USSR)

ABSTRACT: When the motion of a gas under cosmical conditions is considered, it is frequently necessary to take into account its interaction with radiation. Usually, the problem is studied by combining the equations of motion with the equations of radiative transfer; moreover, only the case of a steady boundary is considered, while actually the scattering occurs either before or after the light quantum passes through a moving boundary. Consequently, before any modern theory of light scattering is applied to hydrodynamic problems it is necessary to develop a theory of scattering in a medium with moving boundaries. This is the problem of the present authors. The following notations are used: k, the

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absorption coefficient per atom; n, the number of particles in a unit volume; x, a geometrical coordinate; $\tau = knx$, the optical depth; t_1, the average time a quantum is in a state of absorption; t_2, the time spent by the quantum before two successive scatterings. Then τ may also be written as $\tau = x/ct_2$ where c is the velocity of light. Two cases are considered: $t_1 \gg t_2$, and $t_2 \gg t_1$. In the first case, let $u = t/t_1$ be a dimensionless time, v, the velocity of the moving boundary, and $p(\tau, u)$, the probability that a quantum of light absorbed at the depth τ will leave the medium in time t. Then if $P(\tau)$ is the probability of a quantum leaving the medium at any time, we have:

$$P(\tau) = \int_0^\infty p(\tau, u)\,du; \quad Z(\tau) = \int_0^\infty p(\tau, u)\,u\,du; \quad D(\tau) = \int_0^\infty p(\tau, u)\,u^2\,du. \quad (5)$$

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This integral equation is rewritten as:

$$P(\tau) = \frac{1}{2(1+v)}e^{-\tau} + \frac{\lambda}{2(1+v)}\int_0^{\tau} e^{-(\tau-\tau')}P(\tau')\,d\tau' +$$

$$+ \frac{\lambda}{2(1+v)}\int_{\tau}^{\infty} e^{-(\tau'-\tau)}P(\tau')\,d\tau' - \frac{\lambda v}{1-v^2}\int_{\tau}^{\infty} e^{-\frac{\tau'-\tau}{v}}P(\tau')\,d\tau', \qquad (15)$$

or

$$P(\tau) = (1-k_3)\,e^{-k_3\tau}, \quad k_3 = \frac{1-\lambda}{v}. \qquad (16)$$

Here λ is an arbitrary constant. In the second case we have:

$$P(\tau) = \frac{\lambda}{2}e^{-\frac{\tau}{1+v}} + \frac{\lambda}{2}\int_{\frac{\tau v}{v+1}}^{\infty} e^{-|\tau-\tau'|}p(\tau'-v|\tau-\tau'|)\,d\tau'. \qquad (18)$$

and

$$P(\tau) = [1-k(1+v)]\,e^{-k\tau}, \quad k = \frac{\sqrt{4(1-\lambda)+\lambda^2v^2}-(2-\lambda)v}{2(1-v^2)}. \qquad (20)$$

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A Theory of Light Scattering in a Medium With a Moving Boundary

78002
SOV/33-37-1-2/31

Equations (16) and (20) give the solutions for the two cases. There are 5 Soviet references.

ASSOCIATION: Lvov Astronomical Observatory (L'vovskaya astronomicheskaya observatoriya)

SUBMITTED: July 1, 1959

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S/033/60/037/02/006/013
E032/E914

3.1530

AUTHORS: Kaplan, S. A., Klimishin, I. A.

TITLE: Some Notes on the Emission of Light under Cosmic Conditions

PERIODICAL: Astronomicheskiy zhurnal, Vol 37, Nr 2, pp 281-283 (USSR) 1960.

ABSTRACT: The present authors have previously pointed out (Refs 1 and 2) that radiation, which is one of the basic properties of shock waves in cosmic conditions, has an important effect on the structure of a shock wave, its motion, and the possibility of its observation. The present paper reports two new results in the theory of interaction of shock waves with radiation under cosmic conditions. It is well-known that the gas behind the front of a shock wave is heated to a high temperature and this leads to a strong emission of radiation by the front itself. Part of this radiation is emitted in the direction of motion and penetrates into the undisturbed region of the gas, is absorbed, and heats the gas, before it is reached by the shock wave-front. The

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Some Notes on the Emission of Light under Cosmic Conditions

heating of the gas before the front of a shock wave can be calculated using the theory of light scattering in a medium with a moving boundary which was developed in Ref 5. In the one dimensional case, the intensity of radiation at an optical distance τ from the wave front is given by Eq (1), where $\tau = knx$, $v = Vknt_1$, k is the absorption coefficient per particle, n is the number of particles per cc, x is the distance from the wave front, V is the velocity of the wave front, λ is the ratio of the scattering coefficient to the total absorption coefficient (i.e. the sum of the true absorption and scattering coefficients) and t_1 is the mean lifetime of a quantum in the absorbed state. Eq (1) is subject to the conditions $|1 - \lambda| \ll 1, v \gg 1$ which correspond to strong shock waves under cosmic conditions. The amount of radiant energy absorbed per unit volume and transformed into thermal energy is given by Eq (2). As the volume element in the gas moves towards the shock wave-front, the energy

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E032/E914

Some Notes on the Emission of Light under Cosmic Conditions

accumulated in it is given by Eq (3), since $dt/dx = -1/V$. In a steady-state wave F, V and $1-\lambda$ remain unaltered. It then follows from Eq (3) that the energy E is given by Eq (4), where $t_2 = 1/kmc$ and is the mean lifetime of a quantum between two scattering events. In the first approximation one may put $F = \sigma T_{sh}^4$ in accordance with the Stefan-Boltzmann law where T_{sh} is the temperature on the front of the shock wave and is given by

$T_{sh} = \sqrt{3V^2/16R}$ where R is the gas constant. For $1-\lambda$ the approximate relation is

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E032/E914

Some Notes on the Emission of Light under Cosmic Conditions

$1-\lambda = \exp(-h\bar{\nu}/kT_{sh})$, where $\bar{\nu}$ is the mean frequency of scattered radiation. A solution of the energy, mass and momentum conservation equations, which are given by Eq (5) with E given by Eq (4), determines the detailed structure of the heated region. It is, however, at once clear that the width of the heated region is approximately given by Eq (6). In stellar atmospheres this quantity is small and is of the order of a few centimeters or meters. In the chromosphere, the corona, or the interstellar gas, the width of the heated region is considerably greater and may become observable. Owing to the scattering of light in the higher-lying layers the radiation of the shock wave will penetrate into the outer layers before the shock wave reaches the surface. As a result, the intensity of radiation at the point of exit of the wave will begin to increase before the wave actually reaches this point. It is shown

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E032/E914

Some Notes on the Emission of Light under Cosmic Conditions

that although in the stellar and solar atmospheres the time during which this increase in intensity due to the penetration effect takes place is relatively small (of the order of a few seconds), in chromospheric flares it is considerably greater and may be of the order of minutes or tens of minutes. There are 6 Soviet references.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet (L'vov State University)

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KAPLAN, S.A.

