"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

RAZUVAYEV, G.A.; [illegible], L.M.; YANOVSKIY, D.M.; MIN[illegible]OVA, L.N.

Radical reactions of organic peroxydicarbonates. Part 3: Interaction of dicyclohexylperoxydicarbonate with dimethylaniline. Zhur. org. khim. 1 no.1:79-82 Ja '65. (MIRA 18:5)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

L 00654-67 EWT(m)/EWP(j)/T RM

ACC NR: AP6027804 SOURCE CODE: UR/0063/66/011/002/0202/0207

AUTHOR: Razuvayev, G. A. (Professor); Terman, L. M.; Dodonov, V. A.

ORG: none

TITLE: Reactions of alkoxy radicals in the liquid phase

SOURCE: Vsesoyuznoye khimicheskoye obshchestvo. Zhurnal, v. 11, no. 2, 1966, 202-207

TOPIC TAGS: chemical decomposition, radical polymerization, carbonic acid, organic solvent, nonmetallic organic derivative, chemical reaction, benzoyl peroxide, carbonate, phenyl compound, alkyl radical

ABSTRACT: A study was made of the reactivity of simple oxygen radicals obtained by the decomposition of esters of percarbonic acid and certain other compounds in various organic solvents. The following derivatives of percarbonic acid were investigated: Dialkyl-(phenyl)-peroxydicarbonates, Peracyl-alkyl (aryl)-carbonates, bis-/1-alkyl (phenyl)-percarbonatocycloalkyl/-peroxides, Percarbonates with a radical containing a three-membered ring and tert-alkyl-N-benzoylperoxycarbamates.

The decomposition reactions of certain new peroxides were also investigated:

Methoxymethyl-alkyl-peroxides:

$$RO\text{-}OCH_2\text{-}OCH_3 \longrightarrow RO^{\bullet} + {}^{\bullet}OCH_2\text{-}OCH_3$$

where R = tert-butyl; cumene.

Card 1/2 UDC: 547.024 + 532

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

L 00654-67

ACC NR: AP6027804

Peroxide compounds of mercury:

$R'HgO-OR \longrightarrow RO\cdot + R'Hg^{\cdot} \longrightarrow RO^{\cdot} + (O) + R'Hg^{\cdot}$ or $R'HgO + \dot{R}O$

where R = cumene; R' = phenyl, benzyl.

Isopropylate of iso-propylmercury:

$RHgOR \longrightarrow RHg^{\cdot} + RO^{\cdot}$

where R = iso-propyl.

Some of the obtained peroxides appear to be very active initiators of the polymerization of vinyl monomers. Dialkylperoxydicarbonates were studies in detail for this purpose. The constants of the rate of polymerization initiated by benzoyl peroxide and the dinitrile of azoisobutyric acid, and percarbonatees were determined. The rate of polymerization in the presence of the percarbonates is significantly higher than in the presence of other substances. The initiating activity increases with the increase in molecular weight of the parcarbonates and with branching of the radical. The introduction of the phenyl group in the alkyl radical decreases the polymerization rate constant. Orig. art. has: 7 formulas and 3 tables. [JPRS: 36,455]

SUB CODE: 07 / SUBM DATE: none / ORIG REF: 017 / OTH REF: 003

Card 2/2 vlr

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

BORISOV, B.I.; IGNATOVA, V.A.; KABANOV, N.P.; TERMAN, V.B.; SHUMILINA, V.I.; NAZAROVA, N.A.; OKAL'NIK, G.N.; POPOV, M.I.

Improving the quality of the surface of sheet glass by electric heating of the air in the chamber under the vertical drawing machinery. Stek. i ker. 19 no.2:11-14 F '62. (MIRA 15:3)
(Glass furnaces)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

SOLINOV, F.G.; BORISOV, B.I.; TERMAN, V.B.

Design of the working end of a tank for drawing sheet glass without using floaters (Pennvernon method). Stek. i ker. 19 no.6:4-9 Je 62. (MIRA 15:7)

(Glass furnaces)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

SOLINOV, F.G., kand. tekhn. nauk; TERMAN, V.B., inzh.

Changes in optical distortions of sheet glass. Stek. i ker. 20 no.12:12-15 D '63. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut stekla.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

KRUTOV, D.N.; TERMER, V.Yu.; DOSHCHATOV, V.V.; KUZNETSOV, L.N.; GUZHOV, N.N.; CHERNYAVSKIY, V.V.

Electronic contactless system for primary accounting. Kauch. i rez. 23 no.9:34-37 S '64. (MIRA 17:11)

1. Yaroslavskiy proyektno-tekhnologicheskiy i nauchno-issledovatel'skiy institut i Yaroslavskiy shinnyy zavod.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TERMAN, Ye. D.

Machine for preparing and pressing model-building materials into molds. Biul.tekh.-ekon.inform. no.2:14-15 '58. (MIRA 11:4)
(Models and modelmaking)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

FAYERSHTEYN, B.A.; TERMAN, Ye.D.

The 2A430-type jig boring machine. Biul. tekh.-ekon. inform. no.3: 19-20 '58. (MIRA 11:6)

(Drilling and boring machinery)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

MOGUZOV, V.I.; TERMAN, Ye.D.

The B122, K116G, KA032, and P053 forging and pressing machines. (MIRA 11:7)
Biul.tekh.-ekon.inform. no.5:7-11 '58.
(Power presses)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

66520

SOV/137-59-7-15994

18.8400

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 7, p 249 (USSR)

AUTHORS: Terman, Yu.A., Krakovskiy, A.V., and Matskevich, B.A.

TITLE: A New Gamma-Installation for Industrial Detection of Defects

PERIODICAL: Za tekhn. progress (Sovnarkhoz Gor'kovsk. ekon. adm. r-na), 1958, Nr 7, pp 35 - 37

ABSTRACT: Information is given on the design of a portable three-position remote-control gamma-installation for industrial detection of defects with the use of Co^{60} and Ir^{192} preparations. The main units of the installation are: a Pb-container with 3 conductors for preparations, mounted on the object of investigation with the use of electromagnetic cantilevers; a compressor group with 2 receivers; a distribution board with switches and a remote control desk with a cable. The preparation conductors are flexible metal sleeves through which the γ-preparations, enclosed into cigar-shaped Al-casings, are moved by pneumatical means towards and away from the object. This method makes it possible to carry out detection of defects in difficultly accessible areas. The efficiency of operators

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

66520

SOV/137-59-7-15994

A New Gamma-Installation for Industrial Detection of Defects

is raised several times by the possibility of taking simultaneously gamma-graphs on three spots. The installation is safe in respect to basic requirements of accident prevention.

M.Sh.

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Card 2/2

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MANUELIANCOVA, Marie

(6)

SURNAME, Given Names

Country: Czechoslovakia

Academic Degrees: not given

Affiliation: Stomatology Department, Okres Institute of Public Health, Head J. Minc, Md.(Stomatologicke oddeleni Okresni Ustav narodniho Zdravi, prednosta dr. J. Minc,) Prague. Stomatology Research Institute, Director-Docent J. Kostian, MD. (Vyzkumny ustav stomatologicky , reditel docent dr. J. Kostian, Praha. Second Stomatology Clinic,Head- Docent F. Urban, MD. (II. Stomatologicka klinika, prednosta docent dr. F.Urban,) Prague.

Source: Prague, Ceskoslovenska Stomatologie, Vol 61., No 5, Sep 1961; pp 377-382.

Data: The incidence of periodontopathies and some of their exogenous factors in the juveniles of Prague.

TER-MANUELIANCOVA, Marie,
MRKLAS, Lubor,
MICHNEVICOVA, Anna.

GPO 981643

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

Termanyan, G. S.

The effect of organic sulfur compounds on the anti-corrosion properties of mineral oils. S. K. Kreln and G. S. [illegible] Khim. 33, No. 11, 71-6(1955)

[illegible]

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

ANDRIANOV, D.P., doktor ekon. nauk, prof.; GENDEL'MAN, M.Z., kand. tekhn. nauk, dots.; GLICHEV, A.V., kand. ekon. nauk, dots.; DIDENKO, S.I., kand. ekon. nauk, dots.; ZHURAVLEV, A.N., kand. tekhn.nauk, prof.; ZAKHAROV, K.D., kand. tekhn.nauk,, dots.; MOISEYEV, S.V., kand. tekhn. nauk, dots.; OL'SHEVETS, L.M., kand. tekhn. nauk, dots.; ORLOV, N.A., prof.; POPOV, P.G., ispolnyayushchiy obyazannosti dots.; SARKISYAN, S.A., kand. ekon. nauk, dots.; STARIK, D.E., kand. tekhn.nauk, ispolnyayushchiy obyazannosti dots.; TER-MARKARYAN, A.N., kand. tekhn. nauk, prof.; TIKHOMIROV, V.I., kand. tekhn.nauk, prof.; CHESNOKOV, V.V., kand. ekon. nauk, dots.; SHERMAN, Ye.I., kand. ekon. nauk, dots.; EL'BERT, L.M., kand. ekon. nauk, dots.; LAPSHIN, A.A., dots., retsenzent; NOVATSKIY, V.F., kand. ekon. nauk, red.; TUMYANSKAYA, F.G., red. izd-va; KARPOV, I.I., tekhn. red.

[Organization, planning and economics of airplane production] Organizatsiia, planirovanie i ekonomika aviatsionnogo proizvodstva. [By] D.P.Andrianov i dr. Moskva, Oborongiz, 1963. 694 p. (MIRA 16:10)
(Airplane industry--Management)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARKARYAN, O.S.

Specialization and cooperation in the heavy industries' construction organizations. Stroi. prom. 25 no.8:15-16 Ag '47. (MLRA 9:1)
(Construction industry)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARKARYAN, O.S.
25511

Promyshlennaya Baza Stroitel'nykh organizatsiy Tyazheloy industrii. stroit. Prom-st',1948, No. 6, s. 20-21

SO: LETOPIS NO. 30, 1948

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARKARYANTS, N. YE.

