

ARAKELIAN, M.A.; AMBARTSIUMYAN, V.A., ~~otvetstvennyy~~ redaktor; KAPLANYAN, M.A.,
tekhnicheskii redaktor.

[Spectrophotometric investigation of Algol] Spektrofotometricheskoe
issledovanie Algolia. Erevan, 1957. 65. p. (Byurakan. Observatoriia.
Soobshchenia, no.21) (MLRA 10:5)
(Spectrophotometry) (Stars, Variable)

SCV/124-58-10-10708

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 10, p 2 (USSR)

AUTHOR: Ambartsumyan, V.A.

TITLE: Concerning Artificial Earth Satellites (Ob iskusstvennykh sputnikakh Zemli) in Armenian

PERIODICAL: Ayastani zhogovrdakan intesutyun, 1957, Nr 1-2, pp 107-110

ABSTRACT: Bibliographic entry

Card 1/1

Ambartsunyan, V. A.

25-7-19/51

AUTHOR: Ambartsunyan, V.A., Academician, President of the Academy of Sciences of Armenian SSR

TITLE: Achievements of Armenian Scientists (Trudy armyanskikh uchenykh)

PERIODICAL: Nauka i Zhizn', 1957, # 7, p 24 (USSR)

ABSTRACT: In the mountains of the Armenian SSR, vast deposits of copper, molybdenum, rare elements, iron, zinc, and chrome are found. For that reason the Armenian Academy of Sciences concentrates its research mainly on the natural deposits of the country. In the central area of the country, geologists discovered deposits of the new ore - nepheline syenite, from which aluminum oxide is derived, along with a number of useful byproducts. Another field of research is the utilization of marble, tuff and refractory clay for building purposes. The Academy devotes much attention to the development of radio-astronomy. Two powerful radiotelescopes will shortly be installed in the new Astrophysical Observatory of Byurakan, a village on the slope of the Aragats mountain.

Card 1/2

AMBARTSUMYAN, V.A.; MIRZOYAN, L.V.

The Biurakan Astrophysical Observatory of the Academy of Sciences
of the Armenian S.S.R. Trudy Inst.ist.est.i tekhn. 17:485-492 '57.
(MIRA 10:7)

(Biurakan--Astronomical observatories)
(Astrophysics--Bibliography)

AMTARTSUMYAN, Y.A.; SHAKHBAZIAN, R.K., akademik.

Multiple galaxies and radio galaxies. Report No.2, Dokl. AN Arm.
SSR 25 no.4:185-192 '57. (MIRA 11:2)

1. Byurakanakaya astrofizicheskaya observatoriya AN ArmSSR.
(Nebulae)

Ambartsumyan, V. A.
AUTHOR: Ambartsumyan V. A., Academician

30-11-5/23

TITLE: On the Problem of the Formation of Stars (O probleme **vroiskhozhdeniya zvezd**).

PERIODICAL: Vestnik AN SSSR, 1957, Vol. 27, Nr 11, pp. 45 - 57 (USSR)

ABSTRACT: During the last 40 years astrophysics took quite new lines. These changes were caused by the use of new telescopes, measuring apparatus based on electronics and the development of a new field of science- theoretical astrophysics. The author reports on a number of interesting results obtained by Soviet astrophysicists (concerning the problem of the origin and the evolution of the stars). The author emphasizes that this problem of the formation of individual stars and star clusters (**skopleniye zvezd**) must only in recent times be considered a coherent entirety. As regards the age of the stars a new line is taken in the USSR from the standpoint of theoretical mechanics. The processes of disintegration (**dissotsiatsii**) and the inverse processes- the recombination (**rekombinatsii**) represent a starting-point of further research works. Concerning the problem of the formation of double stars 2 contradictory hypotheses exist: the formation by "incorporation" (**zakhvat**) of a third one upon approximation (**troiniye sblizheniye**) or the formation of a double star by dissociation. Furthermore the author deals with the problem of the forma-

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- On the Problem of the Formation of Stars.

30-11-5/23

ASSOCIATION: AN SSSR (AS USSR)

• AVAILABLE: Library of Congress

Card 3/3

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.A41

Ambartsunyan, Viktor Amasaspovich, Ed.

Theoretical Astrophysics

New York, London, Pergamon Press 1958

645 p Diags., Tables

Translated by J.B. Sykes from the original Russian: Teoreticheskaya Astrofizika
Moscow 1952

Bibliography: p. 623-632

AMBARTSUMYAN, V. A.

"Some Questions of Cosmogony."

report presented at All-Union Conference on Philosophical Questions of the Natural Sciences, Moscow Scientists' Club, 22 Oct 1958.

AUTHOR: Ambartsumyan, V. A., Member, Academy of Sciences, USSR SOV/30-58-7-1/49

TITLE: The Coming International Congress of Astronomers (Navstrechu mezhdunarodnomu s"yezdu astronomov)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 7, pp. 3 - 6 (USSR)

ABSTRACT: The 10th Congress (Plenary Meeting) of the International Association of Astronomers which is held every 3 years in various countries, will take place in Moscow in August of this year. This association was founded in 1920 for the purpose of coordinating the work of the astronomers of all observatories and of the astronomical institutes of the world in order to avoid unnecessary work. Much important scientific work could be carried out only owing to the participation of a large number of countries. As a result of this collaboration it is possible to compare and to control the results obtained by observation. The work of this association is carried out by permanent committees and sub-committees; the number of these permanent committees is 38. Permanent international observation of the sun is maintained.

Card 1/3

The Coming International Congress of Astronomers

SOV/ 30-58-7-1/49

International discussion of scientific problems is so necessary that the association feels obliged to organize international symposia during intervals between congresses. A special symposium on radicastronomy will be held this year in Paris, before the 10th Congress. Two great symposia will be held in connection with the Moscow Congress. The participation of Soviet astronomers in the work of the association was intensified after the second world war. Soviet scientists are members of almost all committees of the association. B. V. Kurakin was appointed one of the vice-presidents of the association. Soviet astronomers are carrying out many investigations according to the international program. The calculation of the trajectory elements and of the ephemerids of small planets is carried out by the Institute of Theoretical Astronomy of the Academy (Institut teoreticheskoy astronomii Akademii). Soviet astronomers suggested that a catalogue be compiled showing the exact position of a great number of weak stars. This work is planned by Committee Nr 8, whose President is M. S. Zverev. The astronomers are interested, above all, in the scientific results obtained by means of test flights of artificial satellites. The Astrophysical Observatory

Card 2/3

The Coming International Congress of Astronomers

SOV/ 30-58-7-1/49

Krym carried out interesting investigations of the nature of solar explosions. The Observatory of Leningrad University is investigating the transmission of energy. Foreign astronomers show great interest in Soviet observatories, some of which were newly reconstructed after the war, while others were reconstructed and equipped with new instruments of Soviet origin (e.g. diffraction gratings). Many of the Soviet observatories are equipped with large meniscus telescopes of the system developed by D. D. Maksutov. The members of the congress will pay a visit to the Pulkovo Observatory in Leningrad and the Institute of Theoretical Astronomy. Many of them will also take part in excursions to the southern observatories Krym, Abastumansk and others. More than 800 foreign scientists are expected. More than 200 Soviet astronomers and also a number of young scientists were invited.