9

PHASE I BOOK EXPLOITATION SOV/5570

Akademiya nauk SSSR. Astronomicheskiy sovet

Byulleten' stantsiy opticheskogo nablyudeniya iskusstvennykh sputnikov Zemli. no. 1 (11) (Academy of Sciences of the USSR. Astronomical Council. Bulletin of the Stations for Optical Observation of Artificial Earth Satellites. No. 1 (11)) Moscow, 1960. 22 p. 500 copies printed.

Sponsoring Agency: Astronomicheskiy sovet Akademii nauk SSSR.

Resp. Ed.: Ye. Z. Gindin; Ed.: D. Ye. Shchegolev; Secretary: O.A. Severnaya.

PURPOSE: This bulletin is intended for scientists and engineers concerned with optical tracking of artificial satellites.

COVERAGE: This bulletin contains short articles on optical equipment, techniques, and results of observations of artificial earth satellites. Also covered are the precision of satellite photography and the equations of motion of satellites. No personalities are mentioned. There are no references.

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Academy of Sciences (Cont.) SOV/5570

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

S/033/60/037/03/017/027
E032/E514

AUTHORS: Kaplan, S.A. and Kurt, V.G.

TITLE: On the Expansion of a Sodium Cloud in the Interstellar Space

PERIODICAL: Astronomicheskiy zhurnal, 1960, Vol 37, Nr 3, pp 536-542 (USSR)

ABSTRACT: Shklovskiy et al. (Refs 1 and 2) have described a method for the observation of the sodium cloud ejected from the second Soviet cosmic rocket on September 13, 1959. The results obtained by this method were also reported. The present paper gives a quantitative description of the expansion of the sodium cloud. It is shown that the expansion can be divided into two stages, namely, adiabatic expansion accompanied by a fall in the temperature and a free expansion during which the atoms preserve their thermal velocities corresponding to the temperature reached at the end of the adiabatic expansion. If one assumes spherical symmetry, then the expansion of the gas is described by Eq (3), where in the free expansion stage the term $\partial p/\partial r$ can be

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E032/E514

On the Expansion of a Sodium Cloud in the Interstellar Space

omitted. In the adiabatic stage the pressure gradient is also much smaller than the first two terms and the solution of Eq (3) is of the form given by Eq (4), where A is a constant and f(v) is an arbitrary function which is determined by the boundary and initial conditions. Certain hypothetical expressions for f(v) have been suggested by Stanyukovich (Ref 3). Under certain simplifying assumptions it can be shown that the relation between the velocity of adiabatic expansion a and the thermal velocity of the second stage c_k are related by Eq (7) in the case of spherical symmetry and by Eq (8) in the case of cylindrical symmetry. Assuming a Maxwell distribution of velocities (Eq 9), it is shown that the density distribution is given by Eq (12). Fig 1 shows the theoretical density distribution in the free expansion stage for various values of α which is proportional to the ratio a/c_k. The dotted curve represents the density distribution

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E032/E514

On the Expansion of a Sodium Cloud in the Interstellar Space

when the adiabatic stage is absent. Fig 2 shows the theoretical distribution of surface brightness for similar values of α. These theoretical calculations are then compared with photographs obtained by Yesipov at Stalinabad with the aid of an image converter telescope. The observed distributions of surface brightness at different instants of time are shown in Fig 3 (1 - 93 sec, 2 - 103 sec, 3 - 146 sec, 4 - 178 sec after ejection). The experimental data are also summarized in Table 1. According to these data $a \approx 1.63$ km/sec and $c_k = 0.87$ km/sec. The corresponding theoretical value is $c_k = 0.90$ km/sec if it is assumed that $a = 1.63$ km/sec. It also follows that during the adiabatic stage the temperature falls by 350 to 600°. The observational material suggests the presence of an adiabatic stage. It is also possible that droplets of sodium are ejected from the evaporator, the dimensions of these droplets being 10^{-4} to 10^{-2} cm.

Card 3/4 In interstellar space these droplets will evaporate and

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

S/033/60/037/03/017/027
E032/E514

On the Expansion of a Sodium Cloud in the Interstellar Space

form a new gas cloud which will expand with a lower velocity. The presence of such a secondary cloud may lead to a loss of definition of the central part of the main sodium cloud and to a slower fall off of the surface brightness. It is shown that this effect does not contributs appreciably to the outer structure of the main sodium cloud. Acknowledgment is made to L. M. Lukhovitskaya for assistance in the numerical computations.
There are 3 figures, 1 table and 4 references, 3 of which are Soviet and 1 Dutch.

ASSOCIATION: L'vovskaya astronomicheskaya observatoriya Gos. astronomicheskiy in-t imeni P. K. Shternberga (L'vov Astronomical Observatory, State Astronomical Institute imeni P. K. Shternberg)

SUBMITTED: January 16, 1960

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VC

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

S/033/60/037/005/005/024
E032/E514

AUTHORS: Kaplan, S.A. and Sivers, V.N.

TITLE: The General Problem of Light Scattering in a One-Dimensional Medium with a Moving Boundary

PERIODICAL: Astronomicheskiy zhurnal, 1960, Vol.37, No.5, pp. 824-827

TEXT: In a previous paper (Ref.1), the authors investigated the problem of the scattering of light in a one-dimensional medium with a moving boundary in the two special cases $t_1 \gg t_2$ and $t_2 \gg t_1$, where t_1 is the lifetime of a light quantum in the absorbed state and t_2 is the mean lifetime of the quantum between successive scatters. The present paper is concerned with the general solution of this problem and gives a solution of the general equation for the probability that a scattered light quantum will leave the medium with a moving boundary for any values of t_1 and t_2. As assumed before, the medium is taken to be one-dimensional and semi-infinite. The scattering is equally probable in both directions and the probability of scattering is independent of the optical depth. The derivation is not given and

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

S/033/60/037/005/005/024
E032/E514

The General Problem of Light Scattering in a One-Dimensional Medium with a Moving Boundary

only the final formulae obtained are quoted. There are 2 Soviet references.

ASSOCIATION: L'vovskaya astronomicheskaya observatoriya (L'vov Astronomical Observatory)

SUBMITTED: January 22, 1960

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APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, Samuil Aronovich; KULIKOV, G.S., red.; PLAKSHE, L.Yu., tekhn. red.

[Physics of stars] Fizika zvezd. Moskva, Gos. izd-vo fiziko-matem. lit-ry, 1961. 151 p. (MIRA 15:2)
(Cosmic physics)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.

Effect of anisotropic conductivity in a magnetic field on the structure of a shcok in magnetic gas dynamics. Zhur. eksp. i teor. fiz. 38 no.1:252-253 Jan '60. (MIRA 14:9)

1. L'vovskiy gosudarstvennyy universitet.
(Magnetic fields) (Shock waves)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.

"Astronomy in the U.S.S.R. during forty years; collected articles." Reviewed by S.A.Kaplan. Astron.zhur. 39 no.1:170-171 Ja-F '62. (MIRA 15:2)

(Astronomy)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KRAVTSOV, A.F.; KAPLAN, S.A.