14-1-481

Translation from: Referativnyy Zhurnal, Geografiya, 1957, Nr 1, p. 53 (USSR)

AUTHORS: Kondrat'yev, K. Ya. and Ter-Markaryants, N. Ye.

TITLE: Reflection of Radiation by the Sea (Ob otrazhenii radiatsii morem)

PERIODICAL: Uch. zap. LGU, 1956, Nr 210, pp. 47-56

ABSTRACT: The calculation according to the Fresnel formula of the amount of radiation reflected by water does not take into account the reflection of diffused radiation, the counter diffusion of radiation by the ocean, and the swells of the sea which change the albedo in relation to a smooth surface. In June - July, 1954, the Main Geophysical Observatory and Leningrad University organized at the Black Sea (Karadag) comprehensive measurements of the ocean's albedo at different heights of the sun, the flux of the radiation coming from the water, the direct solar and diffused radiation, and also measurements of the distribution according to the angular intensity of the radiation diffused on the sky. The method used for these measurements is described by D. L. Grishchenko

Card 1/3

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

Reflection of Radition by the Sea

(RZhGeo, 1955, 8236). Comparison of the results of these measurements with those obtained by the Fresnel formula indicates that in almost all cases (except at low sun) the observed values exceeded those computed. Measurements of the counter diffusion of radiation from water showed that it constitutes from 4 to 6 and up to 18 - 20% of all reflected radiation and from 0.2 up to 1.8% of incident radiation, which agrees with the results of previous studies. The ocean's albedo for diffused radiation (A_D), was calculated according to the formula:

$$A_D = \frac{\sum_{(\Delta\varphi, \Delta\vartheta)} A(\vartheta)\, I_D(\vartheta, \varphi) \cos\vartheta \sin\vartheta\, \Delta\varphi \Delta\vartheta}{\sum_{(\Delta\varphi, \Delta\vartheta)} I_D(\vartheta, \varphi) \cos\vartheta \sin\vartheta\, \Delta\varphi \Delta\vartheta}$$

Where φ is the azimuth, ϑ is the zenith angle, $I_D(\vartheta, \varphi)$ is the intensity of radiation diffused in the direction defined by the coordinates ϑ and φ, $A(\vartheta)$ is the albedo

Card 2/3

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14-1-481

Reflection of Radiation by the Sea

of the water surface as calculated by the Fresnel formula. Given a clear sky, A_D is linearly dependent on the height of the sun and varies from 5.8 up to 11.5%. These results differ from those obtained by the hypothesis of the isotropism of radiation. Under a completely overcast sky, the angular distribution of the intensity of the diffused radiation is relatively uniform. The maximum intensity may usually be observed at the zenith. The albedo is almost independent of the height of the sun and does not exceed 6%. The albedo for the total radiation is expressed by $A=A_S S'/S + A_D D/S$, where S is the total flux of radiation, S' the flux of direct solar radiation, D the flux of diffused radiation, and A_S and A_D are the albedo for direct and diffused radiation. For the total radiation, A varies inversely with the height of the sun.

I. Sh.

ASSOCIATION: Leningrad State University (LGU)

Card 3/3

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

36-68-11/18

AUTHOR: Ter-Markaryants, N. Ye.

TITLE: Reflection Coefficient of a Water Surface and its Relation to the Length of a Falling Light Wave (Zavisimost' koeffitsiyenta otrazheniya vody ot dliny volny padayushchego sveta)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii 1957, Nr 68, pp. 164-165 (USSR)

ABSTRACT: The article analyzes the coefficients of reflection from water surfaces at a wave length of 0.214 - 1.256 μ and at 0 to 90° angles of incidence. Spectral characteristics of water were taken from K.S. Shifrin's book Rasseyaniye sveta v mutnoy srede 1951. A table compares albedoes of water at the above mentioned wave length with the albedo of n = 1.33. There are 2 tables and 4 USSR references.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

36-68-12/18

AUTHOR: Ter-Markaryants, N. Ye.

TITLE: Radiation Reflection from an Agitated Sea (Ob otrazhenii radiatsii morem pri nalichii volneniya)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii 1957, Nr 68, pp. 166-171 (USSR)

ABSTRACT: In order to calculate the radiation balance of the sea, it is not sufficient to know the albedo of an ideally smooth surface. The author emphasizes that a certain amount of roughness is always present on the surface of the sea; thus the value of albedo for a choppy surface is not the same as that of a perfectly smooth sea. Experiments were conducted in a water tank. A table is given for calculation of approximate albedo values of rough sea surfaces, based on the value of an albedo of a smooth surface. It was proven that at a high position of the sun the albedo increases and that it falls with the decrement of elevation. There are 2 figures, 4 tables, and 8 references, of which 6 are USSR.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARKARYANTS, N. Ye.

36-68-14/18

AUTHOR: Ter-Markaryants, N. Ye.

TITLE: Radiation Redispersion from the Sea (Obratnoye rasseyaniye radiatsii morem)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii 1957, Nr 68, pp. 178-180 (USSR)

ABSTRACT: To determine the sea's thermal balance, it is necessary to calculate the amount of radiation falling upon the surface of the sea and the amount of radiation reflected from and scattered by the sea. To this end, tests were conducted in the Black Sea at the Karadag Observatory. The instruments used for this purpose were a high-sensitivity pyranometer with K = 17.3 microvolt per minute per square centimeter per calorie, and a ГЗП-47 galvanometer. The article is a follow-up of D.L. Grishchenko's report in the same issue on depth of solar radiation penetration into the sea . There are 4 figures and 1 German reference.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MAKARYANTS, N. Ye.: Master Phys-Math Sci (diss) -- "The albedo of the sea". Leningrad, 1958. 8 pp (Main Admin Hydrometeorological Service, Council of Ministers USSR, Main Geophysical Observatory im A. I. Voyeykov), 150 copies (KL, No 5, 1959,143)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER - MARKARYANTS, M. Ye.

3(7); 24(3) PHASE I BOOK EXPLOITATION SOV/2548

Leningrad. Glavnaya geofizicheskaya observatoriya

Issledovaniye radiatsionnykh protsessov (Study of Radiation Processes) Leningrad, Gidrometeoizdat, 1959. 142 p. (Series: Its Trudy, vyp. 80) Errata slip inserted. 1,200 copies printed.

Sponsoring Agency: Glavnoye upravleniye gidrometeorologicheskoy sluzhby pri Sovete Ministrov SSSR.

Ed. (Title page): V. L. Gayevskiy, Candidate of Geographical Sciences; Ed. (Inside book): V. D. Pisarevskaya; Tech. Ed.: A. N. Sergeyev.

PURPOSE: This book is intended for geophysicists and engineers studying radiation phenomena.

COVERAGE: This collection of articles treats problems in optics of the atmosphere and actinometry. Results of theoretical and experimental investigations of visibility range, transparency of the atmosphere, and the radiation regime of both the active surface and the atmosphere are shown. Individual articles deal with the methodology of actinometric observations. No personalities are mentioned. References accompany each article.

Ter - Markaryants, M. Ye. Computing the Albedo of Water Surfaces 45

Barashkova, Ye. P. Certain Regularities in the Regime of Total Radiation 51

Barashkova, Ye. P. Scattered Radiation in Karadag 70

Barashkova, Ye. P. Computing the Daily Sums of Total Radiation According to Standard Observations 88

Barashkova, Ye. P. Turbidity of the Atmosphere in Karadag 97

Golikov, V. I. The Problem of Measuring Infrared Radiation With an Instrument Protected by a Polyethylene Windshield 112

Omlyayev, B. I. Spectral Error of Instruments Measuring Plant Radiation 126

Omlyayev, B. I. Computing the Cosine Characteristic of Instruments Constructed With a Convex Transparent Glass 135

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Card 3/3

MM/lsb
11-3-59

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARKARYANTS, N.Ye.

Mean daily values of the albedo of the sea. Trudy GGO no.100:37-40 '60. (MIRA 13:6)
(Albedo)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

S/169/62/000/007/095/149
D228/D307

AUTHOR: Ter-Markaryants, N. Ye.

TITLE: Sea reflection of radiation

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 7, 1962, 21, abstract 7B122 (V sb. Aktinometriya i atmosfern. optika, L., Gidrometeoizdat, 1961, 231-236)

TEXT: The dependence of the water surface's albedo on the degree of cloudiness in the lower layer is calculated for different elevations of the sun (5 - 70°). It is shown that, if just sky radiation is taken into account, the albedo depends linearly on the degree of cloudiness (when the sun's elevations are high the albedo does not generally depend on the degree of cloudiness. If solar radiation is taken into account, however, this relationship has a more complex nature. The influence on the albedo of the back reflection of water-scattered radiation from the air-water interface was also investigated. The loss of radiation at the expense of this reflection depends slightly on the radiation's angle of incidence and

Card 1/2

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

Sea reflection of radiation

S/169/62/000/007/095/149
D228/D307

constitutes ~47% of the total sky radiation. [Abstracter's note: Complete translation.]

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARKARYANTS, N.Ye.

Errors in albedo measurements of water surfaces. Trudy GGO no.109: 150-154 '61. (MIRA 14:5)

(Albedo)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

NOVOSEL'TSEV, Ye.P.; TER-MARKARYANTS, N.Ye.

Reflection of long-wave radiation from a water surface. Trudy GGO no.125:31-41 '62. (MIRA 15:6)
(Solar radiation) (Reflection (Optics))

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

NOVOSEL'TSEV, Ye.P.; TER-MARKARYANTS, N.Ya.

Measuring the long-wave balance. Meteor. i gidrol. no.4:42-43 Ap '63. (MIRA 16:5)

1. Glavnaya geofizicheskaya observatoriya.
(Solar radiation—Measurement)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARKARYANTS, N.Ye.; GRISHCHENKO, D.L.

Measurement of the radiation balance under maritime conditions.
Trudy GGO no.152:110-125 '64. (MIRA 17:7)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

GRISHCHENKO, D.L.; NOVOSEL'TSEV, Ye.I.; TER-MARKARYANTS, N.Ye.