Card 3/3

3(1)
AUTHOR: Ambartsumyan, V.A. SOV/22-11-5-2/9
TITLE: On the Evolution of the Galactics (Ob evolyutsii galaktik)
PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-mate-
maticsikh nauk, 1958, Vol 11, Nr 5, pp 9 - 38 (USSR)
ABSTRACT: The present paper is identical with the report which has been
presented by the author on the XI-th Solway Conference in
Brussels in June 1958.
There are 27 references, 9 of which are Soviet, 11 American,
3 German, 2 Swedish, 1 English, and 1 Australian.
ASSOCIATION: Byurakanskaya astrofizicheskaya observatoriya AN Armyanskoy
SSR (Byurakan Astrophysical Observatory AS Armenian SSR)
SUBMITTED: July 15, 1958

Card 1/1

AMBARTSUMYAN, V.A.
AMBARTSUMYAN, V.A., akademik.

Talking about cosmos. Tekh. mol. 26 no.1:9 '58.
(Cosmology)

(MIRA 11:1)

AMBARTSIUMYAN, V.A., akademik.

Multiple galaxies and radio galaxies. Report No.3. Dokl. AN Arm.
SSR 26 no.2:73-76 '58. (MIRA 11:5)

1. Byurakanskaya astrofizicheskaya observatoriya Akademii nauk
Armyanskoy SSR.

(Nebulae)

AMBARTSUMYAN, V.A., akademik; SHAKHBAZIAN, R.K.

Multiple galaxies and radio galaxies. Dokl. AN Arm. SSR 26 no.5:
277-279 '58. (MIRA 11:7)

1. Byurakanskaya astrofizicheskaya observatoriya AN ArmSSR.
(Nebulae)

AMBARTSUMYAN, V.A., akademik

Towards the International Congress of Astronomers. Vest. AN SSSR
28 no. 7:3-6 J1 '58. (MIRA 11:7)

(Astronomy--Congresses)

SOV/124-58-8-8344

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 1 (USSR)

AUTHOR: Ambartsumyan, V.A.

TITLE: Tremendous Cosmic Undertaking. Sputnik Nr 2 Circles the Earth for the 2,000th Time. (Gigantskoye kosmicheskoye mero-priyatiye. 2,000 oborotov vtorogo iskusstvennogo sputnika vokrug Zemli)

PERIODICAL: Gaz. "Izvestiya", March 21, 1958, Nr 69, p 4

ABSTRACT: Bibliographic entry

Card 1/1

PHASE I BACK EXPLOITATION

[illegible]

Author: Akademiya nauk SSSR.

Sponsoring Agency: Akademiya Nauk SSSR.
 Editor: I. M. Doroshenko.
 Editorial Committee: N. P. Fedoseyev, Corresponding Member, Academy of Sciences USSR, (Chairman), B. N. Vul, Corresponding Member, Academy of Sciences USSR, M. E. Omal'yuzovskiy, Member, Academy of Sciences USSR, M. A. Skakyan, Corresponding Member, Academy of Sciences USSR, V. M. Sletostev, Professor, and Ye. R. Kozlovsky, Candidate of Philosophical Sciences (Scientific Secretary).

PURPOSE: This book is intended for natural scientists and philosophers who are interested in coordinating Communist philosophy with science.

COVERAGE: This is a publication of the transactions of the 1958 All-Union Conference on Philosophical Problems of Natural Science which took place in Moscow on October 21-25, 1958. The Conference was attended by 1,000 scientists and 30 corresponding members of the Academy of Sciences USSR, 15 academicians, 33 college workers, 100 members of scientific academies, 186 teachers, and 75 party and Komsomol officials.

COMMENTS: The purpose of this Institute, as expressed by the Chairman of the Organizing Committee, K.V. Ostrovskiy, "was to unite the efforts of Soviet philosophers and scientists in a dialectical materialistic interpretation of official background to the dialectic, and to provide the philosophical problems."

Mutin M.B., Academician. A Great Ideological Instrument for the
Investigation and Transformation of the Universe (Commensurate-
ing the 50th Anniversary of the Completion of V.I. Lenin's Book
on the 50th Annual Radiocriticism)

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Kozlov, A.M., Professor.	Cybernetics	219

Sobolev, S.L., Academician, and A.A. Lyapunov, Professor.
Topics and Natural Science
Mathematical Problems

Amartsunyán, V. A., Academician. Certain Mathematical Problems of the Theory of the Dynamics of the Motion of a Rigid Body. *Academy of Medical Sciences of the USSR*. 1960. 260

Frank, O.M., Corresponding Member, Academy of Sciences of the USSR, and Y.A. Engel'sarit, Academician, Role of Physics and Cosmology in the Study of Biological Problems 291

Chemistry in the Study of Life in the 324

Ovchinnik, A.I., Academician. Problem of the Origin of Life in the 324

Part of the Achievements of Modern Science

Grishchenkov, N.I., Corresponding Member, AS USSR. Lenin's Theory of
 Light of the Achievements of the Sense Organs and the Modern Physiology of
 the Nervous System. 300 pages. 1964. 100 kopecks.

DISCUSSION OF REPORTS

... M. P. Professor

card 4/11

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AMBARTSUMYAN, V. A.

PLANE I BOX EXPLOSIONS 807/5609

Совместный по программе космогонии, 6-й, 1977.
Труды космогонии... и космогонии астрономии и космогонии
(Труды космогонии... и космогонии астрономии и космогонии)
Экспериментальная астрономия и космогония. Москва, Изд-во АН СССР, 1979.
273 с. Карты вкл. 1,500 копий напечатано.

Спонсорская организация: Академия наук СССР. Астрономический Совет.

Редакционный Совет: Д.А. Франк-Камаровский, профессор (нап. ред.);
В.А. Воронцов-Вельяминов, корреспондент Академии, Академия
Педagogических Наук СССР, Я.А. Савруцкий, профессор; А.Л.
Ильминский, старший научный сотрудник; А.Л. Ильминский,
(нап. ред.) и др. Редакционный Совет Академии наук СССР.
Издательство: Изд-во Академии наук СССР, Москва.

ЦЕЛЬ: Публикация предназначена для астрономов, геофизиков и
теоретических физиков, интересующихся проблемами космогонии.
ОБЪЕКТ: Это сборник докладов, представленных на 6-й конференции по
проблемам космогонии, 6-й, 1977. В публикации представлены
данные в области экстрагалактической астрономии, которые
анализированы с теоретической точки зрения, и даны обзоры
наблюдений. В публикации представлены также результаты
исследований в области космогонии. В публикации представлены
также результаты исследований в области космогонии.
В публикации представлены также результаты исследований в
области космогонии. В публикации представлены также
результаты исследований в области космогонии.

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AMBARTSUMYAN, V. A.