Efficient system for selecting identical seismic receiving units. Geofiz. razved. no.6:89-92 '61. (MIRA 15:4)
(Seismic prospecting--Equipment and supplies)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

S/702/62/000/009/001/002
I046/I246

AUTHOR: Kaplan, S.A.

TITLE: The determination of the optimal excitation conditions of elastic vibrations

SOURCE: USSR. Glavnoye upravleniye geologii i okhrany nedr. Geofizicheskaya razvedka, no. 9, 1962, 28-36

TEXT: The conditions of excitation are assessed from the amplitudes of the reflected waves generated in microseismotorpedoing. This method cannot be used unless a) discontinuities with high reflection coefficients exist within the seismogeological cross section, and b) the reflected base waves are known to require identical or similar excitation conditions. There are 3 figures.

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APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.

Theory of light scattering in a nonsteady-state medium. Astron.zhur. 39 no.4:702-709 Jl-Ag '62. (MIRA 15:7)
(Light--Scattering)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A., doktor fiz.-mat. nauk, red.; KIRKO, I.M., doktor fiz.-mat. nauk, red.; STANYUKOVICH, K.P., doktor fiz.-mat. nauk, red.; SHIROKOV, M.F., doktor fiz.-mat. nauk, red.; FRANK-KAMENETSKIY, D.A., doktor fiz.-mat. nauk, red.; VENGRANOVICH,A., red.; LEMBERG, A., tekhn. red.

[Problems of magnetohydrodynamics and plasma dynamics; reports] Voprosy magnitnoi gidrodinamiki i dinamiki plazmy; doklady. Riga, Izd-vo Akad. nauk Latviiskoi SSR. Vol.2. 1962. 660 p. (MIRA 15:12)

1. Soveshchaniye po teoreticheskoy i prikladnoy magnitnoy gidrodinamike. 2d, Riga, 1960.
(Magnetohydrodynamics) (Plasma (Ionized gases))

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

S/124/63/000/003/007/065
D234/D308

AUTHOR: Kaplan, S. A.

TITLE: A problem in magnetohydrodynamics

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 3, 1963, 3, abstract 3B9 (Visnyk L'vivs'k. un-tu. Ser. fiz., 1962, no. 1 (8), 73-74 (Ukr.))

TEXT: Using the symmetrical formulation of magnetohydrodynamic equations of an incompressible medium as found by Elsasser, the author solves the problem of the flow past a body moving with Alfven's velocity along the magnetic field. The basic equations reduce to Ozeen's /"translit. 7 equation whose solution is well known. Energy dissipation due to viscosity and finite electrical conduction is determined. /"Abstracter's note: Complete translation. 7

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

S/124/63/000/001/008/080
D234/D308

AUTHOR: Kaplan, S.A.

TITLE: Simple waves and formation of shock waves in stars

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 1, 1963, 12, abstract 1B69 (Tsirkulyar. Astron. observ. L'vovsk. un-ta, 1962, no. 37-38, 3-8)

TEXT: The author investigates the problem of conversion of a simple travelling wave into a shock wave inside of a star. It is assumed that the wave is plane and that the gravitational acceleration is constant. The time of formation of the shock wave, as well as the pressure of this instant for isentropic and nonisentropic motion are calculated.
[Abstracter's note: Complete translation]

Card 1/1

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

S/058/63/000/003/025/104
A062/A101

AUTHORS: Kaplan, S. A., Kutik, I. N.

TITLE: On the emission of magnetohydrodynamic and magnetoacoustic waves

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1963, 6, abstract 3Zh1 ("Visnyk L'vivsk'k. un-tu. Ser. fiz.", 1962, no. 1(8), 75 - 78, Ukrainian)

TEXT: The propagation of magnetohydrodynamic waves is considered in the case where the source of oscillations is expressed in the form $\underline{F} =$ [illegible] $r^2/a^2 + i\omega t$. Solving the equations of magnetic hydrodynamics, the authors obtain an expression for magnetohydrodynamic and magnetoacoustic waves. Expressions are obtained for the averaged-in-time intensities of the emission of the mentioned waves.

Yu. Mordvinov

[Abstracter's note: Complete translation]

Card 1/1

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

S/058/63/000/003/028/104
A062/A101

AUTHORS: Kaplan, S. A., Koval'chuk, V. G., Korolishin, V. M.

TITLE: Coefficients of electric conductivity and diffusion in relativistic one-component plasma

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1963, 19, abstract 3113 ("Visnyk L'vivs'k. un-tu. Ser. fiz.", 1962, no. 1(8), 79 - 82, Ukrainian)

TEXT: A method is given for computing the coefficients of diffusion and electric conductivity in a relativistic one-component plasma in the presence of electric and magnetic fields. Expressions for the components of the "four-dimensional velocity" of the particles are averaged, for the cases of parallel and perpendicular electric and magnetic fields, by means of the distribution function in the zero approximation. Transfer coefficient is obtained in the presence of an electric field and the gradient of concentration of the particle. For a relativistic plasma, at a power exponent of the particle spectrum $\gamma = 2$, the diffusion coefficient is inversely proportional to the intensity of the magnetic field.
[Abstracter's note: Complete translation] Yu. Mordvinov

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APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

ACCESSION NR: AP4007673 S/0214/63/000/006/0053/0059

AUTHORS: Kaplan, S. A.; Ostrovskiy, L. A.

TITLE: Theory of shock wave formation in chromosphere and corona

SOURCE: Solnechny*ye danny*ye, no. 6, 1963, 53-59

TOPIC TAGS: acoustical theory, sound wave, sound velocity, magnetic force tube, energy dissipation, shock wave, coronal shock wave, supersonic flow, gas flow, corona, chromosphere, wave formation

ABSTRACT: The authors have examined the conditions for converting sound waves to shock waves in an inhomogeneous atmosphere within a gravitational field. This consideration is associated with determination of magnetic turbulence. The authors describe the application of a method that permits investigation of conditions for converting sound waves to shock waves in any distribution of density and temperature, under conditions that the wave length of the sound is much less than the equivalent height and that self-excitation is small. The method has been discussed elsewhere by K. Ye. Gubkin (Sb. "Nekotory*ye problemy* matematiki i mekhaniki" AN SSSR, Novosibirsk, 1961, str. 69) and O. S. Ry*zhov (Zh. prikl. mekh. i tekh. fiz.,

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

ACCESSION NR: AP4007673

no. 2, 15, 1961). The authors consider velocity of the gas, the effect of gravity, and energy flux. From the relationship that shock waves form when the steepness of the sound-wave front approaches infinity, they find expressions for the distance a sound wave must travel before rupture occurs (that is, before a shock wave is generated). This distance is found to be on the order of 10^9 cm. The distance a sound wave will travel before half its energy is dissipated is on the order of $2 \cdot 10^8$ cm. It is concluded that a substantial part of the kinetic energy of the wave is dissipated in a very short distance as compared with the dimensions of the chromosphere. It is possible that this circumstance explains the sharp rise in temperature at the inner boundary of the corona. Further dissipation of energy occurs in the corona, but this extends over a great distance, and does not lead to a high temperature gradient. Orig. art. has: 30 formulas.