Methodology of actinometric observations at sea. Trudy GOI no.152:212-221 '64. (MIRA 17:7)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

NOVOSEL'TSEV, Ye.P.; TER-MARKARYANTS, N.Ye.

Brightness variation when crossing the water—air interface in the presence of turbulence. Trudy GCO no. 153:121-124 '64. (MIRA 17:9)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

L 3882-66 EWT(1) GW

ACCESSION NR: AT5025228 UR/2531/65/000/170/0071/0087

35
32
B+1

AUTHOR: Kondrat'yev, K. Ya.; Ter-Markaryants, N. Ye.
44,55 44,55

TITLE: Detection of cloudiness on the night side of the earth from measurements of the departing thermal radiation in the "water-vapor window" region

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 170, 1965. Issledovaniye radiatsionnykh protsessov v atmosfere (Investigation of radiation processes in the atmosphere), 71-87

TOPIC TAGS: IR radiation, earth radiation, 12, 44,55 atmospheric cloud

ABSTRACT: The authors calculate the intensity of the thermal radiation leaving the surface of the earth in the spectral region from 8 to 12 μ under clear skies and when there are clouds at various levels. The values of contrast between the radiation temperature of the underlying surface and of the clouds are determined for several points situated in various climatic regions of the SSSR. The method used for calculating the intensity of departing radiation is explained in detail. It is shown that it is much more difficult to detect cloudiness from data on infrared radiation in the winter than in the summer. All the calculations are based on

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ACCESSION NR: AT5025228

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meteorological data averaged over several years. In each specific case, the meteorological quantities considered may differ from their average values, which results in contrasts between the radiation temperature of the underlying surface and that of the clouds which differ from the average values obtained. It is proposed that a further study should be made of possible deviations in the initial meteorological quantities from their average values to evaluate temperature contrast limits and estimate the probability of detecting cloudiness of some type in a given place at a given time. This will require statistical methods of analysis. Orig. art. has: 5 figures, 5 formulas, 12 tables.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya (Main Geophysical Observatory)

SUBMITTED: 00 ENCL: 00 SUB CODE: ES 44, 55

NO REF SOV: 005 OTHER: 004

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[illegible] I.P., kand.fiz.-matem.nauk; DAYEVSKIY, V.I., kand.fiz.-matem.nauk; GUSEVA, I.N.; [illegible]KAYA, Ye.P.; KONDRAT'YEV, K.Ya., prof.; NORDBERG, V., [illegible] (Soyedinennyye Shtaty Ameriki); TER-MARKARYANTS, N.Ye., kand.fiz.-matem.nauk

Experience in the analysis of the infrared image of cloud cover obtained by means of the "Nimbus-1" meteorological satellite. Meteor. i gidrol. no.9:20-26 S '65. (MIRA 18:8)

1. Glavnaya geofizicheskaya observatoriya; Leningradskiy gosudarstvennyy universitet i Mirovoy meteorologicheskiy tsentr.

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L 29145-66 EWT(1)/FCC GW

ACC NR: AP6018679 SOURCE CODE: UR/0050/65/000/009/0020/0026

AUTHOR: Vetlov, I. P. (Candidate of physicomathematical sciences); Gayevskiy, V. L. (Candidate of physicomathematical sciences); Ter-Markaryants, N. Ye. (Candidate of physicomathematical sciences); Guseva, L. N.; Dombkovskaya, Ye. P.; Kondrat'yev, K. Ya. (Professor); Nordberg, V. (Doctor; USA)

ORG: Main Geophysical Observatory (Glavnaya geofizicheskaya observatoriya); Leningrad State University (Leningradskiy gosudarstvennyy universitet); World Meteorological Center (Mirovoy meteorologicheskiy tsentr)

TITLE: Experience in analyzing the infrared image of cloud cover obtained by the meteorological satellite Nimbus I

SOURCE: Meteorologiya i gidrologiya, no. 9, 1965, 20-26

TOPIC TAGS: meteorologic satellite, cloud cover, satellite data analysis, satellite photography, IR photography

ABSTRACT: This article presents the results of a comparative analysis of ordinary meteorological data and data on cloud cover obtained using the satellite Nimbus I. The article is accompanied by reproductions of two Nimbus infrared cloud images obtained at midnight on 2 and 6 September 1964 over the Soviet Union. Much of the information is such as contained in recent articles on the Nimbus photos published in the American press, but of course the photographs are compared with Soviet meteoro-

Card 1/2 UDC: 551.576:551.507.362.2

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ACC NR: AP6018679

logical data for the photographed area. It was found that the principal difficulties involved in recognition of the character of cloud cover from the photographs is that they show only relatively large details and the smaller details, often important in interpretation, cannot be seen. The following tentative conclusions are drawn: 1. The infrared image obtained from a satellite gives a more complete and informative picture of cloud cover distribution than a synoptic map. The photographs, even for a region with a dense network of meteorological stations, make it possible to refine the distribution of cloud cover over the earth's surface. 2. In some cases data on the radiation balance can be used to aid interpretation of satellite observations. Orig. art. has: 3 figures and 1 table. [JPRS]

SUB CODE: 04, 22, 14 / SUBM DATE: 23Apr65

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARKOSYAN-AGASANDYAN, A.M., Cand Med Sci --(diss)
"Diphtheria croup. According to data of the
Yerevan city hospital for infectious diseases.
(1945-1954)." Yerevan, 1958, 20 pp (Min of Health
ArSSR) 260 copies (KL, 21-58, 93)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARTIROSYAN, A. P., V. G. SOSLANTZ and E. V. CVECHKIN.

Organizatsiia pogruzo-razgruzochnykh rabot na gorodskom elektrotransporte.

Moskva, Izdvo Narkomkhoza RSFSR, 1946. 37 p. diagrs.

(Organization of loading and unloading operations on municipal electric railroads.)

DLC: TF970.T4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARTIROSYAN, K. A.

ANGULAR WAVE FUNCTIONS OF PARTICLES WITH SPIN. V. B. Berestetskii, A. Z. Dolginov, and K. A. Ter-Martirosyan. Zhur. Eksptl'. i Teoret. Fiz. 20, 527-37(1950 June. (In Russian)

In certain problems involving angular wave functions of particles with spin $\frac{1}{2}$ (electron) or 1(photon), these functions are conveniently expressed in terms of spinor and vector spherical functions. Spherical spinors (or semivectors) were introduced by Fok ("Principles of Quantum Mechanics," 1932 (In Russian) for the representation of the relativistic wave function of an electron with a given momentum, while spherical vectors were first used by Petrashen' (Doklady Akad. Nauk 46, 291(1945) for the solution of certain boundary problems, and by Sorokin (Zhur. Eksptl'. i Teoret. Fiz. 18, 228(1948)) and Berestetskii (ibid. 17, 12(1947); Dissertation, Institut Fizicheskikh Problem, Akademii Nauk SSSR, Moscow, 1948 (In Russian)) for the determination of multipole fields (the latter writer applied properties of rotation groups for the construction of spherical vectors and spinors). After giving a general definition of spherical (L,1)-vector functions, the present author shows how they can be used for an expansion of an L vector. Several examples of applications of spherical vector and semi-vector functions are examined. Thus, the solution of Dirac's equation describing the motion of an electron with a given momentum is represented by a superimposition of functions corresponding to definite values of angular momenta. (auth)

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TER-MARTIROSYAN K.

PA 169T73

USSR/Nuclear Physics - Nuclei Oct 50

"Excitation of Nuclei Under the Action of Fast Electrons," K. Ter-Martirosyan, Leningrad Physico-tech Inst, Acad Sci USSR

"Zhur Eksper i Teoret Fiz" Vol XX, No 10, pp 925-936

Calculates probability of excitation of nuclei under action of fast electrons. Finds cross section of "null" transition with aid of exact functions of the Coulomb field. In the general case of 2^n - multi-polar transition, the expression for cross section is introduced in Born's approximation and influence

169T73

USSR/Nuclear Physics - Nuclei (Contd) Oct. 50

of nuclear field on probability of excitation close to reaction's threshold is studied. Submitted 27 Mar 50.

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PA 169T74

TER-MARTIROSYAN, K.

USSR/Nuclear Physics - Nuclei Oct 50

"Decay of Nuclei in a Electromagnetic Field," K. Ter-Martirosyan, Leningrad Physicotech Inst, Acad Sci USSR

"Zhur Eksper i Teoret Fiz" Vol XX, No 10, pp 937-940

Studies relation among cross sections of reactions of nuclear decay under action of gamma-quanta, fast electrons and electrical field flying past nucleus of heavy charged particle. Calculates cross section of Be-9's decay during collision with heavier nuclei. Submitted 27 Mar 50.

169T74

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

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5291. Angular distribution in resonant nuclear reactions. K. A. TER-MARTIROSYAN. *Zh. Eksper. Teor. Fiz.*, 21, 893-9 (No. 8, 1951) *In Russian.*

Without the use of perturbation theory, formulae are derived for the angular distributions and correlations of successively emitted particles. The case when one of the particles is a γ-quantum is considered [see also Gardner, Abstr. 1973 (1950), 3753 (1951); Yang, Abstr. 1128 (1949)]. W. J. SWIATECKI

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

USSR/Physics - Hyperfine Structure, 21 Feb 51
Levels in Magnetic Field

185T103

"Position of the Levels of Hyperfine Structure in a Magnetic Field," A. S. Karamyan, K. A. Ter-Martirosyan

"Dok Ak Nauk SSSR" Vol LXXVI, No 6, pp 827-829

To det the spins of nuclei by method of atomic beams it is necessary to know energy states of atoms in the magnetic fld. Position of levels of energy depends on both magnitude I of spin of the nucleus and also state of electron shell of element under investigation. At present energy

185T103

USSR/Physics - Hyperfine Structure, 21 Feb 51
Levels in Magnetic Field (Contd I)

states and projections of magnetic moments of levels in direction of external magnetic fld are computed only for the most simple case corr to the state $S_{\frac{1}{2}}$ of electron shell. Meanwhile gen method for calcg convenient for any state of atom's electron shell is extremely complicated and only possible in principle. Displacement in energy levels in magnetic fld is detd from vector eq $/W_{ij}/ = 0$, where W_{ij} is matrical element of excitation: $W = (\vec{I}, \vec{J}) = G_J J_z x$ and the diagonal W_{ii} is replaced by $W_{ii}-e$. Gives 2 graphs of

185T103

USSR/Physics - Hyperfine Structure, 21 Feb 51
Levels in Magnetic Field (ContdII)

$e = e(x)$ of $\mu = \mu(x)$, where Bohr's magneton is detd by $\mu = -de/dx$, calcd for the state $P_{3/2}$. Submitted 25 Dec 50 by Acad A. F. Ioffe.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARTIROSYAN, K. A.