30(9)

From: USSR

000/77-00-4-0/12

All-Union Conference on Philosophical Problems of Modern Natural Sciences (Vsesoyuznyy s'ezhdaniye po filosofskim voprosam sovremennoy prirodovedeniya) by the Editor (ot redaktsii)

Uspelhi fizicheskikh nauk, 1959, Vol 68, Nr 4, pp 717-727 (USSR)

The above conference took place at Moscow in October 1958; it was attended by more than 600 scientists, among them 20 Academicians and 30 Corresponding Members, AS USSR, as well as by delegates from Bulgaria, Hungary, East Germany, and Czechoslovakia. The following lectures delivered at the conference have been published in the USSR Academy of Sciences book "Materialism and Epistemology" (Materiializm i gnozeologiya), Moscow, 1957, Vol 62, Nr 4), Corresponding Member AS USSR A. P. Aleksandrov ("The Philosophical Content of and the

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Significance of the Theory of Relativity", Academician V. A. Ambartsumyan (Some Methodological Problems of Cosmogony", Academician V. A. Sobolev and Professor A. A. Izrael' ("Cybernetics and Natural Science"), Corresponding Member AN USSR G. M. Frank and Academician V. A. Engel' garit ("On the Part Played by Physics and Chemistry in the Investigation of Biological Problems"), Academician A. I. Oparin ("The Problem of the Origin of Life in the Light of the Progress Made by Modern Natural Sciences"), and others. The program of the conference was published in the USSR Academy of Sciences book "Materialism and Epistemology" (Materiializm i gnozeologiya), Moscow, 1957, Vol 62, Nr 4), Corresponding Member AS USSR A. P. Aleksandrov ("The Philosophical Content of and the

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investigation of all our scientific facts in the sense of the theory of Marx and Lenin and of dialectic materialism for adaptation of ideas to the resolution of the 20th Party Congress, cooperation of institutes, coordination of research work, as well as some problems of organization. In conclusion, a list of printed works is given, in which the lectures delivered during the conference were published. There are 8 Soviet references.

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A M B A R T S U M Y A N , V. A.

56(9)
AUTHOR:

TITLE:

PERIODICAL:

ABSTRACT:

807/30-39-1-47/57

Gerasimov, Ye. M., Candidate of Philosophical Sciences
Problems Concerning Philosophy of Modern Natural Science (Filosofskie
knye voprosy sovremennoy yestestvoznaniya)

Yestestv. Akademi (nauk) SSSR, 1959, Nr. 1, pp 152-158 (USSR)

At the end of October last year an All-Union conference took place which dealt with these problems. The conference had been convened by the Academy of Sciences (USSR) and the Ministry of Higher Education of the USSR. More than 100 scientists took part in the sphere of sciences and philosophy took part in the discussion. Academicians and Corresponding Members, Academy of Sciences USSR, representatives of the Academies of the Union Republics and Branch Academies as well as scientists from scientific research institutes and universities--Scientific representatives from Bulgaria, Rumania, Germany, Hungary and Czechoslovakia were guests. It was the aim of the conference to unite the creative powers of Soviet philosophers and scientists for the achievement of a dialectic-materialistic generalization of the achievements of modern science and for raising its level which is intended to contribute towards a solution of the most important scientific problems in a short period of time.

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Such were the ideas expressed by Academician A. M. Gerasimov, President of the AS USSR and E. V. Ostrovskiy, Chairman of the Committee for the Organization of the Conference on the occasion of their opening speeches.

Further, the following reports were heard and discussed: M. N. Mikhlin, Academician, spoke about Lenin's "materialism and empiricism" as the great ideological weapon for the perception and transformation of the world.

M. N. Gerasimov, Academician, spoke about the problems of modern physics.

2. N. Kozlov, Doctor of Philosophical Sciences, Corresponding Member, Academy of Pedagogical Sciences, USSR, reported on the interrelation in nature of the formation of matter.

V. A. Yakovlev, Corresponding Member, Academy of Sciences, USSR, spoke about the philosophical meaning and the importance of the theory of relativity.

S. L. Sobolev, Academician, and A. A. Kravtsov, Professor,

dealt with observation and natural science.

Ye. A. Abramovskiy, Academician, spoke about some methodical problems of cosmology.

V. A. Rylov, Doctor, Academician, and G. M. Frank, Corresponding Member, AS USSR reported on the role of physics and chemistry in investigating biological problems.

A. N. Oparin, Academician, spoke about the formation of life in the light of the achievements of modern natural science.

M. N. Gerasimov's report dealt with the Lenin's theory and modern physiology of the sensual organs.

A. E. Zhuravskiy opposed the opinion expressed by M. N. Gerasimov that in the capitalist countries a crisis in physics is approaching.

Card 2/4

AMBARTSUMYAN, Viktor Amazaspovich; KHACHATRYAN, R., red.; DAVRISHYAN, T.,
~~tekh.n.red.~~

[Science in Armenia during the last 40 years] Nauka v Armenii za
40 let. Erevan, Armgostekhnizdat, 1960. 65 p.

(MIRA 14:1)

(Armenia--Science)

AMBARTSUMYAN, V.A.

[Science in Armenia during the past 40 years] Nauka v Armenii za 40
let. Erevan, Izd-vo AN Armianskoi SSR, 1960. 73 p. (MIRA 14:8)
(Armenia--Science)

AM BARTSUMYAN V. A.

Pravda, Moscow. 00/5174

Victory. Sovereignty. Homelands. Materially, opublikovanyye
v gazete "Pravda" (The Second Soviet Coast Ship; Materials
Published in the Newspaper "Pravda") Moscow, 1960. 198 p.
50,000 copies printed.

Keep for this Publication: V. Reut and V. Salimov; Tech. Ed.:
V. Yagodka.

PURPOSE: This book is intended for the general reader.

COVERAGE: The book is a compilation of articles which appeared
in the newspaper Pravda after the launching, orbiting, and re-
covery of the capsule of the Soviet 4,600 kg spaceship on
August 19, 1960. The articles give some details of scientific
research undertaken in this flight in the fields of scientific
cytology, genetics, cosmic radiation, solar radiation, ultra-
violet radiation, and radiation levels. A description, ultra-
three photos of the capsule are given. No personalities are
mentioned. There are no references.

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Academy of Sciences USSR (Head of the Chemical and Physiological
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AMBARTSUMYAN, V A.

PHASE I BOOK EXPLOITATION

SOV/4981

Soveshchaniye po teorii veroyatnostey i matematicheskoy statistike, Yerevan, 1958

Trudy Vsesoyuznogo soveshchaniya po teorii veroyatnostey i matematicheskoy statistike, Yerevan, 19-25 sentyabrya 1958 g. (All-Union Conference on the Theory of Probability and Mathematical Statistics. Held in Yerevan 19-25 September, 1958. Transactions) Yerevan, Izd-vo AN ASSR, 1960. 291 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk Armyanskoy SSR.

Editorial Staff: G.A. Ambartsumyan, B.V. Gnedenko, Ye.B. Dynkin, Yu.V. Linnik and S. Kh. Tumanyan; Ed. of Publishing House: A.G. Silquni; Tech. Ed.: M.A. Kaplanyan.

PURPOSE: The book is intended for mathematicians.

COVERAGE: The book contains 41 articles submitted to the Conference and dealing with the theory of probability and mathematical statistics. Some of the articles are the papers read at the Conference and edited for publication, while others outline the theses of papers which appeared or are scheduled to appear, wholly or in

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All-Union Conference on the Theory (Cont.)

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part, in other publications; in some cases, such publications are quoted. A list of the papers whose contents were published elsewhere is included and the places of publication are indicated. Individual articles examine theories of mass service, spectral instruments, numbers, games, and certain functions, and discuss the theorems of Shannon, Markov's chains, and certain processes, quantities, and functions. Such items as the method of least squares, the stochastic, Markov's and diffusion processes, measures and their applications, a scheme of Bernoulli experiments, Markov-type random fields, visible distribution of stars, Brownian motion, capacity of radio channels, and defective products are considered. No personalities are mentioned. References accompany some of the articles.