ASSOCIATION: Gor'kovskiy nauchno-issledovatel'skiy radiofizicheskiy institut (Gorkiy Scientific Research Radio Physics Institute)

SUBMITTED: 00 DATE ACQ: 21Jan64 ENCL: 00

SUB CODE: AS NO REF SOV: 003 OTHER: 006

Card 2/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

AM4036547 BOOK EXPLOITATION S/

Kaplan, Samuil Aronovich; Pikel'ner, Solomon Borisovich

Interstellar medium (Mezhzvezdnaya sreda), Moscow, Fizmatgiz, 1963, 531 p. illus., biblio. Errata slip inserted. 3,500 copies printed.

TOPIC TAGS: interstellar medium, interstellar gas, interstellar hydrogen, interstellar dust, interstellar magnetic field, interstellar gas dynamics, galactic evolution, radio transmission

TABLE OF CONTENTS [abridged]:

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APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

AM4036547

SUB CODE: PH, AS SUBMITTED: 15Oct63 NR REF SOV: 191

OTHER: 281 ACQ: 06Apr64

Card 2/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

ACCESSION NR: AT5013792

UR/2913/65/006/000/0296/0301

36
35
B+1

AUTHOR: Kaplan, S.A.

TITLE: Some problems of the physics of the interstellar and interplanetary medium

AN KazakhSSR. Astrofizicheskiy institut ... zdnykh sistem ... fizika mezhz...

... radiation, wave globule compression, ... interplanetary space, cumulative shock wave

ABSTRACT: This three-part paper deals with 1) interstellar radiation whose mean intensity is calculated using a method described in § 6 of an earlier publication (S. A. ... B. Pikel'ner, Mezhzvezdnaya sreda, M., Fizmatgiz, 1963) using data by ... and Milligan (Ap. J., 137 ..., 1962) ... cumulative shock wave ...

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L 58461-65

ACCESSION NR AT5013792

the motion of such a wave (and the subsequent pressure increases) are calculated using the method of self-similar motion of ionization explosions (outlined in §15 of S. A. Kaplan, Mezhzvednaya gazodinamika, M., Fizmatgiz, 1958); and 3) the transfer of radiation within a spherically symmetrical darkened space; the problem is solved in the Eddington approximation assuming that the density of the scattering medium decreases (from the center) as $1/r^3$. In a subsequent paper, these calculations will be applied to the analysis of L_α in the night glow spectrum. Orig. art. has 25 formulas, 2 figures.

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APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.; ZAYTSEV, V.V.; KISLYAKOV, A.G.; KOBRIN, M.M.; TSEYTLIN, N.M.

Fourth All-Union Conference on Radio Astronomy. Izv. vys. ucheb. zav.; radiofiz. 6 no.4:861-869 '63. (MIRA 16:12)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.

Spectrum of magnetohydrodynamic turbulent convection. Astron. zhur. 40 no.6:1047-1054 N-D '63. (MIRA 16:12)

1. Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S. A.; KATYUSHINA, V. V.; KURT, V. G.;

"Measurements of scattered U. V. radiation (1216A and 1300A) in the upper atmosphere"(USSR)

Report submitted for the COSPAR Fifth International Space Science Symposium, Florence, Italy, 8-20 May 1964.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.

Comments on I. M. Kopylov's and V. I. Karpman's papers. Vop. kosm. 10:58-60 '64. (MIRA 17:10)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

AP4015565 S/0089/64/016/002/0149/0150

AUTHOR: Zaytsev, V. V.; Kaplan, S. A.

TITLE: Concerning the theory of the nonstationary multiple Compton scattering of gamma photons

SOURCE: Atomnaya energiya, v. 16, no. 2, 1964, 149-150

TOPIC TAGS: multiple Compton scattering, small angle, photon, gamma photon, Compton scattering

ABSTRACT: This paper presents a simple solution of the problem of the nonstationary scattering of gamma photons for small angles. The approximation

$$\cos\theta = 1 - \frac{\theta^2}{2}$$

has been used. The transfer equation is given for the photon flux for a plane unidirectional source of monochromatic gamma photons. A more detailed analysis for a point source in a homogeneous medium

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

AP4015565

is forthcoming. Orig. art. has: no figures, 4 equations.

ASSOCIATION: none

SUBMITTED: 21Mar63 DATE ACQ: 12Mar64 ENCL: 00

SUB CODE: PH NO REF SOV: 002 OTHER: 001

Card 2/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.; KLIMISHIN, I.A.

Methods of analysis of interstellar turbulence. Astron.zhur. 41 no.2:274-281 Mr-Ap '64. (MIRA 17:4)

1. L'vovskaya astronomicheskaya observatoriya i Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

ACCESSION NR: AP4043953 S/0033/64/041/004/0652/0656

AUTHOR: Dibay, E. A., Kaplan, S. A.

TITLE: Cumulative shock waves in interstellar space

SOURCE: Astronomicheskiy zhurnal, v. 41, no. 4, 1964, 652-656

TOPIC TAGS: astrophysics, interstellar space, shock wave, cumulative shock wave, interstellar gas, globule, star, nebula, Stromgren zone

ABSTRACT: Dense circular dust nebulae (globules) are frequently observed within H II emission regions. As a result of the sharp temperature difference between the globule and the surrounding ionized medium it is possible to expect its compression by a shock wave developing at the discontinuity. If the configuration of the globule is close to spherical the shock wave will have a cumulative character, that is, there will be focussing of the wave toward the center. If a dark nebula in a H II zone is greatly elongated it is also possible to have cylindrical cumulation. At the time of development of a type 0 star, causing the ionization of a surrounding nebula, a Strömgren zone is formed around it. If there are such dense fluctuations within the nebula that it cannot be penetrated by ionizing radiation, the H II zone will "bend around" such formations. The time required for establishment of the Strömgren zone is of the order of the time required for recombination

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ACCESSION NR: AP4043953

of the ionizing gas, that is, about 10^4 years at typical density values. Since the dimensions of globules are much less than the radius of a Strömgren zone, the time required for establishment of more or less identical temperature and pressure jumps along the entire surface of a globule is also correspondingly less. This pressure jump leads to a shock wave moving in the direction of lesser pressures, that is, into the center of the globule. This pressure wave should be characterized by the gas pressure in the H II zone (temperature T_2 and density ρ_2) and the state of the gas in the globule. If the density distribution in the globule is uniform (ρ_0 = const), the problem of movement of the shock wave can be considered by applying the theory of similarity. The following example is considered. Temperature in the H II region is T_2 = 10,000C, the gas temperature behind the shock wave front is T_1 = 1,000C, $\mu_2 = 1/2$, $\mu 1 = 1$. The temperature in the globule in comparison with T_2 is neglected. It is assumed that $\rho_2 = 1/2\ \rho_0$ and $\rho_0 G_1$ = 10. Isothermal speed of sound in the H II zone is $\sqrt{5}\,\mathcal{R}T_2/\mu_2$ = 13 km/sec. Applying the formulas cited in the text, the author obtains the following parameters of converging and reflected waves for a spherical case:

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Density jump at front	U_s	2.16	10	Converging wave
Gas velocity behind front	V_s	0.24	0.67	Ditto
Shock wave velocity	η_s	0.45	0.75	Ditto
Density	U_c	10	10^3	Attains center
Gas velocity	V_c	1.05	2.36	Ditto
Density	U_d	220	10^5	Reflected shock wave
Shock wave velocity	η_d	1.1	2.4	Ditto

The real values of the parameters apparently lie somewhere between the values cited above. Similar results can be obtained for a cylindrical cumulative wave. Orig. art. has: 25 formulas.