USSR/Nuclear Physics - Spins of Nuclei Jan 52

"Problem of Measuring the Spins of Nuclei," A. S. Karamyan, K. A. Ter-Martirosyan, Leningrad Phys-Tech Inst, Acad Sci USSR

"Zhur Eksper i Teoret Fiz" Vol XXII, No 1, pp 40-55

Calculates the displacements ΔE in the levels of hyperfine structure in magnetic field for atoms whose shell moment is greater than half. Constructs 16 curves showing displacements of levels and of magnetic moments as function of field for atoms in the state $P_{3/2}$. Submitted 18 Dec 50.

204T82

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARTIROSYAN, K.A.

USSR/Nuclear Physics - Excitation of Nuclei Mar 52

"Excitation of Nuclei by the Coulomb Field of Charged Particles," K. A. Ter-Martirosyan, Leningrad Phys Tech Inst

"Zhur Eksper i Teoret Fiz" Vol XXII, No 3, pp 284-296

Presents an example of semiclassical computation of probability of nuclear excitation under the action of an elec field produced by a heavy charged particle flying by. Received 10 Feb 51.

215T55

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

USSR/Nuclear Physics - Heavy nuclei FD-3242

Card 1/1 Pub. 146 - 1/44

Author : Ter-Martirosyan, K. A.

Title : Reaction (d,p) on heavy nuclei

Periodical : Zhur. eksp. i teor. fiz., 29, No 6(12), Dec 1955, 713-729

Abstract : The author calculates the differential cross-section of the reaction (d,p) on heavy nucleus in the case where the action of the coulomb field is the main factor determining the angular distribution. The differential cross-section in the region of large angles increases with the angle; here the behavior of the cross-section with change in angle weakly depends upon the moment l_n of the state into which the neutron is captured. He determines the total cross-section and evaluates the factor before the exponential. Twelve references. The author thanks Academician L. D. Landau for his comments, and remarks that this work was carried out in 1951 in connection with the experiments of Academician P. I. Lukirskiy [deceased] and Professor Yu. A. Nemilov.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

Institution : Leningrad Physicotechnical Institute, Academy of Sciences USSR

Submitted : July 28, 1954

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

Category : USSR/Theoretical Physics - Quantum Field Theory

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 188 B-6

Author : Dyatlov, I.T. and Ter-Martirosyan, K.A.
Inst : Leningrad Phys.-Tech. Inst. of the USSR Acad. of Sciences
Title : Asymptotic Theory of Meson-Meson Scattering

Orig Pub : Zh. eksperim. i teor. fiziki; 1956, 30, No 2, 416-419

Abstract : There exist an infinite number of meson-meson scattering diagrams, the contribution of which the scattering amplitude is of the same order as the contribution of the simplest scattering diagram (square). It is shown that the sum of such diagrams (i.e., the meson-meson scattering amplitude in the approximation by L.D. Landau, A.A. Abrikosov, and I.M. Khalatnikov) is the solution of the integral equation can be determined provided the contribution of the simplest scattering diagrams (squares) is known. The solution of the equation for large meson momenta shows that the contribution of all the diagrams is of the same order of magnitude as the contribution of the simplest ones. This circumstance is of importance to the conclusion that the meson charge is zero.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARTROSYAN, K.A.

SUBJECT USSR / PHYSICS
AUTHOR TER-MARTROSJAN, K.A. CARD 1 / 2 PA - 1462
TITLE On the Renormalization of the Charge in the Case of Any not too Low Value of e_0.
PERIODICAL Žurn.eksp.i teor.fis, 31, fasc.1, 157-159 (1956)
Issued: 9 / 1956 reviewed: 11 / 1956

Recently J.C.TAYLOR, Proc.Roy.Soc. A 234, 296 (1956) attempted to show by comparing some results obtained by LANDAU, ABRIKOSOV and CHALATNIKOV in a general manner by means of the general theory developed by GELL-MANN and LOW that present electrodynamics does not lead to any contradiction only if the renormalized charge e_c is equal to zero. The deliberations made by TAYLOR are here discussed in short and the corresponding formulae are written down.
Unfortunately, however, it is in no way possible to substantiate the assumption that the function $\lambda_c \Phi(\lambda_c)$, (Here $\Phi(\lambda_c) = e_c^2 d_c$, d_c - renormalized propagation function of the photon, and also for λ_c an expression is explicitly written down) is steady at the point $\lambda_c = 0$, and therefore TAYLOR'S entire proof remains unsubstantiated. Probably even the contrary is the case, that the function $\Phi(\lambda)$ has an essential singularity at $\lambda = 0$, e.g. of the type $\exp(1/\lambda)$, in accordance with the fact that all developments in series with respect to e_c^2 obviously are asymptotic series. In any case a whole number of functions can be

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Žurn.eksp.i teor.fis, 31, fasc.1, 157-159 (1956) CARD 2 / 2 PA - 1462

enumerated for which it is true that $\Phi(\lambda_c) \sim \lambda_c$ at $\lambda_c \to +0$, but not $\Phi(\lambda_c) \sim \lambda_c$, $\lambda_c \to -0$.

By studying all values before renormalization and by devoting one's attention to a more general problem than that studied by TAYLOR, it is possible to carry out the entire investigation rigorously, for it is assumed that the coupling constant e_0^2 is an arbitrarily fixed quantity. Here it is true that $e_c^2 = e_c^2(e_0^2, L)$ and it is shown that under these conditions with $L \to \infty$ $e_c^2 \to 0$ is true, and that this is the case not only for $e_0^2 \ll 1$, but also in the case of any $e_0^2 \gg 1$. Proof is carried out step by step. Here it is true that $L = \ln (\Lambda^2/m^2)$ and Λ is the cutting-off limit of the momentum.

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TER-MARTIROSJAN, K.A.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1872
AUTHOR SKORNJAKOV, G.V., TER-MARTIROSJAN, K.A.
TITLE The Three-Body Problem in the Case of Forces of Short Range. The Scattering of Neutrons of Low Energy by Deuterons.
PERIODICAL Žurn.eksp.i teor.fis, 31, fasc.5, 775-790 (1956)
Issued: 1 / 1957

Also in connection with the problem of the motion of three nucleons with low energy E (if the characteristic dimensions of the system which are determined by the length $\lambda\!\!\!^{-} = \hbar / \sqrt{ME}$ surpass the effective radius r_0 of forces) it is possible to use a similar development in series according to powers of r_0 as is used in the problem of the motion of two nucleons. There now follows the application of the zero-th approximation of this decomposition which corresponds to the case $r_0 \to 0$ (i.e. the theory by BETHE and PEIERLE for two nucleons) on the scattering of neutrons of low energy ($E_n < 20$ MeV) by deuterons. The bound state of three nucleons (H^3- and H^3-nuclei) is not investigated here.
In the approximation $r_0 \to 0$ the wave function $\Psi(\vec{r}_1, \vec{r}_2, \vec{r}_3)$ of the system of three nucleons at $\varrho_{ik} = |\vec{r}_i - \vec{r}_k| \to 0$ (i,k = 1,2,3) satisfies the boundary condition $\left\{ d \ln(\varrho, \Psi)/d\varrho \right\}_{\varrho = 0} = -\alpha$. The problem is here reduced to the solution of an integral equation for a function depending on three variables. (In the case of states with a certain moment the function depends only on

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

Žurn.eksp.i teor.fis,31,fasc.5,775-790 (1956) CARD 2 / 2 PA - 1872

one variable).

At first an investigation is carried out without taking account of the spin and the isotopic spin of the nucleons for a system of three homogeneous particles. The wave function of the system is symmetric with respect to transpositions of the particles and satisfies the following SCHROEDINGER equation:

$$\left\{-(\hbar^2/M)(\nabla^2_{\varrho_{23}} + (3/4)\nabla^2_{\varrho_1}) - E\right\}\Psi(\varrho_{23},\varrho_1) = -\left\{U(\varrho_{23})+U(\varrho_{12})+U(\varrho_{31})\right\}\Psi(\varrho_{23},\varrho_1).$$

This equation is then transformed into an integral equation by means of a GREEN'S function. The solution of the several times transformed SCHROEDINGER equation then furnishes the wave function of the system. In the case of states with definite values of the moment the integral equation can be solved numerically.

The case with three homogeneous particles. The scattering of particles on the bound state of the two others. The wave function Ψ of a system of three particles must in the case of a great ϱ_1 (or ϱ_2 or ϱ_3) go over into the product of the function φ_0 [redacted] the sum of a plane and a divergent wave. The inhomogeneous equation of such a system is determined and its solution determines the wave function of the system and all scattering amplitudes in zero approximation. The equation has its most simple form in the case of spherical symmetrical scattering. - The above may be generalized for the case of three nucleons while considering spin and isotopic spin. The mathematical realization of this generalization is here discussed in detail and the scattering of neutrons by deuterons is investigated.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

SUBJECT USSR / PHYSICS

AUTHOR SUDAKOV, V.V., TER-MARTIROSYAN CARD 1 / 4 PA - 1931

TITLE The Conclusions Drawn from the Renormalizability of the Pseudo-scalar Meson Theory with Two Interaction Constants.

PERIODICAL Žurn.eksp.i teor.fis, 31, fasc.5, 899-901 (1956)
Issued: 1 / 1957

These conclusions determined by D.V.ŠIRKOV, Dokl.Akad.Nauk, 105, 972 (1954) are best formulated like in the paper by V.V.SUDAKOV, Žurn.eksp.i teor.fis, 31, 729 (1956).