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PHASE I BOOK EXPLOITATION

SOV/4764

Ambartsumyan, Viktor Amazaspovich

Nauchnyye trudy; v dvukh tomakh, tom 1 (Scientific Works; in Two Volumes, Vol 1)
Yerevan, Izd-vo AN Armyanskoy SSR, 1960. 428 p. Errata slip inserted.
2,500 copies printed.

Sponsoring Agency: Akademiya nauk Armyanskoy SSR

Ed. (Title page): V.V. Sobolev; Ed. (Inside book): L.V. Mirzoyan; Tech. Ed.:
M.A. Kaplanyan.

PURPOSE: This book is intended for astronomers and astrophysicists. It may also
be of interest to geophysicists and theoretical physicists.

COVERAGE: This is the first volume of a 2-volume work containing the collected
scientific papers of V.A. Ambartsumyan, Member of the Armenian Academy of
Sciences, founder and director of the Byurakanskaya astrofizicheskaya obser-
vatoriya (Byurakan Astrophysical Observatory). The first part of this volume
contains the author's writings on the physics of gaseous nebulae and out-
lines the foundations of the theory of the radiation equilibrium of these
celestial bodies. Among the articles on stellar astronomy, those dealing with
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Scientific Works (Cont.)

the statistical mechanics of stellar systems are of greatest interest. Investigations on light scattering in turbid media, light absorption in the Galaxy, and brightness fluctuations in the Galaxy are also included and have, according to the Editor's Foreword, formed the basis for numerous investigations by other Soviet scientists. Those articles of the author which had originally been published in foreign languages have been translated into Russian by coworkers of the Byurakan Astrophysical Observatory, M.A. Arakelyan, L.V. Mirzoyan, E.S. Parsamyan, G.M. Tovmasyan, and E.Ye. Khachikyan. References follow each article.

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Editor's Foreword

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The Radiation Equilibrium of a Planetary Nebula

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MUSTEL', Eval'd Rudol'fovich; GEL'FGAT, B.Ye., red.; AMBARTSUMYAN, V.A.,
red.; SEVERNYI, A.B., red.; SOBOLEV, V.V., red.; KRYUCHKOVA,
V.N., tekhn.red.

[Stellar atmospheres] Zvezdnye atmosfery. Red.kolleghia:
V.A.Ambartsumian i dr. Moskva, Gos.izd-vo fiziko-matem.
lit-ry, 1960. 444 p. (MIRA 14:2)
(Stars--Atmospheres)

Ambarl'sumyan, V. A.

TABLE I BOOK INFORMATION 28/3/76

Astronomy in the USSR, 1917-1971: forty years of astronomy in the USSR, 1917-1971 (Collection of articles) Moscow, 1976. 720 p. 2,000 copies printed.

Ed. L. V. (Bazhenov) V. A. B. (Bazhenov) Editorial Board: L. A. Mikhaylov (Chairman), N. S. Zhurav, P. G. Kulikovskiy, A. G. Kharin, S. A. Murav'ev, V. V. Sobolev, and N. P. Dobson.

FOREWORD This book is intended for astronomers, astrophysicists, and others interested in the history of astronomy in the USSR.

CONTENTS This major work on the history of astronomy in the USSR consists of two parts, review articles and bibliographies. Part I contains a collection of articles on various facets of astronomical research written by leading Soviet specialists in the field. Chief emphasis is placed on developments of the last ten years. The research activities and equipment of 23 Soviet observatories and institutions are described, and the leading positions of 21 astronomical centers are listed. The geographic conditions and problems dealing with school centers are listed. Individual articles discuss problems dealing with

1. The Service

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3. Physical Conditions on the Moon and Planets

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4. The Service

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AMBARTSUMYAN, V., akademik

Brillant experiment. Nauka i zhizn' 27 no.9:3 S '60.
(MIRA 13:9)
(Space flight)

AMBARTSUMYAN, VIKTOR AMAZASPOVICH

Nauka V Armenii za 40 [I. E. Sorok] Let. Yerevan, Armgostekhhizdat, 1960.

65 p. Illus.

AMBARTSUMYAN, V.A., akademik

Holiday of Armenian scientists. Vest. AN SSSR 30 no.12:36-40 D '60.
(MIRA 13:12)

1. Prezident AN ArmSSR.
(Armenia—Research)

80825

S/033/60/037/02/001/013
E032/E914

3.1530

AUTHORS: Ambartsumyan, V.A. and Saakyan, G. S.

TITLE: Degenerate Superdense Gas of Elementary Particles.

PERIODICAL: Astronomicheskii zhurnal, 1960, Vol 37, Nr 2, pp 193-209 (USSR)

ABSTRACT: Analysis of available observational material shows that the evolution of stellar groups and galaxies takes place from dense prestellar bodies to less dense states. In other words, groups of stars and large amounts of matter scattered in interstellar space originate from very dense prestellar bodies. The first group of facts which may be used to support this hypothesis relates to galaxies and groups of galaxies and was analyzed by Ambartsumyan in Ref 1. There is evidence that the appearance of new galaxies and spiral arms is associated with matter in the nuclei of galaxies. These nuclei have small dimensions and high density. The second group of facts relates to the formation of stellar groups making up stellar associations. The presence in these associations and, in particular, in their central regions, of large gaseous nebulae, tight stellar

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EO32/E914

Degenerate Superdense Gas of Elementary Particles

groups, and systems of the Trapezium type, is in conflict with the hypothesis according to which stellar associations are formed from diffuse nebulae. The properties of systems of the Trapezium type indicate that they have originated from a massive and very dense body. The primary superdense configurations should, in general, have very complex properties and it is therefore useful in the first instance to consider configurations whose temperature is close to absolute zero, i.e. all the fermions form a degenerate gas. An important property of superdense configurations is the presence of both neutrons and hyperons. Since at sufficiently low temperatures the nucleon gas is strongly degenerate, hyperons having an energy below a certain limiting value become stable, since in accordance with the Pauli principle their decay products cannot be accommodated in

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E032/E914

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the phase space. Mutual transformations of hyperons of different kinds are also forbidden by this principle. The present authors derive equations giving the concentration of the different kinds of baryons at $T = 0$. These equations are derived under the following assumptions:

- 1) In the equilibrium state the energy of the systems should be a minimum.

- 2) In all possible processes leading to the appearance of a static equilibrium state between the various components of matter, the number of baryons must be conserved.

- 3) Both the star as a whole and its separate macroscopic volume elements should be neutral.

It is shown that for densities below $1.28 \times 10^7 \text{ g/cm}^3$ the degenerate neutral gas at $T = 0$ consists of protons and electrons only. When the density becomes equal to the above value, neutrons appear for the first time. As the density increases above the limiting value, the number of protons increases much more slowly than the number of neutrons. For

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densities above 2×10^8 the number of neutrons is many times greater than the number of protons and electrons and the gas may be looked upon simply as a neutron gas. The first hyperons appear when the density reaches $1.1 \times 10^{15} \text{ g/cm}^3$.