ASSOCIATION: Gosudarstvenny*y astronomicheskiy institut imeni P. K. Shternberga (State Astronomical Institute); Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta (Radiophysics Institute of Gor'kiy State University)

SUBMITTED: 22Jan64 ENCL: 00

SUB CODE: AA NO REF SOV: 004 OTHER: 002

Card 3/3

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

L 7046-65 EWT(1)/EWG(v) Pe-5/Pae-2 AS(mp)-3/ASD(f)/AEDC(a) GW

ACCESSION NR: AP4043954 S/0033/64/041/004/0657/0661

AUTHOR: Kaplan, S. A.; Klimishin, I. A.

TITLE: On the structure of a shock wave with emission

SOURCE: Astronomicheskiy zhurnal, v. 41, no. 4, 1964, 657-661

TOPIC TAGS: shock wave structure, shock wave emission, nonstationary light scattering, light scattering theory, heated zone temperature

ABSTRACT: Calculation of the structure of a shock wave with emission (calculation of shock wave parameters) is considered with the use of the results of the theory of nonstationary light scattering in a medium with moving boundaries obtained earlier by the authors (Astronomicheskiy zhurnal, 37, 9, 1960; Ukrainskiy fizicheskiy zhurnal, V, no., 1960). The stationary one-dimensional motion of an ideal gas, affected by the emission flow F is considered. From the conditions for conservation of mass, energy, and momentum, under the assumption that pressure and internal energy of the undisturbed gas are negligible, expressions for the temperature T and the flow F at a given point are derived in terms of V_0, ..., and u, where V_0 is the ...

Card 1/3

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

L 7048-65

ACCESSION NR: AP4043954

itial velocity of the emission front, $\eta = \rho_0/\rho$, where ρ_0 is density of the flowing gas and ρ is the density of the nondisturbed gas, γ is the isentropic exponent, R is an ideal gas constant, and μ is the molecular weight. On the basis of light scattering theory, differential equations for the source function B(τ) are written and their solutions containing terms T_+ (temperature behind the shock wave front) and T_- (temperature ahead of the shock wave front) are derived. To determine the unknowns T_+ and T_-, expressions derived earlier for T and F for ... values behind and ahead of the shock wave front are used. ... four equations is derived from ... and ... as ... are ... [illegible] ... perature and press... [illegible] ... established that ... [illegible] ... the distance from the ... [illegible] ... law. The results obtained are ... [illegible] ... the propagation of shock waves in stellar envelopes. It is shown that temperatures in the heated zone immediately ahead of and behind the shock wave front are of the same order. Orig. art. has: 14 formulas.

Card 1/3

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

7048-65
ACCESSION NR: AP4043954

ASSOCIATION: L'vovskaya astronomicheskaya observatoriya (L'vov Astronomical Observatory)

SUBMITTED: 07Oct63 ATD PRESS: 3104 ENCL: 00

SUB CODE: ME NO REF SOV: 010 OTHER: 002

Card 3/3

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

L [illegible]-65 FBD/EWT(1)/EWP(m)/EWG(v)/EEC-4 [illegible]

Pae-2/Pi-4 GW/WS-4

SOURCE: Ref. zh. Astronomiya. Otdel'nyy vyp[illegible]

AUTHOR: Kaplan, S. A.

TITLE: Relativistic shock waves in intergalactic gas

CITED SOURCE: Astron. tsirkulyar, no. 303, iyunya 12, 1964, 1-3

TOPIC TAGS: astrophysics, shock wave, relativistic shock wave, intergalactic gas, intergalactic space, synchrotron radiation, radio emission, radio source

[illegible]N. The possibility of the formation of relativistic shock waves in intergalactic space has been demonstrated. [illegible] principal parameters of a compre[illegible] ...synchrotron radiation can expla[illegible] found that ... Deva A or 3C273. I. P.

SUB CODE: AA ENCL: 00

Card 1/1

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, V.V., kand. tekhn. nauk (Leningrad); NAG[illegible], [illegible], kand. tekhn. nauk (Leningrad); YANCHUS, E.I., inzh. (Leningrad)

Synthetic tests of circuit breakers with nonremoved network short-circuits. Elektrichestvo no.9:80-85 S '64.

(MIRA 17:10)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

L 41818-65 EWT(1)/EEC(m)/EWT(m)/EWG(v)/FCC/EEC-4/EEC(t)/T/EWA(h) Po-4/Pe-5/ Pq-4/Pae-2/Peb/[illegible] IJP(c) GW

ACCESSION NR: AP5009640 UR/0293/65/003/002/0237/0243

AUTHOR: Esoichenko, S. I.; Karpinskiy, I. P., Kaplan, S. A., Katyushina, Y. V.; Krylov, L. N.; Kurt, V. G.; Pustovayt, R. M.; Shifrin, A. V.

TITLE: Investigation of scattered ultraviolet radiation in the upper atmosphere. 1. Equipment

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 2, 1965, 237-243

TOPIC TAGS: UV radiation, radiation counter, photon counter, Geiger counter/SFM-1 radiation counter

ABSTRACT: Photon counters used in investigations of scattered UV radiation in the upper atmosphere are described. The two counters, of the SFM-1-type, are filled with NO and have LiF radiation windows for measurements within [illegible] Å. The [illegible] for their narrow [illegible] relatively high

Card 1/2

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

L 41818-65
ACCESSION NR: AP5009640

The operating voltage of the counters is 1000 v. The counter circuitry includes a preamplifier, trigger, pulse normalizer, storage circuit, transistorized d-c amplifier, ... voltage regulator, and high-voltage ... for power supply. The ... the system provides ... ... art. has: 5 figures.

... none

SUBMITTED: 23Jul64 ENCL: 00 SUB CODE: OP, AA

NO REF SOV: 005 OTHER: 002 ATD PRESS: 3235

Card 2/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

L 41815-65 FSS-2/EWT(1)/EWG(v)/FCC/EEC-4/EEC(t) Po-4/Pe-5/Pq-4/Pi-4 GW

ACCESSION NR: AP5009643 UR/0293/65/003/002/0251/0256

39
B

AUTHOR: Kaplan, S. A.; Kurt, V. G.