The initial equations, like in the case mentioned, are:

$$\alpha(g_0^2, \lambda_0, \xi - L) = \alpha_c(g_0^2, \lambda_c, \xi)/\alpha_c(g_c^2, \lambda_c, L)\beta(g_0^2, \lambda_0, \xi - L) = \beta_c(g_c^2, \lambda_c, \xi)/\beta_c(g_c^2, \lambda_c, L)$$

$$d(g_0^2, \lambda_0, \xi - L) = d_c(g_c^2, \lambda_c, \xi)/d_c(g_c^2, \lambda_c, L), \mathfrak{p}(g_0^2, \lambda_0, \xi - L) = \mathfrak{p}_c(g_c^2, \lambda_c, \xi)/\mathfrak{p}_c(g_c^2, \lambda_c, L)$$

Furthermore, two effective charges $g(\xi)$ and $\lambda(\xi)$ are introduced:

$$g^2(\xi) = g_0^2\alpha^2(g_0^2, \lambda, \xi - L)\beta^2(g_0^2, \lambda_0, \xi - L)d(g_0^2, \lambda_0, \xi - L) =$$

$$= g_c^2\alpha_c^2(g_c^2, \lambda_c, \xi)\beta_c^2(g_c^2, \lambda_c, \xi)d_c(g_c^2, \lambda_c, \xi)$$

$$\lambda(\xi) = \lambda_0 d^2(g_0^2, \lambda_0, \xi - L)\mathfrak{p}(g_0^2, \lambda_0, \xi - L) = \lambda_c d_c^2(g_c^2, \lambda_c, \xi)\mathfrak{p}_c(g_c^2, \lambda_c, L)$$

Denotations are the same as in the aforementioned previous work of the authors:

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

Žurn.eksp.i teor.fis,31,fasc.5,899-901 (1956) CARD 2 / 4 PA - 1931

$\mathcal{P}$ denotes a quantity which is connected with the amplitude P of scattering by the following relation: $\mathcal{P} = (g_0^2/4\pi\lambda_0)\,P$, $\mathcal{P}_c = (g_c^2/4\pi\lambda_c)P_c$. λ_0 is a constant in the following term of the HAMILTONIAN of interaction:

$$(\lambda_0/4!)(\delta_{\tau_1\tau_2}\delta_{\tau_3\tau_4} + \delta_{\tau_1\tau_3}\delta_{\tau_2\tau_4} + \delta_{\tau_1\tau_4}\delta_{\tau_2\tau_3})\,\varphi_{\tau_1}\varphi_{\tau_2}\varphi_{\tau_3}\varphi_{\tau_4}.$$

The equivalence of the definition of the effective charges by renormalized and not renormalized quantities follows from the aforementioned equations and from the following relations between renormalized and not renormalized constants:

$$g_0^2 = g_c^2\,\alpha_c^2\,(g_c^2, \lambda_c, L)\,\beta_c^2\,(g_c^2, \lambda_c, L)\,d_c(g_c^2, \lambda_c, L)$$

$$\lambda_0 = \lambda_c d_c^2\,(g_c^2, \lambda_c, L)\,\mathcal{P}_c\,(g_c^2, \lambda_c, L)$$

The fundamental statement made is that the logarithmic derivatives of α, β, d, $\mathcal{P}$ according to ξ are only functions of the effective charge g^2, λ. The proof of the aforementioned equations is sketched out in short. The logarithmic derivatives of the effective charges are:

$(g^2)'/g^2 = 2F_1(g^2, \lambda) + 2\,F_2(g^2, \lambda)$ $2\,F_2(g^2, \lambda) + F_3(g^2, \lambda)\,\lambda'/\lambda = F_4\,(g^2, \lambda) + 2\,F_3(g^2, \lambda)$. If F is known these two equations form a system of differential equations which, together with the boundary conditions

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Žurn.eksp.i teor.fis,31,fasc.5,899-901 (1956) CARD 3 / 4 PA - 1931

$g^2(L) = g_0^2$, $\lambda(L) = \lambda_0$ completely determine the effective charges $g^2(\xi)$ and $\lambda(\xi)$.

The form of the functions F can be determined by means of the perturbation theory if g_0^2, $\lambda_0 \ll 1$ and if ξ is near L. The authors study the general case in which λ_0 and g_0^2 are of the same order.

The solution obtained on this occasion holds also if one of these quantities is much smaller than the other ($g_0^2 \ll \lambda_0$ or $\lambda_0 \ll g_0^2$). The authors are content with determining the asymptotic behavior of the zero-th approximation. Computations carried out in accordance with the perturbation theory show that the computation method adopted by V.V.SUDAKOV, Žurn.eksp.i teor.fis, 31, 729 (1956) can be applied without any modification, furnish F_1, F_2, F_3 as well as the asymptotic expressions of $\alpha, \beta.d$ and the effective charge $g^2(\xi)$. For the quantity $\lambda_0 p$ we obtain $\lambda_0 p = \lambda_0 - (g_0^4/\pi^2)(\xi - L) + (11/2)\lambda_0^2(\xi - L)$. The three terms of this formula correspond to three different diagrams, which are mentioned here. Further, $F_4 = (11/2)\lambda - g^2/\pi^2 \lambda$ is obtained.

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The following equation for the amplitude P of the scattering of a meson by a meson is eventually obtained:

$dP/dx = 16/3 - (11/6)(P/x)^2$. In addition there is the boundary condition $P(1) = 4\pi\lambda_o/g_o^2$. The solution of this equation is:

$$P = \frac{16}{11} x \frac{B - x^{-19/3}}{B + (8/11)x^{-19/3}} ; B = \left(1 + \frac{1}{2}\frac{4\pi\lambda_o}{g_o^2}\right) / \left(1 - \frac{11}{16}\frac{4\pi\lambda_o}{g_o^2}\right)$$

which is in agreement with the results obtained by I.T.DJATLOV and K.A. TER-MARTIROSJAN, Zurn.eksp.i teor.fis,30, 416 (1956 for $\lambda_o = 0$ (B = 1).

The here discussed methods of investigation are suited for the determination of asymptotic behaviors of any order with respect to g^2, λ, if the results of the perturbation theory are available up to and including the corresponding order.

INSTITUTION:

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TER-MARTIROSYAN, K.A.

BERESTETSKIY, V. B., IOFFE, B. L., RUDICK, A. P. TER-MARTIROSYAN, K. A.
(Acad. Sci. USSR)

"Nonconservation of Parity in the β -Decay,"

paper submitted at the A-U Conf. on Nuclear Reactions in Medium and Low Energy Physics, Moscow, 19-27 Nov 57.

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TER-MARTIROSYAN, K. A.

AUTHOR DYATLOV, I.T., SUDAKOV, V.V., TER-MARTIROSYAN, K.A. 56-1-18/52

TITLE The Asymptotic Theory of the Scattering of a Meson By a Meson (Asimptoticheskaya teoriya rasseyaniya mezona na mezone. Russian).

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 32, Nr 4, pp 767 - 780 (U.S.S.R.)

ABSTRACT

The paper under review determines the asymptotic behavior for the amplitude of the scattering of a meson by a meson in a theory of the type of the theory devised by Landau, Abrikosov and Khalatnikov. First of all, the authors of the paper under review demonstrate that the sum of the contributions of all reducible graphs satisfies an exact integral equation, the form of which depends only on the contribution of the primitive graphs. The computation is carried out step by step, and the integral equation obtained is written down in tis explicit form. With two additional analogous equations a system of three integral equations is obtained, this system defines the functions $F(k_1, k_2, k_3, k_4)$, $F(k_1, k_3, k_2, k_4)$ and $F(k_1, k_4, k_2, k_3)$ unambiguously by the known quantity $R_0(k_1, k_2, k_3, k_4)$, i.e. by the contribution of the primitive graphs. Then the integral equation is specialized for the case of high impulses for the neutral and for the symmetrical theory. In the symmetrical theory, it is possible to eleiminte from consideration the variables of the isotopic spin of the mesons. The total sum $P(x)$ of the reducible graphs is a finite quantity of the same order of magnitude as the contribution

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The Asymptotic Theory of the Scattering of a Meson By a Meson 56-4-18/52

R_0 of the primitive graphs. Finally the paper under review discusses the properties of the renormalization of the amplitude P of the scattering of a meson by a meson. At $L \to \infty$, it is possible to automatically normalize the expressions for the sums P(x) and $P(\xi)$, without being forced to introduce into the Hamiltonian terms proportional to φ^4. (7 reproductions).

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARTIROSYAN, K.A., Doc Phys-Math Sci -- (diss) "~~The~~ Method of summarizing ~~summing-up [integrating]~~ diagrams in the quantum field theory". Mos, Publishing House Acad Sci USSR, 1958. 7 pp. (Acad Sci USSR). 140 copies. Bibliography at ~~the~~ end of ~~the~~ text. (10 titles). (KL, 12-58, 95)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARTIROSYAN, K.A.

INOPIN, Ye.V.

AUTHOR: Varshalovich, D. SOV/53-65-4-7/13

TITLE: The VIII Annual Congress of Nuclear Spectroscopy (VIII yezhegodnoye soveshchaniye po yadernoy spektroskopii). I

PERIODICAL: Uspekhi fizicheskikh nauk, 1958, Vol 65, Nr 4, pp 721 - 722 (USSR)

ABSTRACT: The 8th Congress of Nuclear Spectroscopy took place in Leningrad from January 27 to February 3, 1958. It was attended by 300 scientists from the USSR, further by scientists from China, France, Poland, Czechoslovakia, Hungary, Eastern Germany, Yugoslavia, and the Mongol Democratic Republic. 4 main lectures and about 90 reports were heard. The main lectures dealt with problems concerning nuclear models, the α- and β-decay, γ-radiation, internal conversion, and nuclear isomerism. B.S.Dzhelepov, Corresponding Member, Academy of Sciences, USSR, opened the conference. Lectures were held by: V.Yu. Gonchar, Ye. V. Inopin, S.P.Tsytko (FTI,AS UkrSSR) on light nuclei and generalized nuclei models; L.K. Peker (BAN SSSR-Library AS USSR), Yu.M.Shirokov (MGU-Moscow State University), L.A.Sliv (LFTI-Leningrad Physical-Technical Institute) et al. on levels in Mg^{24}, Mg^{25} and Al^{25}; D.G.