In spite of the fact that Λ , Σ^+ and Σ^0 particles have rest masses smaller than the rest mass of Σ^- , the latter particles appear first. With further increase of density up to $2.36 \times 10^{15} \text{ g/cm}^3$, the number of Σ^- hyperons

increases, but hyperons of other types do not appear. At $\rho = 2.36 \times 10^{15} \text{ g/cm}^3$ the first Λ hyperons appear, and as the density is increased further other heavier particles appear also. Thus, for densities of the order of 10^{16} g/cm^3 one has a baryon gas consisting of a mixture of nucleons,

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Degenerate Superdense Gas of Elementary Particles

hyperons and nucleon isobars, and the concentration of the different baryons is of the same order of magnitude. For baryon densities in excess of $2 \times 10^{40} \text{ cm}^{-3}$ ($5 \times 10^{16} \text{ g/cm}^3$) the theory meets with the following difficulties:

- a) Owing to the small distances between the baryons they begin to experience very large repulsive forces whose nature is not well-known at present;
- b) The distribution of particles among the different kinds of baryons becomes strongly dependent on the presence of hyperons having a mass greater than that of the Σ hyperon. For this reason, no definite conclusions can be reached for states of such high density. However, the relative number of these higher hyperons will increase with density until a density is reached at which the existence of π^- mesons, making up a Bose gas, becomes possible. Thus, superdense stars cannot be looked upon as consisting of practically pure neutron configurations. This simple picture must be replaced by a more complex configuration consisting of a hyperon nucleus, a neutron shell surrounding the nucleus

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SAAKYAN, Ruben Arutyunovich; AMBARTSUMYAN, V.A., otv. red.; SLKUNI,
A.G., red. izd-va; KAPLANYAN, M.A., tekhn. red.

[Probability of capture in the problem of three bodies] O ve-
roiatnosti zakhvata v zadache trekh tel. Erevan, Izd-vo Akad.
nauk Armianskoi SSR, 1961. 55 p. (MIRA 15:12)
(Problem of three bodies)

VSEKHSVYATSKIY, Sergey Konstantinovich, prof.; KAZYUTINSKIY, Vadim Vasil'yevich, aspirant; AMBARTSUMYAN, V.A., akademik; KNYAZEVA, L., red.; KLIMOVA, T., tekhn. red.

[Birth of worlds; philosophical problems in modern cosmogony]
Rozhdenie mirov; filosofskie problemy sovremennoi kosmogonii.
Predisl. V.A.Ambartsumiana. Moskva, Gos. izd-vo polit. lit-ry,
1961. 173 p. (MIRA 14:10)

1. Kiyevskiy universitet (for Vsekhsvyatskiy, Kazyutinskiy).
(Cosmogony)

AMBARTSUMYAN, V.A.

Evolution of stellar systems. Izv. AN Arm. SSR. Ser. fiz.-mat.
nauk 14 no.3:163-176 '61. (MIRA 14:8)
(Stars)

KELDYSH, M.V.; PALLADIN, A.V.; KUPREVICH, V.F.; ABDULLAYEV, Kh.M.; SATPAYEV, K.I.; MUSKHELISHVILI, N.I.; MAMEDALIYEV, Yu.G.; MATULIS, Yu.Yu.; GROSUL, Ya.S.; PLAUDE, K.K.; KARAKHEYEV, K.K.; UMAROV, S.U.; AMBARTSUMYAN, V.A.; BATYROV, Sh.B.; EYKHFFEL'D, I.G. [Eichfeld, J.]

Comments by presidents. Nauka i zhizn' 28 no.10:2-17 0 '61.
(MIRA 15:1)

1. Prezident Akademii nauk SSSR (for Keldysh). 2. Prezident Akademii nauk Ukrainskoy SSR (for Palladin). 3. Prezident Akademii nauk Belorusskoy SSR (for Kuprevich). 4. Prezident Akademii nauk Uzbekskoy SSR (for Abdullayev). 5. Prezident Akademii nauk Kazakhskoy SSR (for Satpayev). 6. Prezident Akademii nauk Gruzinskoy SSR (for Muskhelishvili). 7. Prezident Akademii nauk Azerbaydzhanskoy SSR (for Mamedaliyev). 8. Prezident Akademii nauk Litovskoy SSR (for Matulis). 9. Prezident Akademii nauk Moldavskoy SSR (for Grosul). 10. Prezident Akademii nauk Latvinskoy SSR (for Plaude). 11. Prezident Akademii nauk Kirgizskoy SSR (for Karakeyev). 12. Prezident Akademii nauk Tadzhikskoy SSR (for Umarov). 13. Prezident Akademii nauk Armyanskoy SSR (for Ambartsumyan). 14. Prezident Akademii nauk Turkmenkoy SSR (for Batyrov). 15. Prezident Akademii nauk Estonskoy SSR (for Eykhfel'd).

(Russia--Economic conditions) (Research)

AMBARTSUMYAN, V.A.

Searching for the great in small things. Tekh.mol. 29
no.9:14 '61. (MIRA 14:10)

1. Prezident AN Armyanskoy SSR.
(Research)

AMBARTSUMYAN, V.A.; SAAKYAN, G.S.

Equilibrium configurations of superdense degenerate gaseous stellar masses. Astron.zhur. 38 no.5:785-797 S-0 '61. (MIRA 14:9)

1. Byurakanskaya astrofizicheskaya observatoriya AN Armyanskoy SSSR.

(Stars--Masses)

AMBARTSUMYAN, V.A.; SAAKYAN, G.S.

Internal structure of hyperon configurations of stellar masses.
Astron.zhur. 38 no.6:1016-1024 N-D '61. (MIRA 14:11)

1. Byurakanskaya astrofizicheskaya observatoriya AN Armyanskoy SSR.
(Stars--Constitution)

AMBARTSUMIYAN, V.A., akad.

Science of stars is also a science of the earth. Nauka i tekhn
mladezh 14 no.3:9-10 Mr '62.

GURZADYAN, Grigor Aramovich; AMBARTSUMYAN, V.A., red.; MUSTEI', E.R.,
red.; SEVERNIY, A.B., red.; SOBOLEV, V.V., red.; KULIKOV,
G.S., red.; BRUDNO, K.F., tekhn. red.

[Planetary nebulae] Planetarnye tumannosti. Moskva, Gos.izd-vo
fiziko-matem.lit-ry, 1962. 384 p. (MIRA 15:9)
(Nebulae)

ACCESSION NR: AR3006007

S/0269/63/000/007/0004/0004

SOURCE: RZh. Astronomiya, Abs. 7.51.35

AUTHOR: Ambartsumyan, V. A.; Mirzoyan, L. V.