TITLE: The theory of the resonance scattering of L sub Al, le radiation in the geocorona

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 2, 1965, 251-256

TOPIC TAGS: geocorona, L sub Alpha radiation, resonance radiation theory, upper atmosphere, hydrogen distribution

ABSTRACT: The authors point out that the various papers which have appeared in re- ... with rocket-observations of scattered Lα-radiation in the upper ...

problem in the theory of scattering with allowance for non-coherence, cannot be ... in the form of graphic formulae. Moreover, the solution is valid only ... optical thickness ...

which have thus far appeared has a concrete case of scattering in the Lα line been studied. The best approximation in this case is seen to be the step distribution. ... is called to the fact that, under real conditions, the distribu- ... scattering hydrogen atoms cannot be ...

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

L 41815-65
ACCESSION NR: AP5009643

plane-parallel layers ...

through a stricter consideration of the geometry of the problem. In the present ... is outlined for computing the intensity of the scattered ... of the L-alpha line ...

... the geocorona ...

... altitudes ...

... with observational data ... from the latter in their ... extreme ...

... ses. ... art. has: ... figures and ... formulas.

... 21Jul64 ENCL: 00 SUB CODE: AA

NO REF SOV: 004 OTHER: 006

Card 2/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

L 42125-65 EWT(1)/FCC/EWG(v)/EEC(t) Po-4/Pe-5/Pq-4/Pae-2/Pt-7/Pi-4 GW
ACCESSION NR: AP5009644 UR/0203/65/003/002/0256/0261

[illegible]an, S. A.; Kurt, V. G.

TITLE: Interpretation of observations of the OI(λ 1300 Å) triplet in the upper atmosphere

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 2, 1965, 256-261

TOPIC TAGS: airglow intensity, light dispersion, albedo, integral radiation, Doppler contour, Lorentz contour

ABSTRACT: For purposes of studying the change of airglow intensity with height, the whole atmosphere is divided into two layers. The lower layer extends up to 225 km. The other layer consists of the upper part of the atmosphere, in which the absorption of the molecular oxygen may be neglected. In this layer the dispersion is invariable. In the lower layer the albedo changes with height [illegible] the spectrum integral [illegible] radiation expressed theoretically [illegible] integral radiation may be [illegible] the growth curve. Special formulas have been developed for computing [illegible] radiation for Doppler contours. A transition [illegible] contours to [illegible] makes it possible to compute changes [illegible] intensity with height.

Card 1/2

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

L 42125-65
ACCESSION NR: AP5009644

A table of the computation results is given in the original article, where the ... density occurs at 180 km. Orig. art. has 4 figures, 1 table, and ... [ER]

ASSOCIATION: none

SUBMITTED: 23Jul64 ENCL: 00 SUB CODE: ES

NO REF SOV: 004 OTHER: 004 ATD PRESS: 3237

Card 2/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.

Continuous salt method for the production of synthetic nitron fibers. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 18 no.3:20-21 Mr '65. (MIRA 18:5)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.; PETRUKHIN, N.S.

Theory of convection in a polytropic atmosphere with a uniform magnetic field. Astron. zhur. 42 no.1:74-77 Ja-F '65.

(MIRA 18:2)

1. Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta i Ural'skiy gosudarstvennyy universitet.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.; KURT, V.G.

Theory of the resonance scattering of L_α -radiation in the geocorona. Kosm.issl. 3 no.2:251-256 Mr- '65.

Interpretation of observations of the triplet OI (λ 1300 Å) in the upper atmosphere. Ibid.:256-261 (MIRA 18:4)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.; LUPANOV, G.A.

Relativistic instability of polytropic spheres. Astron.zhur. 42 no.2:299-304 Mr-Ap '65. (MIRA 18:4)

1. Gor'kovskiy nauchno-issledovatel'skiy radiofizicheskiy institut.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

EWT(l)/EWP(m)/EWO(v)/FCC/EWA(d)/EEC-4/EPR/EEC(t)/FCS(k)/EWA(h)

AUTHOR: Kaplan, S. A.; Podstrigach, T. S.

TITLE: ...ers of shock waves in partially ionized ga...

SOURCE: Astronomicheskiy zhurnal, v. 42, no. 3, 1965, 55.-555

TOPIC TAGS: ...ck wave, ionized gas, electronic computer, electron temperature, ... temperature

ABSTRACT: The authors investigated the system of equations governing the struc-

... responsible for de-excitation of the gas ... of energy

... depends on the optical thickness of the shock wave front in the Lyman series, and when this is large the loss is relatively small. Numerical computations were made by means of an electronic ... the relations between shock wave ... the maximum ..., the width of the front and the ... ionization

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

L 61646-65

ACCESSION NR: AP5015581

[illegible] and the final density of the gas. In computing [illegible] parameters, [illegible] de-excitation values were considered. [illegible] [illegible] temperature [illegible] the ion-atom [illegible] however, permit the determination of the dependence of this maximum on wave velocity, initial ionization, and value of de-excitation. The first is significant; the latter two prove to be relatively unimportant. It was [illegible] temperature remains [illegible]

ASSOCIATION: Gor'kovskiy nauchno-issledovatel'skiy radiofizicheskiy in-t (Gorki [illegible] Institute of Radi[illegible])

[illegible] ENCL: 00 SUB CODE: ME, NP

[illegible] 006 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

L 3430-66 EWT(1)/FCC/EWA(h) GS/GW

ACCESSION NR: AT5023572

UR/0000/65/000/C00/0111/0112

AUTHORS: Kaplan, S. A.; Kurt, V. G.

TITLE: Scattering of radiation in the upper atmosphere of the earth (Thesis)

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva, Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 111-112

TOPIC TAGS: solar radiation scattering, solar radiation absorption, upper atmosphere, atmosphere model, optic thickness

ABSTRACT: The scattering of O I (λ 1300 Å) radiation in the upper atmosphere of the earth is considered, using the double layer model of the atmosphere of great optical thickness. Scattering of the incident solar radiation is assumed to take place in the upper layer without absorption. Absorption by molecular oxygen occurs in the lower layer where it is assumed that the albedo per unit scattering event of Λ increases linearly with increasing optical thickness. The solution of the shift equation applied to this model of the atmosphere indicates that the intensity begins to decrease sharply at an altitude of about 180 km, which agrees well with observation. The original article was published in the

Card 1/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

L 3430-66

ACCESSION NR: AT5023572

journal "Kosmicheskiye issledovaniya," 3, No. 3, 237, 1965.

ASSOCIATION: none

SUBMITTED: 02Sep65

ENCL: 00

SUB CODE: ES, AA

NO REF SOV: 001

OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

L 04244-67 EWT(1) GW

ACC NR: AR6004672 SOURCE CODE: UR/0269/65/000/010/0042/0042

AUTHORS: Kaplan, S. A.; Petrukhin, N. S.