Alkhazov, A.P.Grinberg, G.M.Gusinskiy, K.I.Yerokhina and I.Kh.Lemberg (LFTI) on having found no rotational levels at E<1 MeV in Cr, In, and Mn nuclei. The same research workers also reported on the discovery of vibrational γ-levels in W^{182}, W^{184}, W^{186}- nuclei by means of the method of the Coulomb (Kulon) excitation at $E_{exc} \sim 1$ MeV. L.K.Peker (BAN SSSR) gave a survey report: "Concerning Some Particulars in Vibrational Levels of Deformed Nuclei". Lectures were held also by: D.F.Zaretskiy (AN SSSR - AS USSR) on radiation transitions in deformed nuclei with the spin = 1/2; V.S. Shpinel' 2 NIFI MGU (2nd Scientific Research Institute of Physics, Moscow State University) on the level displacement and the probability of corresponding β - and γ - transitions in odd nuclei; D.F.Zaretskiy (AN SSSR - AS USSR) on the influence of the spin-orbital coupling upon the magnetic moments of the nuclei, A.I.Baz' (AN SSSR -AS USSR) on the existence of light nuclei with high neutron or proton excess; V.A.Kravtsov (LPI-Leningrad Polytechnic Institute) on the formation of nucleon pairs in nuclei; L.L. Gol'din, A. D. Piliya, G.N.Novikova, K.A.Ter-Martirosyan (TTL AN SSSR)

on alpha decay on rotational levels of odd nuclei; V.G. Nosov (AN SSSR - AS USSR) on alpha decay of nonspherical nuclei (survey); A.I.Alikhanov, G.P.Yeliseyev, V.A.Lyubimov, V.V.Ershler (TTL AN SSSR) on polarisation measurements at electrons emitted in the β-decay of Ta^{179}, Lu^{177}, Ag^{198}, Sm^{153}, Re^{186} (ΔI= 0,1,$\Delta \pi$= -1) as well as in that of Sr^{90} and Y^{90} (ΔI= 2,$\Delta \pi$= -1); V.P.Rudakov (AN SSSR - AS USSR) on measurements of the (β-γ) angular correlations in Ba^{139}-decay; N.A.Burgov and Yu.V.Terekhov (TTL AN SSSR) on investigations of the electron-neutron correlations and the resonance scattering of γ-radiation; B.K.Kerimov and I.M.Nadzhafov (MGU-Moscow State University) on the bremsstrahlung of longitudinally polarized electrons; A.I.Mukhtarov and Yu.S. Ferov (MGU) on the effective cross section of the scattering of polarized electrons and positrons at polarized electrons; Ya.E.Chudare and I.Ya.Tsurs (Riga) on the determination of the intensity of the components of the complex β-spectrum according to the Fermi diagram; I.M.Bund, L.N.Zyryanova, and Yu.P.Suslov, LGU (Leningrad State University) on the computation of the probability of the permitted and of the forbidden capture of electrons by a nucleus.

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GOLDIN, L. L., ADEISON VELSKIY, G. M., BIRZGAL, A. P., PILIYA, A. D. and TER-MARTIROSYAN, K. A. (Moscow, USSR)

"La Desintegration Alpha Des non Spheriques."

report presented at the Intl. Congress for Nuclear Interactions (low Energy) and Nuclear Structure (Intl. Union and Pure and Applied Physics) Paris, 7-12 July 1958.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

26-58-4-5/45

AUTHOR: Ter-Martirosyan, K.A., Candidate of Physico-Mathematical Sciences (Moscow)

TITLE: Nonpreservation of Parity (Nesokhraneniye chetnosti) On Occasion of the Nobel Prize Award to Lee and Yang (K prisuzhdeniyu Nobelevskoy premii Li Tszun-Dao i Yan Chzhen'-Ninu)

PERIODICAL: Priroda, 1958, Nr 4, pp 36-39 (USSR)

ABSTRACT: The 1957 Nobel Prize for physics was awarded to two American scientists of Chinese origin: Yang, Professor at the Princetown Institute for Advanced Study and Lee, Professor at Columbia University, for their research in theoretical physics which resulted in a discovery of non-preservation of parity in processes caused by weak interactions. The experiments suggested by Lee and Yang were performed at the Columbia University in the USA and also by Soviet physicists Alikhanov, Vaysenberg, Nikitin with co-workers. The Soviet physicist L.D. Landau has also worked along these lines, starting from the assumption of symmetry of empty space, and has formulated the requirement of rigorous invariance of the laws of nature with respect to combined inversion. The

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26-58-4-5/45

Nonpreservation of Parity. On Occasion of the Nobel Prize Award to Lee and Yang

author concludes the article with brief biographical data on Lee and Yang, and emphasizes the great scientific importance of their discovery.
The article contains 2 photos and 1 figure.

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Card 2/2 1. Physics-Theory 2. Awards-Nobel Prize-Lee and Yang

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BERESTETSKIY, V.B., IOFFE, B.L., RUDIK, A.P., and TER-MARTIROSYAN, K.A.

(Acad. Sci. USSR)

"β-Decay and Non-Conservation of Parity," Nuclear Physics, Vol. 5, No. 3, Feb 1958 (NO. Holland Publ. Co., Amsterdam)

Abst: Effects dur to non-conservation of parity such as longitudinal and transverse polarization of β-electrons, angular distribution of β-electrons from an oriented nucleus (including the case when the direction of the recoil nucleus momentum is fixed) are examined in the present paper for the cases of allowed β-transitions and first order forbidden transitions. It is shown that owing to the influence of the Coulomb field the magnitude of these effects for forbidden transitions in heavy and intermediate nuclei is the same as for allowed transitions, perceptible deviations are observed in light nuclei. ([illegible] 20). In the particular case of a 0-0 transition comparison with experiment may yield important data on the contribution of pseudoscalar coupling. Unique transitions ([illegible] =2, yes) for which the electron angular distribution of oriented nuclei essentially differs from that for allowed transitions are considered separately.

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[illegible]: [illegible], L. L., [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible]

[illegible]: [illegible] α-[illegible] of non-spherical nuclei α-[illegible]

[illegible]: [illegible] Izvestiya [illegible] (USSR)

[illegible]: The present paper concerns a very detailed investigation of the theory of α-decay on the basis of a number of diagrams [illegible]. In the introduction the papers of [illegible] (Ref 1), [illegible] (Ref 2), Strutinskiy (Ref 3), [illegible] (Ref 4) and [illegible] (Ref 5) are discussed in a short which all deal with the theory of the permutation of the rotation levels in α-decay. The present paper [illegible] the equations of the radial functions describing the motion of α-particles, which are emitted during the α-decay of non-spherical nuclei with arbitrary spins. [illegible] for the boundary conditions of the radial functions at the surface of the nucleus as well as for the probability of decay. The latter are based upon the radial functions in expressions for the shape of the nucleus. For the [illegible]

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The α-Decay of Non-Spherical Nuclei SOV/[illegible]

of the probability of α-decay on the momentum l, which is carried off by the α-particle and on the energy of the daughter-nucleus a simple approximated formula was obtained. For even nuclei (spin 0) the various possibilities of deriving an approximated solution from the system of equations of the radial functions were analyzed. It was found that the terms connecting the equations (due to the non-spherical part of the Coulomb (Kulon) interaction between α-particles and the nucleus) cannot be looked upon as a perturbation for $l > 0$. An exact numerical solution of the system of equations is given for an elliptical nucleus in consideration of all multipole interactions. The wave function is in this case considered to be constant on the surface of the nucleus (nuclear surface). The significance of higher harmonics is determined in the Legendre (Lezhandr) polynomial expansion of the equation on the nuclear surface. The theoretical results are compared with the corresponding experimental ones. An appendix contains mathematical explanations of the system of equations ([illegible]) and of the boundary conditions of the system ([illegible]).

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There are 5 figures, 5 tables, and [illegible] references, 5 of which

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The α-Decay of Non-Spherical Nuclei

SOV/56-35-1-26/59

are Soviet.

SUBMITTED: February 17, 1958

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21(0),24(5)

AUTHORS: Gol'din, L. L., Novikova, G. I., Ter-Martirosyan, K. A.

SOV/56-36-2-25/63

TITLE: On the Shape of α-Active Nuclei (O forme α-aktivnykh yader)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 2, pp 512-516 (USSR)

ABSTRACT: Theoretical papers (Refs 1-5) have recently been published, in which the intensity of α-decay on levels in one and the same rotational band were calculated. Intensity was found to be dependent to a considerable extent on the shape of the nucleus. Utilizing this sensitivity, the authors investigate the shape of various heavy nuclei with the aid of the intensity of α-decay on successive levels of the main rotational band of the daughter nucleus. Proceeding from the results obtained by a previous paper (Ref 5), the deviation from the spherical shape is calculated according to

$$R(\vartheta) = r_0\left[1 + \alpha_2 P_2(\cos\vartheta) + \alpha_4 P_4(\cos\vartheta)\right].$$

The coefficients α_2 and α_4 of the development according to Legendre polynomials P_2 and P_4 are calculated, as also

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On the Shape of α-Active Nuclei

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$u^2 = (a^2 - b^2)/a^2 \approx 2\,\Delta R/R$ (a = the large, b = the small semiaxis of the nucleus), and further also the quadrupole moment Q_0 and the 2^4-pole moment Q_4. The numerical results obtained for four even and three odd nuclei are shown in a table, and the 7 diagrams of figure 1 show the influence exercised by the shape of the nucleus on α-decay probability in the case of transitions to excited levels of the main rotational bands. Numerical results are in good agreement and show that the contribution made by the term $\alpha_4 P_4(\cos\vartheta)$ to the nuclear shape is considerable.