TITLE: Development of astrophysics in Soviet Armenia

CITED SOURCE: Sb. nauchn. tr. Sovet po istorii yestestvozn. i tekhn. AN ArmSSR, v. 2, 1962, 211-44

TOPIC TAGS: astrophysics, Armenian astrophysics, stellar astronomy Byurakan Observatory

TRANSLATION: The establishment of Soviet power in Armenia gave a powerful impetus to development of science in the country, including astronomy. Of special importance was the founding (1943) of the Academy of Sciences ArmSSR. 1946 saw the founding of the Byurakan Observatory which soon began to engage in major research on stellar astronomy and astrophysics. Starting with the study of the interstellar absorptive medium, the Byurakan astronomers then passed on

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to the study of the spatial distribution of stars. The discovery of stellar associations and the conclusion regarding the continuing process of stellar formation in the Milky Way were major scientific achievements. Subsequently, the problem of studying the young stars in their unstable states arose. In recent years important work has been done on the morphology and statistics of galaxies, including galaxies which are sources of cosmic radiation. The 28 issues of the Sobshcheniya Byurakanskoy Observatorii (Reports of the Byurakan Observatory) contain about 300 papers. Recently, the Observatory was supplied with powerful new instruments which will increase its research capabilities and open up wide prospects for future work. Yu. Perel'.

DATE ACQ: 15Aug63

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AMBARTSUMYAN, V.A.

Problems in extragalactic investigations. Vop.kosm. 8:3-26
'62. (MIRA 15:7)

(Galaxies) (Cosmogony)

KELDYSH, M.V., akademik; FEDOROV, Ye.K., akademik; ARTSIMOVICH, L.A., akademik;
SISAKYAN, A.F., akademik; GORSKIY, I.I.; KAPITSA, P.L.; FOK, V.A.;
LANDAU, L.D.; LIFSHITS, Ye.M.; SHAL'NIKOV, A.I.; KHALATNIKOV, I.M.;
AIEPSEYEVSKIY, N.Ye.; VAYNSHTEYN, L.A.; PALLADIN, A.V., akademik;
SATPAYEV, A.I., akademik; AMBARTSUMYAN, V.A., akademik; KUPREVICH,
V.F.; MUSKHELISHVILI, N.I., akademik; KARAKHEYEV, K.K.; MUSTEL', E.R.;
MASEVICH, A.G., doktor fiz.-matem.nauk; EFRON, K.M.; MARTYNOV, D.Ya.,
prof.; GRIGOR'YEV, A.A., akademik; MAROV, K.K., prof.; COLOVKOVA,
A.G., prof.; FILATOVA, L.G., prof.; FEYVE, Ya.V.; SEMIKHATOV, B.N.,
prof.; TITOV, A.G.; RYCHAGOV, G.I.; BARSKAYA, V.F.; VLASOVA, A.A.;
BARANOVA, Ye.P.; KIEARDINA, L.A.; ISACHENKO, A.F.; IL'INA, Yu.P.;
DANILOV, A.I., prof.; FLAUDE, K.K.; NECHAYEVA, T.N., prof.; CHEPEK,
L., doktor; SZANTO, Ladislav, akademik; BELACHIK, Yozef; FAN KLOK
V'YEN; EYGENSON, M.S., prof. (L'vov); STARKOV, N.; AERAMOVICH, Yu.;
VOSKRESHNSKIY, V.; KROPACHEV, A.; REZVOY, D., prof., (L'vov);
KONDRAT'YEV, V.N., akademik; LEEEDINSKIY, V.I., kand.geol.-mineral.-
nauk; YANSHIN, A.L., akademik

"Priroda" is 50 years old. Priroda 51 no.1:3-16 Ja '62.
(MIRA 15:1)

1. Prezident AN SSSR (for Keldysh). 2. Glavnyy uchenyy sekretar'
Prezidiuma AN SSSR (for Fedorov). 3. Akademik-sekretar' Otdeleniya
fiziko-matem.nauk AN SSSR (for Artsimovich). 4. Akademik-sekretar'
Otdeleniya biologicheskikh nauk AN SSSR (for Sisakyan). 5. Chlen-
korrrespondent AN SSSR, zamestitel' akademika-sekretarya Otdeleniya
(Continued on next card)

~~AMBARTSIUMYAN, V. A.~~ akademik

New horizons are in sight. Priroda 51 no.9:16 S '62.
(MIRA 15:9)
(Astronautics)

GORBATSKIY, V.G.; MININ, I.N.; ; AMBARTSUMYAN, V.A., red.; BUSTEL',
E.R., red.; SEVERNYI, A.B., red.; SOBOLEV, V.V., red.;
KULIKOV, G.S., red.; AKSEL'ROD, I.Sh., tekhn. red.

[Nonstable stars] Nestatsionarnye zvezdy. Moskva, Fizmatgiz,
1963. 355 p. (MIRA 16:4)

(Stars, Variable)

AMBARTSUMYAN, V.A., akademik; ASRATYAN, E.A.; BOGOLYUBOV, N.N., akademik; VINOGRADOV, A.P., akademik; GINETSINSKIY, A.G.; KNUNYANTS, I.L., akademik; KOCHETKOV, N.K.; KURSANOV, A.L., akademik; MEL'NIKOV, O.A.; NESMEYANOV, A.N., akademik; NESMEYANOV, An.N., doktor khim. nauk; OBERIMOV, I.V., akademik; POLIVANOV, M.K., kand.fiz.-mat.nauk; REUTOV, O.A.; RYZHKOV, V.L.; SPITSIN, V.I., akademik; TAMM, I.Ye., akademik; FESENKOV, V.G., akademik; FOK, V.A., akademik; SHCHERBAKOV, D.I., akademik; FRANK, I.M.; FRANK, G.M.; KHOKHLOV, A.S., doktor khim. nauk; SHEMYAKIN, M.M., akademik; ENGEL'GARDT, V.A., akademik; SHAPOSHNIKOV, V.N., akademik; BOYARSKIY, V.A.; LIKHTENSHEYN, Ye.S.; VYAZEMTSEVA, V.N., red.izd-va; KIYAYS, Ye.M., red.izd-va; TARASENKO, V.M., red.izd-va; POIYAKOVA, T.V., tekhn. red.

[As seen by a scientist: From the Earth to galaxies, To the atomic nucleus, From the atom to the molecule, From the molecule to the organism] Glazami uchenogo: Ot Zemli do galaktik, K iadru atoma domolekuly, Ot molekuly do organizma. Moskva, Izd-vo AN SSSR, 1963. 736 p. (MIRA 16:12)

1. Akademiya nauk SSSR. 2. Chlen-korrespondent AN SSSR (for Asratyan, Ginetinskiy, Kochetkov, Mel'nikov, Reutov, Ryzhkov, Frank, I.M., Frank, G.M.) (Astronomy) (Nuclear physics) (Chemistry) (Biology)

AMBARTSUMYAN, V.A., akademik

World of distant galaxies. Nauka i zhizn' 30 no.3:85-90 Mr '63.
(MIRA 16:5)

(Galaxies) (Astronomy--Observations)

AMBARTSUMYAN, V.A., akademik

A problem in the nonlinear theory of light scattering in a turbid medium. Dokl. AN Arm. SSR 38 no.4:225-230 '64. (MIRA 17:4)

1. Byurakanskaya astrofizicheskaya observatoriya AN Armyanskoy SSR.

AMBARTSUMYAN, V.A., akademik; GINZBURG, V.L.; ZEL'DOVICH, Ya.B.,
akademik; PONTEKORVO, B.M.; SMORODINSKIY, Ya.A., doktor
fiz.-matem. nauk, prof.; FOK, V.A., akademik, CHERNOV,
A.G.; FAYNBOYM, I.B., red.