29
B

TITLE: Interpretation of the "supersonic" propagation of disturbances in the solar photosphere

SOURCE: Ref. zh. Astronomiya, Abs. 10.51.311

REF SOURCE: Solnechnyye dannyye, no. 10, 1964(1965), 63-66

TOPIC TAGS: solar photosphere, solar disturbance, solar magnetic field

ABSTRACT: A theoretical interpretation is given of the phenomenon observed by G. Ya. Vasil'yev on a solar magnetograph of GAO 20 July 1961. A sharp descent of gas with a velocity up to 2 km/sec was observed in the region of a magnetic hill with an intensity up to 100 oe located far from sunspots. This descent occurred following some decrease of the magnetic hill intensity and lasted about 14 min, after which the gas began to ascend at half the velocity. The descent of gas began in the central part of the magnetic hill, then the front of the region began to propagate along the surface of the sun to the east with a velocity of 50 km/sec and to the west—up to 280 km/sec. The authors assume that the phenomenon began with the downward drift of a magnetic force tube originally located at a fixed depth z_0, because of which a zone of variable disturbance originated in this region. Sonic dilatation

Card 1/2 UDC: 523.74

L 04244-67

ACC NR: AR6004672

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013

waves began to propagate to all sides from this zone. The subsequent emergence to the surface of the waves emitted at various angles to the normal led to the observed "supersonic" propagation of the gas descent zone along the surface of the sun. A calculation of the propagation time of sonic dilatation waves to the surface of the sun is carried out; the distance along the surface from the point above the source to the point of ray emergence is also calculated as a function of the angle φ_0 between the ray direction and the surface normal. It is assumed for the calculation that the solar atmosphere is polytropic and that the temperature gradient is constant with depth. It is shown that for φ_0, not too close to zero, the velocity of motion of the emergence point of sonic waves to the surface is close to the velocity of sonic waves at the depth of the source. For a propagation velocity of the gas descent zone front of 50 km/sec, the source depth z_0 = 20 000 km. The greater magnitude of the disturbance propagation velocity to the west is explained on the basis of the assumption that the sonic wave source is not concentrated in a small volume at the depth z_0, but extends at this depth in the latitudinal direction at a small angle to the horizontal. Thereby it is assumed that the magnetic force tube before descent was almost horizontal for the most part and in the region of the original magnetic hill abruptly emerged at the surface. The sonic wave range time from the source to the surface along the shortest distance is close to the observed period of disturbance development (14 min), which confirms the proposed interpretation. B. Ioshpa [Translation of abstract]

SUB CODE: 03

Card 2/2

in the magnetic field. The author thanks G. A. Semenovaya and N. S. Petrukhin for help with the numerical computations, and V. V. Zheleznyakov, who allowed the author to read his work before it was published. Orig. art. has: 1 figure and 19 formulas. [Based on author's Eng. abst.] [JPRS: 40,291]

Card 1/1

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.

Some problems affecting the physics of interstellar and interplanetary matter. Trudy Astrofiz. inst. AN Kazakh. SSR 5:296-301 '65.
(MIRA 18:6)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R00052043001

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.A.; PIKEL'NER, S.B.

The interstellar and intergalactic media. Izv. AN SSSR.Ser.fiz. 29 no.10:1830-1837 O '65.

(MIRA 18:10)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

NEODOVIZIY, I.N., inzh.; AL'TER, V.F., inzh.; GUTNIK, V.N., inzh.; KAPLAN, S.B., inzh.; LESHCHINSKIY, I.Z., inzh.

Adjustment and the mastering of a high-speed, uniflow drawing machine.
Stal' 23 no.12:1128-1130 D '63. (MIRA 17:2)

1. Nauchno-issledovatel'skiy institut metiznoy promyshlennosti i Magnitogorskiy metizno-metallurgicheskiy zavod.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

PROCESSES AND PROPERTIES INDEX

BC

A-1

Determination of the solubility of acetophenone and chloroacetophenone in several solvents.

V. A. [illegible], S. I. Kaplan, and K. I. Vasheva (J. Phys. Chem. U.S.S.R., 1934, 5, 759—761).—Data are recorded for the solubility of COPhMe in C_6H_6 (I) and EtOH at −15° to 25°, and for $CH_2Cl\cdot COPh$ in C_6H_6 (II), EtOH, COPhMe (III), and CCl_4 at −23° to 25·5°. The systems (I), (II), and (III) show eutectics at −15°, −1·6°, and 5·5° (87, 76, and 70% of solute), respectively.

Ch. Abs. (e)

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

CA 2

PROCESSES AND PROPERTIES INDEX

Equilibrium in liquid mixtures and solutions. III. Boiling points and the composition of the vapors of the systems benzyl chloride-toluene and ethylene chlorohydrin-water. V. A. Kireev, S. A. Kaplan and V. N. [illegible]. J. Applied Chem. (U. S. S. R.) 7, 1333-8 (1934).—The measurements were made under atm. pressure. The b. p. of the azeotropic mixt. of (I) ethylene chlorohydrin-water is 97.8° at 760 mm. at an ethylene chlorohydrin content of 42.8% by wt. or 14.7 mols. %. [illegible] expts. with the system (II) propylene chlorohydrin water showed that its formation is similar to that (I), the azeotropic point being obtained at 96° and 743 mm. at a propylene chlorohydrin content of 49.1% by wt. or 15.16 mols. %. Data for mixts. of benzyl chloride-toluene are tabulated and plotted, and results of a preliminary investigation with propylene chlorohydrin-ethylene chlorohydrin are discussed. A. A. B[illegible]gk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

PROCESSES AND PROPERTIES INDEX

Determination of the solubilities of ethylene, propylene and i-butylene in some solvents at temperatures of from -20° to 40° and pressures below one atmosphere. V. A. Kireev, S. I. Kaplan and M. A. Romanchuk. *J. Gen. Chem.* (U. S. S. R.) 5, 444-9(1935). -The solubilities of C_2H_4, $MeCH:CH_2$ and $Me_2C:CH_2$ in xylene, cracking benzine, b_{760} 61.8-200°, kerosene, b_{760} 140-210°, $C_2H_4Cl_2$, top C_6H_6 fraction, b. 50-90°, and heavy naphtha, b. 150-250°, were detd. at 50-750 mm. pressures and at -21°, -10°, 0°, 20° and 40° with the first 3 solvents and at 0° with the remaining solvents, and the results tabulated. The procedure and app. used are described and illustrated. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

PROCESSES AND PROPERTIES INDEX

CA

2

[illegible] in liquid mixtures and solutions. IV. Boiling point and composition of vapor of solutions of cobalt chloride in [illegible] and xylene. V. A. Kireev, S. I. [illegible] and V. N. Zlobin. J. Applied Chem. (U. S. S. R.) 8, [illegible]([illegible]); cf. C. A. 30, [illegible].—B. p. and compn. of the vapor phase at the b. p. were detd. for 0-25% $CoCl_2$ in xylene and in [illegible].