Nucleus	u^2	a_2	a_4	Q_0[barn]	Q_4[barn]
U^{235}*	0.34	0.161	-0.058	13.7	-3.6
Np^{237}*	0.34	0.160	-0.056	14.5	-3.6
Th^{229}	0.39	0.177	-0.030	14.7	+2.0
Pu^{238}	0.31	0.138	-0.052	12.3	-3.9
U^{236}	0.28	0.119	-0.026	10.9	-0.7
U^{234}	0.33	0.148	-0.041	11.7	-0.9
Th^{228}	0.39	0.173	-0.025	14.1	-3.0

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On the Shape of α -Active Nuclei SOV/56-36-2-25/63

(The original table contains numerous further data concerning these 7 nuclei, as e.g. the ratios of the decay probabilities for various states).
The authors finally thank G. M. Adel'son-Vel'skiy and A. P. Birzgal for mathematical computations. There are 2 figures, 1 table, and 6 references, 3 of which are Soviet.

SUBMITTED: July 9, 1958

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARTIROSYAN, K.A.

Incompatibility of analyticity and unitarity in the Lie model.
Zhur.eksp.i teor.fiz. 37 no.4: 1005-1009 O '59.
(MIRA 13:5)
(Particles(Nuclear physics))

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

TER-MARTIROSYAN, K. A.

Investigation of Chew-Mandelstam Equation.

report submitted for the 10th International Conference on High Energy Physics, Rochester, N. Y., 25 Aug - 1 Sep 60

paper to be presented by N. P. Rudik

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755410019-8

S/056/60/039/003/036/045
B006/B063

AUTHOR: Ter-Martirosyan, K. A.

TITLE: Equations for Mandelstam's Spectral Representation Functions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 3(9), pp. 827-840

TEXT: Various attempts have been recently made to develop a quantum-field theory directly on the basis of the unitarity conditions and the relations resulting from the analytical properties of amplitudes; these relations have the form of dispersion relations. So, Mandelstam and Chew developed a scheme by proceeding from the assumption that at moderately high energies the nearest singularities (poles, branching points) of the amplitudes, viz., the simplest two-particle terms in the unitarity conditions, are the most significant. The four-vertex transition amplitudes (transition of two particles into two) in these terms may be described by an integral representation suggested by Mandelstam. From the unitarity conditions there follow a number of relations between the spectral functions of the

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Equations for Mandelstam's Spectral Representation Functions S/056/60/039/003/036/045
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integral representations which may be regarded as fundamental equations of the theory. The set of equations of these spectral functions has not yet been obtained in a closed form. This is possibly due to the fact that three unitarity conditions for the three channels of the four-vertex amplitudes in Mandelstam's two-particle approximation lead to contradictory results. Here, it is shown that this contradiction may be avoided if the contribution of all many-particle interactions in the unitarity condition is taken into account. Thus, one obtains a closed set of equations which are perfectly symmetric with respect to all three channels. Next, the author studies the consistency of the equations following from the unitarity conditions in various channels. If Mandelstam's integral representation is written down with subtraction, one obtains a set of coupled equations for the spectral functions depending on two and on one variable, respectively. Consistent iteration of the equations obtained corresponds to taking into account the contribution (or part of the contribution) resulting from a number of Feynman graphs which consist of two parts connected by two lines. The set of equations goes over into one of the Chew-Mandelstam type if terms containing spectral functions depending

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Equations for Mandelstam's Spectral Representation Functions

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on two variables are neglected. The author thanks V. N. Gribov, V. M. Shekhter, and A. A. Ansel'm for discussing various problems and for their comments. There are 9 figures and 9 references: 1 Soviet, 1 Japanese, 1 Dutch, and 6 US.

SUBMITTED: April 23, 1960

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B006/B077

24.6900

AUTHORS: Simonov, Yu. A., Ter-Martirosyan, K. A.

TITLE: About a Semi-analytical Solution of the Equations of the Chew-Mandelstam Type

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 5(11), pp. 1442 - 1449

TEXT: A simple method is proposed for solving equations of the Chew-Mandelstam type, which leads quickly to an approximate solution and is analogous to the known method of Dalitz, Dyson, and Castillejo in the low energy range. Here, this method is applied to the simplest cases, that is the solution of the Chew-Mandelstam equations describing the interaction between neutral and charged pions. The results obtained in the first approximation for charged pions are compared with the numerical calculations by Chew, Mandelstam, and Noyes. A graphical comparison of the results in the first and second approximation of the functions $-(\pi\eta/2)\sqrt{x}\,\mathrm{ctg}\,\delta = -(\pi\eta/2)\mathrm{Re}\,h(x)$ showed that the corrections of the

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About a Semi-analytical Solution of the Equations of the Chew-Mandelstam Type

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second approximation can be neglected. An exception is the case of those λ-values close to the limiting value where $\alpha_1(\lambda)$ becomes large. But this range is small. Furthermore the range where the Chew-Mandelstam equations are valid is found between $0 \leq \nu \lesssim 3$. In this range the corrections are the least and at $\nu = 0$ the first and second approximation are identical. The first approximation obtained here is nearly equal to the numerical solution of the Chew-Mandelstam equation for the neutral-meson interaction amplitude which was found by Ye. P. Vedeneyev and A. L. Krylov. The graphical comparison of the first approximation with the results of a numerical solution of the Chew-Mandelstam equations for the scattering of charged mesons for the functions $-5\lambda\sqrt{x}\,\mathrm{ctg}\,\delta_0$ and $-2\lambda\sqrt{x}\,\mathrm{ctg}\,\delta_2$ shows that for the range $0 \leq \nu \lesssim 3$ agreement is very good. This solution is quite similar to the one obtained by Chew, Mandelstam, and Noyes in the case of a predominance of the S-wave. The first approximation proved to be sufficient in all cases and by applying the given method it is easy to determine this approximation. This method can be applied to similar problems as e.g. to π N- and π K-scattering.

Card 2/3

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About a Semi-analytical Solution of the Equations of the Chew-Mandelstam Type

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There are 6 figures, 2 tables, and 8 references: 1 Soviet and 7 US.

SUBMITTED: July 23, 1960

Card 3/3

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AUTHORS: Gribov, V. N., Terent'yev, M. V., Ter-Martirosyan, K. A.

TITLE: Mandelstam representation in the perturbation theory with anomalous mass ratio

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 1, 1961, 337-340

TEXT: The integral Mandelstam representation for the scattering amplitude is valid only if the process is without any "anomalous" graphs. The authors investigated, how the Mandelstam representation changes in an "anomalous" case; the example of the simplest quadratic diagram is used (Fig.1); p_i and p_k denote the four-momentum of the particles, m and μ denote the masses of virtual particles, $p_1+p_2+p_3+p_4=0$. The case is considered where $p_1^2=p_2^2=p_3^2=p_4^2=M^2$, the diagram is a function of the invariant variables: $s=(p_1+p_2)^2$ and $t=(p_2+p_3)^2$; for the "normal" case, if $M^2<m^2+\mu^2$, A(s,t) is given by

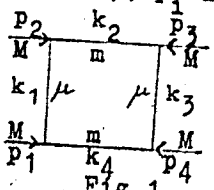

Fig.1

Card 1/6

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$$A(s,t)=\frac{1}{\pi^2}\int\limits_{\Omega_H}\frac{\rho(s',t')\,ds'\,dt'}{(s'-s-i\delta)(t'-t-i\sigma)}; \qquad (1)$$

$$\rho(s,t)=\pi/\sqrt{-stf(s,t)},$$

$$f(s,t)=4(M^2-m^2-\mu^2)^2+(t-4\mu^2)(4m^2-s),$$

or

$$A(s,t)=\frac{1}{\pi}\int\limits_{4m^2}^{\infty}\frac{A_1(s',t)}{s'-s-i\delta}\,ds', \qquad (2)$$

$$A_1(s,t)=\frac{1}{\sqrt{-stf(s,t)}}\ln\frac{\sqrt{f(s,t)}+\sqrt{t(4m^2-s)}}{\sqrt{f(s,t)}-\sqrt{t(4m^2-s)}},$$

$$t<0,$$

the ranges and paths of integration are shown in Figs.2,3. For an anomalous case ($M^2 > m^2+\mu^2$)

$$A(s,t)=a(s,t)+\frac{1}{\pi}\int\limits_{4m^2}^{\infty}\frac{A_1(s',t)}{s'-s-i\delta}\,ds', \qquad (3)$$

$$a(s,t)=\frac{1}{\pi}\int\limits_{s_\Delta}^{s_k}\frac{a_1(s',t)}{s'-s-i\delta}\,ds', \qquad a_1(s,t)=\frac{2\pi}{\sqrt{stf(s,t)}}. \qquad (4)$$

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hold and one obtains

$$A(s,t) = a(s,t) + \frac{1}{\pi^2}\int_{L_H} \frac{\rho(s',t')\,ds'\,dt'}{(s'-s-i\delta)(t'-t-i\delta)} = a(s,t) + A_0(s,t), \quad (7),$$

The function a(s,t), which is defined by (6) for various t regions, has for $t \to 0$, at $s \to s_k \to s_\Delta$ the following pole-type singularity $a(s,0)_{s\to s_\Delta} = \xi/(s-s_\Delta)$, $\xi = (1/\mu^2)\sqrt{(4m^2-s_\Delta)/s_\Delta}$. The anomalous range (referred to by L.D.Landau) is hatched in Fig.2. Curve L_H (Fig.2) is not singular for the function A(s,t) for an anomalous case, since the singularities of the functions a and A_0 compensate on this curve. In the region $t > 4\mu^2$ the representation

$$A_0(s,t) = \frac{1}{\pi}\int_{4m^2}^{\infty} \frac{1}{i\sqrt{s't f(s',t)}} \ln\left(\frac{\sqrt{f(s',t)} + i\sqrt{t(s'-4m^2)}}{\sqrt{f(s',t)} - i\sqrt{t(s'-4m^2)}}\right)\frac{ds'}{s'-s-i\delta}.$$

holds. If the part is separated from A_0 that has a singularity in $s=s_k$ then $A(s,t) = A_0' + a'$, with