[Birth and evolution of the galaxies and stars; the third
discussion] Rozhdenie i evoliutsiia galaktik i zvezd; be-
seda tret'ia. [By] V.A.Ambartsumian i dr. Moskva, Izd-vo
"Znanie," 1964. 27 p. (Novoe v zhizni, nauke, tekhnike.
Seria IX: Fizika, matematika, astronomiia, no.12)
(MIRA 17:6)

1. Chlen-korrespondent AN SSSR (for Ginzburg, Pontekorvo).

ACCESSION NR: AT4019687

S/2555/63/009/000/0091/0131

AUTHOR: Ambartsumyan, V. A.; Saakyan, G. S.

TITLE: The present status of the theory of superdense celestial bodies

SOURCE: AN SSSR. *Astronomicheskii sovet. Voprosy* kosmogonii* (Problems of cosmogony), v. 9, 1963, 91-131

TOPIC TAGS: astrophysics, astronomy, elementary particle, elementary particle physics, electron, neutron, barion, barion star, neturon star, star formation, lepton, star

ABSTRACT: The paper deals with the theory of superdense celestial bodies (barion configurations). In the bibliography of 26 items, 22 of the articles listed are in English or available in English translation. An investigation of the gas of elementary particles at a temperature of 0C led to the following results: (a) at densities $\rho < \rho_n$, where $\rho_n = 1.28 \cdot 10^7 \text{ g} \cdot \text{cm}^{-3}$, the gas consists of protons and neutrons. (b) When $\rho = \rho_n$, neutrons appear. With a further increase in density the number of protons increases far more slowly than the number of neutrons. At densities greater than $2 \cdot 10^8 \text{ g} \cdot \text{cm}^{-3}$ the number of neutrons already greatly exceeds the number of protons and electrons. At these densities matter virtually consists

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only of neutrons. (c) When $\rho = \rho_{\Sigma^-} = 1.1 \cdot 10^{15} \text{g} \cdot \text{cm}^{-3}$ the first hyperons appear. Despite the fact that Λ , Σ^+ and Σ^0 possess rest masses smaller than Σ^- , the latter are the first to appear. With a further increase in density to $\rho = \rho_{\Lambda} = 2.36 \cdot 10^{15} \text{g} \cdot \text{cm}^{-3}$ the number of Σ^- hyperons increases, but hyperons of other kinds still do not appear. (d) After the appearance of Σ^- hyperons in matter, the proton concentration increases rapidly and soon becomes on the order of the neutron concentration. (e) When $\rho = \rho_{\Sigma^+}$ hyperons appear, and with a further increase of density, other heavier particles appear. (f) When $\rho = \rho_{\pi} = 1.44 \cdot 10^{17} \text{g} \cdot \text{cm}^{-3}$, π^- mesons will appear. Thus, at sufficiently high densities there will be a gas consisting of a mixture of nucleons, hyperons, resonance barions, π^- mesons, and leptons. The concentration of all the particles in this gas is of the same order of magnitude, except in the case of leptons (electrons and μ^- mesons), whose concentration is three or four orders of magnitude less than the concentration of each kind of barion. In a general case, when the central densities of energy are sufficiently great, the hypothetical superdense celestial body (barion star) consists of four principal regions: first, a central sphere, consisting for the most part of barions, barion resonances, and π^- mesons. This region is followed by a spherical layer in which matter consists for the most part of definite kinds of barions, specifically, hyperons. The next layer for the

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most part consists of neutrons. The last, outer layer, consists of protons, nuclei, and electrons. The dimensions of all the regions are about the same, but the thickness of the outer layer is very small. In configurations consisting of an ideal barion gas, the thickness of the outer layer is several hundreds of meters ($60 < r < 150$ m), while in configurations consisting of a real gas it is several tens of meters ($6 < r < 65$ m). With a decrease in the density of mass ρ , at the center of a barion star, the above mentioned regions gradually disappear. When $\rho < \rho_g$ there exists a neutron star consisting of two regions the neutron layer and the outer layer. When $\rho < \rho_n$ the neutron layer also disappears. An investigation of the internal structure of barion configurations reveals that within such stars and in the surrounding neighborhood the metric properties of space deviate appreciably from Euclidean. This means that the precise theory of such bodies should be based on the Einstein gravitational law. Orig. art. has: 85 formulas, 7 figures and 4 tables.

ASSOCIATION: Astronomicheskii soviet AN SSSR (Astronomy Council AN SSSR)

SUBMITTED: 00Oct62

DATE ACQ: 12Mar64

ENCL: 00

SUB CODE: AA

NO REF SOV: 015

OTHER: 013

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I 16386-65 EWG(v)/EWT(1)/EEC(t) Pe-5/Pae-2 SSD/AFWL/AFETR/ESD(t) GW
S 0159/64/000/005/0042/0042

SOURCE: Ref. zh. Astron. Old. vy*p. Abs. 5.51.339

AUTHOR: Ambartsumyan, V. A.; Iskudaryan, S. G.; Shakhbazyan, R. K.; Saakyan, K. A.

TITLE: Superassociations in remote galaxies

CITED SOURCE: Soobshch. Byurakansk. observ., vy*p. 33, 1963, 3-18

TOPIC TAGS: stellar association, stellar superassociation, galaxy, irregular galaxy, Large Magellanic Cloud, Small Magellanic Cloud, Ursa Major, supergiant, nebula

TRANSLATION: The complex 30 Dor in the Large Magellanic Cloud considerably exceeds other associations in luminosity ($M = -15^m$) and diameter (600 parsecs). The authors assign it to a special class of objects - superassociations. Searches have been made for superassociations in 12 other galaxies on photographic plates taken with the use of a 21" telescope. From the sample of 12 galaxies, 10 were found to contain superassociations. In the determination of absolute values it was assumed that the luminosity of superassociations have been discovered in 12 galaxies; in most cases these are supergiant

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galaxies with $M_V - 20^m - 5$. Often one galaxy contains several superassociations. The luminosity of the latter is less than the luminosities of galactic centers and superassociations are bluer than galactic centers. Superassociations are also found in irregular galaxies. Maps of the Palomar Atlas were also used for finding superassociations. A review of 210 objects with known radial velocities from the Shapley-Ames Catalogue is given. It is shown that 100 galaxies are associated with 100 possible superassociations. 13 of the 137 galaxies with diameters exceeding $1'.1$ in the cluster in Ursa Major. In estimating the lower boundary of the age of the complex 30 Dor from the diameter of the complex and the velocity of expansion ($40-100$ years) the authors

conclude that the stars and nebulae in the complex 30 Dor have developed jointly. The authors speculate on the mechanism of development of stars and nebulae in the complex 30 Dor. They conclude that the stars and nebulae develop in associations and superassociations jointly from prestellar bodies whose nature is, for the time being, unknown. Bibliography with 7 items. B. Fesenko.

SUB CODE: AA

ENCL: 00

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AMBARTSUMYAN, V.A., akademik

Disclosing the laws of the universe. Priroda 52 no. 12:21-23
163.
(MIRA 17:3)

AMBARTSUMYAN, V.A. [Ambartsumyan, V.A.], akad.

The great universe. Priroda Bulg 12 no.2:49-51 Mr-Apr '63.

1. Chlen na Akademiata na naukite na SSSR, prezident na AN na Armenskata SSR, direktor na Biurakanskata astrofizicheska observatoriia, predsedatel na Mezhdunarodniia astronomicheski soiuz.