B. C. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

CA

PROCESSES AND PROPERTIES INDEX

Equilibria in mixtures of liquids and solutions. II. Solubility of phosgene vapors in certain solvents at pressures below atmospheric. V. A. Kireev, S. I. Kaplan and K. I. Vasneva. J. Gen. Chem. (U. S. S. R.) 6, 799-806(1936); cf. C. A. 30, 5484[9].—The soly. of phosgene at various pressures below one atm. is detd. at 20°, 0° and −15° in xylene (mixt. of 3 isomers) and in $C_2H_4Cl_2$, at 0° in $PbCl_4$ and at 20° in benzene, toluene, C_2HCl_5, $C_2H_2Cl_4$ and hexane (d_4^{20} = 0.6621). The results are tabulated and compared with those of other workers. J. L.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

PROCESSES AND PROPERTIES INDEX

a-1

Solubility of methyl chloride and ethyl chloride in certain solvents at −20° to 20°, at pressures less than atmospheric. S. I. Kaplan and M. A. Romanovskaya (J. Gen. Chem. Russ., [illegible], 6, [illegible]).—Data are recorded for $(CH_2Cl)_2$ and CCl_4 at [illegible]—[illegible] mm.; the former is always the better solvent.

J. J. B.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

Equilibrium in solutions. II. Temperatures of boiling at atmospheric pressure and composition of vapor of binary mixtures: dichloroethane-ethylene chlorohydrin and dichloroethane-ethylene oxide. S. I. Kaplan, N. A. Grishin and A. A. Skvortsova. *J. Gen. Chem.* (U. S. S. R.) 7, 538-44(1937).—The procedure described previously (*C. A.* 30, 5480) was used to det. the b. p. at atm pressure and the compn. of the vapor at the b. p. of the above 2 systems, which are shown to be normal azeotropic mixts. **III. Solubility and vapor pressure of solutions of ethylene oxide in water and dichloroethane.** S. I. Kaplan and A. S. Reformatskaya. *Ibid.* 545-9.—A method previously described (*C. A.* 30, 7157) was used for detg. the soly. and vapor pressure of ethylene oxide in H_2O at 5°, 10° and 20°, and in dichloroethane, at 0°, 10° and 20°, all under pressures up to 1 atm. S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S. I.

TT.307 (Equilibrium in solution. III. The solubility and vapour pressure of solutions of ethylene oxide in water and in dichlorethane) O ravnovesii v rastvorakh. III. Rastvorimost' i uprugost' para rastvorov okisi etilena v vode i v dikhloretane.
Zhurnal Obshchei Khimii, 7(2): 545-549, 1937.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

PROCESSES AND PROPERTIES INDEX

Ca

2

Equilibrium in solutions. IV. Boiling point at atmospheric pressure and composition of vapor of binary mixtures consisting of chlorides of methane and ethane. S. I. [illegible] and Z. D. Monakhova. *J. Gen. Chem.* (U. S. S. R.) 7, 2500-2512 (in French 2512) (1937); cf. *C. A.* 31, 4554[5].—A study was made of the b. p. at atm. pressure and sp. gr. at 20° of binary mixts., also of the compn. of the vapor phase and sp. gr. of the condensate from the vapor phase of these mixts. The following mixts. were investigated: $MeCHCl_2$-CCl_4, $MeCHCl_2$-$CHCl_3$, $MeCHCl_2$-CH_2ClCH_2Cl, $CHCl_3$-CCl_4, CH_2Cl_2-CCl_4 and CH_2Cl_2-$CHCl_3$.
S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

Equilibrium in solutions. V. Some properties of solutions of ethyl chloride in kerosene. S. I. Kaplan, Z. D. Menshikova, A. B. Meluzmatskaya and K. I. Kesureva. *J. Applied Chem.* (U. S. S. R.) 10, 2022-7(in French 2028)(1937); cf. C. A. 30, 5404; 32, 2401.—The procedure described previously was used for detg. the b. p. at atm. pressure and the compn. of the vapor at the b. p. of the above solns. The soly. of EtCl (concn. in the air 15, 20 and 25% by vol.) in kerosene at −15° and −10° was detd. by mixing air, dried over H_2SO_4 and $CaCl_2$, with EtCl to a certain concn. of the latter and passing the mixt. through kerosene, kept at the desired temp. A method previously described (C. A. 29, 7157) was used for detg. the vapor pressure of EtCl in kerosene at −15°, −10°, 0°, 10° and 15° under pressures up to 1 atm.

A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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PROCESSES AND PROPERTIES INDEX

CA

10

Purification of pyramidone. S. I. Kaplan, F. E. Rabinovich, and I. B. Gorbovitskii. U.S.S.R. 69,379, Oct. 31, 1947. Tech. pyramidone is dissolved in water and is then salted out by addn. of an inorg. salt, e.g., NaCl. M. Hosch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S. I.

Kaplan, S. I. and Rabinovich, F. E., A diagram of fusibility of the system pyramidon-water and the solubility of antipyrine in certain solvents. P. 1162.

The solubility of antipyrine in dichloroethane, ethyl alcohol and water is studied in a temp. interval 14° to 72°. The diagram of fusibility of the system pyramidon-water is studied. This system forms a eutectic mixture containing, 1.01% pyramidon with melting temp. - 0.1°. In this system the region of separation is established in a concentration interval from 21% to 63% of pyramidon at 72.5 - 73°.

The Orzhonikidze All-Union Scientific
Research Inst. of Chemical Pharmacy.
March 18, 1948.

SO: Journal of Applied Chemistry (USSR) 21, No. 11 (1948).

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B. ab KAPLAN, S.

C-4 General Technique, Lab. App. (General - Miscellaneous)

[illegible] by chromatographic [illegible] U. gen. Chem. U.S.S.R. [illegible] —Chromatographic Al_2O_3 having various degrees of activity [illegible] and containing [illegible] wt.-% of water is prepared by [illegible] Al_2O_3 catalyst [illegible] in a [illegible] drum rotating at fixed speed for periods of [illegible] min. within a closed housing containing a small amount of water. A sorbent of uniform activity and giving reproducible results in chromatography is obtained; its activity may be evaluated by determining the water content instead of by the longer Brockmann method of chromatographic adsorption of [illegible]

W. J. Baker.

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KAPLAN, S.

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B

Aluminum Oxide for Chromatographic Adsorption and Its Activity Characteristics. (In Russian.) S. Kaplan and F. Moller. Zhurnal Obshchei Khimii (Journal of General Chemistry), v. 19(81), Nov. 1949, p. 2038-2044.

Describes method developed for production of chromatographic Al_2O_3 of various degrees of activity. Shows that adsorption activity of the product may be characterized simply by determination of its moisture instead of by means of the comparatively complicated method using pigments proposed by Brockman. Data are tabulated and charted. 11 ref.

A-U Sci Res Chem Pharm. Inst
im S. Ordzhonikidze

METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000520430013-3

KAPLAN, S.I.

Extraction of streptomycin from solutions by using cation-exchanging compounds. Med.prom. 12 no.2:24-31 F '58. (MIRA 11:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(STREPTOMYCIN) (ION EXCHANGE)

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