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$$A'_0 = \frac{1}{\pi}\int_{4m^2}^{\infty} \frac{1}{i\sqrt{s't}} \ln\left(\frac{i\sqrt{t(s'-4m^2)}+\sqrt{t}}{i\sqrt{t(s'-4m^2)}-\sqrt{t}}\right)\frac{ds'}{s'-s-i\delta},$$

$$a'(s,t) = \int_{s_k}^{t_\Delta} \frac{2\,ds'}{\sqrt{s't}(s'-s-i\delta)} + \int_{4m^2}^{\infty} \frac{ds'}{\sqrt{s't}(s'-s-i\delta)}.$$

The function A'_0 has no branching point in $s=s_k$. After integration one obtains $(0<s<s_\Delta)$:

$$a'(s,t) = \frac{1}{\sqrt{st}}\left\{2\ln\frac{\sqrt{s_\Delta(s_k-s)}-\sqrt{s(s_k-s_\Delta)}}{\sqrt{s(s_k-s_\Delta)}+\sqrt{s_\Delta(s_k-s)}} + \right.$$

$$\left. + \ln\frac{\sqrt{4m^2(s_k-s)}+\sqrt{s(s_k-4m^2)}}{\sqrt{4m^2(s_k-s)}-\sqrt{s(s_k-4m^2)}} + \ln\frac{i\sqrt{s_k-s}-\sqrt{s}}{i\sqrt{s_k-s}+\sqrt{s}}\right\}.$$

After continuing analytically into the region $s \sim s_k$, the function a' is found to have no singularities on the line $s=s_k$. If an anomaly appears only in the simplest diagrams, as in Figs. 1, 4, and 5 (e.g., in real Σ and Λ hyperon scattering processes) then the exact scattering amplitude can be described by $F(s,t) = a(s,t) + a(s_0,t) + a(s,s_0) + F_0(s,t)$.

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$s_c = 4M^2-s-t$, $F_0(s,t)$ has a usual Mandelstam representation. There are 5 figures and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc.

SUBMITTED: August 8, 1960

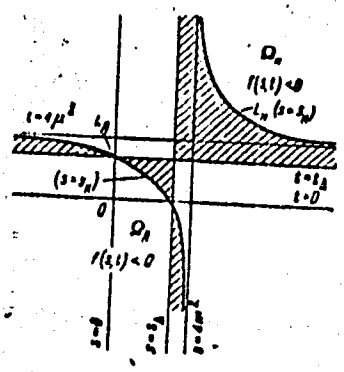

Рис. 2

Fig. 2

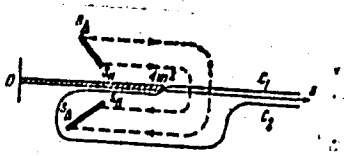

Рис. 3

Fig. 3

Card 5/6

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Mandelstam representation in...

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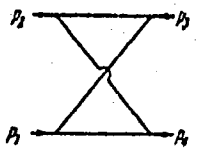

Рис. 4 (Fig. 4)

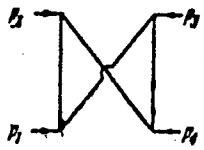

Рис. 5 (Fig. 5)

Card 6/6

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SIMONOV, Yu.A.; TER-MARTIROSYAN, K.A.

Equations for the spectral functions of charged π-mesons.
Zhur. eksp. i teor. fiz. 40 no.4:1172-1178 Ap '61. (MIRA 14:7)

1. Institut eksperimental'noy i teoreticheskoy fiziki AN SSSR.
(Mesons--Scattering) (Integral equations)

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B102/B186

AUTHOR: Ter-Martirosyan, K. A.

TITLE: The asymptotic behavior of the amplitudes of inelastic processes

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 1, 1963, 341 - 354

TEXT: A relatively simple method is proposed for expanding the many-particle amplitude in terms of partial waves. This method makes use of the methods and formulas obtained by Jacob and Wick (Ann. of Phys. 7, 404, 1959) and M. E. Rose (Elementary theory of angular momentum N. Y., 1957). The expansion of the amplitudes M_n in spiral partial waves is demonstrated for four-, five- and six-tailed graphs:

$$M_n(s_{ik}) = \sum_{L, m', m''} (2L+1)\, d^{(L)}_{m'm''}(z)\, \chi^{(n)}_{L;\, m'm''}; \qquad (4)$$

$$\chi^{(4)}_{L;\, m'm''} = \delta_{m',0}\delta_{m'',0}\lambda_L(f),$$

Card 1/5

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The asymptotic behavior of the...

$$\chi^{(s)}_{L;m'm''} = \delta_{m'',0} e^{im'\varphi} \sum_{l'} (2l'+1) P_{l',m'}(z_s') \varphi^{(l')}_{L;m'}(t; s'), \qquad (5).$$

$$\chi^{(s)}_{L;m'm''} = e^{i(m'\varphi' - m''\varphi'')} \sum_{l',l''} (2l'+1)(2l''+1) P_{l'm'}(z_s') P_{l''m''}(z_s'') f^{(l',l'')}_{L;m'm''}(t; s', s'').$$

$$M_{k';l''m''} = \sum_{l'm'} (2l'+1) D^{(l')*}_{m',0}(n') M_{l'm';l''m''}, \qquad (2).$$

The unitarity conditions for these partial amplitudes are simplest:

$$\lambda_L(t_+) - \lambda_L(t_-) = 2i\rho(t)\lambda_L(t_+)\lambda_L(t_-),$$

$$\varphi^{(l')}_{L;m'}(t_+; s') - \varphi^{(l')}_{L;m'}(t_-; s') = 2i\rho(t)\varphi^{(l')}_{L;m'}(t_+, s')\lambda_L(t_-), \qquad (6)$$

$$f^{(l',l'')}_{L;m'm''}(t_+; s', s'') - f^{(l',l'')}_{L;m'm''}(t_-; s', s'') = 2i\rho(t)\varphi^{(l')}_{L;m'}(t_+; s')\varphi^{(l'')}_{L;m'}(t_-; s'');$$

$$t_\pm = t \pm i\tau, \tau > 0, \tau \to 0,$$

$$\rho(t) = 2t^{-1/2} p_{13}(t) = t^{-1/2}[t^2 - 2t(m_1^2 + m_3^2) - (m_1^2 - m_3^2)^2]^{1/2}.$$

Card 2/5

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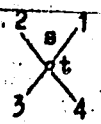
The asymptotic values of the amplitudes are obtained from (4)(5) are determined by applying Regge's method (Nuovo Cim. 14, 951, 1959; cf. also Gribov, ZhETF 41, 1962, 667, 1961). The dispersion relation for M_n (with respect to z, i.e. to s) is

$$M_n(z, s_{lh}) = \frac{1}{\pi}\int\limits_{C_1(s_{lh})}^{\infty} \frac{M_n^{(1)}(z', s_{lh})}{z'-z}\,dz' + \frac{1}{\pi}\int\limits_{C_2(s_{lh})}^{\infty} \frac{M_n^{(2)}(z', s_{lh})}{z'+z}\,dz' \quad (10)$$

For the graph 

the asymptotic values

$$M_4 \approx g^2(t)\, I(t)\, s^{\alpha(t)}, \qquad M_5 \approx g(t)\, G(t, k')\, I(t)\, s^{\alpha(t)},$$
$$M_6 \approx G(t, k')\, G(t, k'')\, I(t)\, s^{\alpha(t)}, \quad (15)$$

$$I(t) = i - \operatorname{ctg}\left(\frac{\pi}{2}\alpha(t)\right), \qquad g(t) = [2p_1(t)]^{-\alpha(t)} C_{\alpha,\mu}(t),$$

$$G(t, k') = [2p_2(t, s')]^{-\alpha(t)} \sum_{l', m'} (2l'+1)\, C_{\alpha,m'} v_{l',m'}(t, k')\, P_{l',m'}(z'_0)\, e^{im'\varphi}. \quad (16)$$

Card 3/5

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are obtained which are easily generalized for graphs of the type

$$M_n = G_{n'}(t, \xi')\, G_{n''}(t, \xi'')\, I(t)\, s^{\alpha(t)}, \qquad (15')$$

Both hold for $s \to \infty$. $n = n' + n'' + 2$, the total number of vertex lines, ξ' and ξ'' characterize the particle states in the shower groups. From (15) and (15') a series of conclusions as to partial cross sections and particle spectra which are valuable for experimental studies. Among others, the s- and t-dependence of the differential cross sections of shower processes are characterized by the same Regge poles as the elastic scattering cross sections

$$d\sigma_4(12 \to 34) \approx g^4(t)\, s^{2[\alpha(t)-1]}\, dt,$$
$$d\sigma_5(12 \to 345) \approx g^6(t)\, |G(t, k')|^2\, s^{2[\alpha(t)-1]}\, dt\, d\tau', \qquad (18)$$
$$d\sigma_6(12 \to 3456) \approx |G(t, k')|^2 |G(t, k'')|^2 s^{2[\alpha(t)-1]}\, dt\, d\tau'\, d\tau'', \ldots;$$
$$d\sigma_n(12 \to n' + n'') \approx |G_{n'}(t, \xi')|^2\, |G_{n''}(t, \xi'')|^2\, s^{2[\alpha(t)-1]} dt\, d\xi'\, d\xi''. \qquad (18')$$

$$d\tau' = 2k' s'^{-1/2}\, ds'\, dn'/4\pi,$$

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$d\tau''$ is defined analogously $|I(t)|^2 = 1 + \mathrm{ctg}^2(\pi\alpha(t)/2)$. From (18), (18') it follows that the momentum distribution of the particles produced in the shower is independent of the production mechanism if the group in the case of $s \to \infty$; the mass spectrum is given by

$$\eta(t; s') = \frac{2k'}{\sqrt{s'}} \int |G(t, k')|^2 \frac{dn'}{4\pi},$$

There are 14 figures.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki (Institute of Theoretical and Experimental Physics)

SUBMITTED: July 20, 1962

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