KAPLAN, Samuil Aronovich; PIKEL'NER, Solomon Borisovich;
AMBARTSUMYAN, V.A., red.; MUSTEL', E.R., red.; SEVERNYI,
A.B., red.; SOBOLEV, V.V., red.; KULIKOV, G.S., red.;
AKSEL'ROD, I.Sh., tekhn. red.

[Interstellar medium] Mezkhvezdnaia sreda. Moskva, Fiz-
matgiz, 1963. 531 p. (MIRA 17:2)

AMBARTSUMYAN, V.A., akademik

Lodestar of scientific knowledge. Priroda 53 no.4:27-28 '64.
(MIRA 17:4)

L 20351-65 EWT(1)/EEC(t)/EEC(b)-2 P1-4 IJP(c)/AEDC(a)/SSD(c)/AFWL

ACCESSION NR: AP4040794

S/0252/64/038/004/0225/0230

AUTHOR: Ambartsumyan, V. A. (Academician)

TITLE: On the problem of nonlinear light scattering theory in turbid medium ²¹ B

SOURCE: AN ArmSSR. Doklady*, v. 38, no. 4, 1964, 225-230

TOPIC TAGS: nonlinear light scattering, turbid medium, multiple scattering, homogeneous medium, transmitted wave, diffuse reflection, albedo

ABSTRACT: The nonlinear multiple light scattering from a homogeneous medium was theoretically analyzed along the same lines as the well known linear theory.

A simplified one-dimensional analysis was carried out on a model with thickness σ , incident light rays F , and reflected (or transmitted) rays H (see Fig. 1 of the Enclosure). The analysis leads to the functional relationship between incident and transmitted waves given by

$$\varphi(F_2, F_1; \sigma_1 + \sigma_2) = \varphi(F_2, \varphi(u, F_1, F_2; \sigma_1, \sigma_2), F_1; \sigma_1; \sigma_2)$$

which in differential form yields

$$\frac{\partial \varphi(F_2, F_1; \sigma_1)}{\partial \sigma_1} = \frac{\partial \varphi(F_2, F_1; \sigma_1)}{\partial F_2} \alpha(\varphi(F_2, F_1; \sigma_1), F_2) + \alpha(F_2, \varphi(F_2, F_1; \sigma_1))$$

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L 20351-65

ACCESSION NR: AP4040794

A special solution is obtained for $\sigma \rightarrow \infty$, i.e., diffuse reflection from an infinitely thick layer. For the following simplified variables

$$H_1 = \varphi(F_2, F_1; c_1) = z; F_1 = x; F_2 = y; c_1 = c,$$

the resulting differential equation becomes

$$y \frac{\partial z}{\partial y} + z = \frac{1}{k} g(z+y) \left(\frac{\partial z}{\partial y} + 1 \right),$$

with a general solution yielding an expression for the albedo of the scattering medium, or

$$\frac{z}{y} = \frac{2 - \lambda - \sqrt{1 - \lambda}}{\lambda}.$$

Orig. art. has: 31 formulas and 2 figures.

ASSOCIATION: Byurekanskaya astrofizicheskaya observatoriya Akademii nauk Armyan-skoy SSR. (Byurakan Astrophysics Observatory, Academy of Sciences, Armenian SSR)

SUBMITTED: 26Mar64

ENCL: 01

SUB CODE: AA

NO REF SOV: 003

OTHER: 001

Card 2/3

L 20351-65

ACCESSION NR: AP4040794

ENCLOSURE: 01

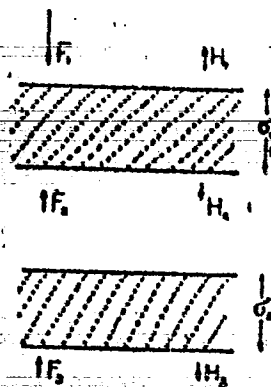


Fig. 1. Model

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L 25285-65 EWA(k)/EWT(1)/EWT(m)/EPT(c)/EEG(k)-2/EPT(n)-2/T/EEG(b)-2/EWP(k)/EWA(m)-2
PF-L/PI-L/PL-L/PO-L/PR-L/PU-L IJP(c) JHB/GG/WB
ACCESSION NR: AP5002649 S/0252/64/039/003/0159/0165

AUTHOR: Ambartsumyan, V. A. (Academician)

TITLE: Concerning one case when a medium becomes more transparent under the in-
fluence of radiation 19

SOURCE: AN ArmSSR, Doklady, v. 39, no. 3, 1964, 159-165

TOPIC TAGS: high intensity radiation, laser action, transparency, turbidity,
quantum electronics

ABSTRACT: It is shown that while most classical problems in radiation transport theory are linear, and the effect of the transported radiation on the optical properties of the medium is neglected, this cannot be done in the case of large radiation densities. In particular, by changing the distribution of the atoms in the medium over the energy levels, strong radiation can make a medium either more turbid or more translucent. Such effects are appreciable at large radiation densities even in a very simple problem of transport of monochromatic radiation, when the medium consists of atoms that have only two states and the frequency of the quanta coming into play corresponds to the transition between these states.

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ACCESSION NR: AP5002649

It is shown first that a radiation flux equal to $a(1 + g_1/g_2)^{-1}$, ($a = 8\pi h^3/c^2$ is the Planck factor, and g_1 and g_2 are the weights of the lower and upper states), the clearing up of the medium becomes already appreciable. The author then analyzes one particular case of medium clearing up controlled by the distribution of energy between the frequencies at different spectral lines. The approach is limited to a medium consisting of atoms having three energy levels, and is further limited to a particular case when the lower level is the ground state and state 2 is metastable. It is shown that in such a system, under various simplifying assumptions, the medium can become transparent at one of the frequencies, provided the radiation flux at the other frequency is many times weaker than the flux at the frequency at which the medium should become transparent. It is pointed out in the conclusion that the case when the transition has non-zero probability has some significance and will be dealt with in a separate article by A. G. Nikogosyan (DAN ArmSSR, in press). Orig. art. has 19 formulas.

ASSOCIATION: Byurakanskaya astrofizicheskaya observatoriya Akademii nauk Armyanskoy SSR (Byurakan Astrophysical Observatory, Academy of Sciences, Armenia SSR)

Card 2/3

L 25285-65

ACCESSION NR: AP5002649

SUBMITTED: 09Aug64

ENCL: 00

SUB CODE: OP,NP

NR RFF SOV: 002

OTHER: 000

Cord 3/3

L 24807-65 FBD/ENT(1)/ENT(m)/EWG(v)/FCC/EEC-1/EEC(t)/EWA(h) Pe-5/Po-1/P1-1/
Pq-1/Pae-2/PeB DIAAP/APETR/ESD(gs) GW/WS
ACCESSION NR: AP4048031 S/0020/54/158/000/1291/1294

AUTHOR: Gurzadyan, G. A., Ambartsumyan, V. A. (Academician)

TITLE: The possibility of X radiation from cosmic radio sources

SOURCE: AN SSSR. Doklady*, v. 158, no. 6, 1964, 1291-1294

TOPIC TAGS: radioastronomy, radio source, X-ray source, bremsstrahlung, synchrotron radiation, nebula radiation

ABSTRACT: In connection with the development of observations outside the atmosphere in the region of the far ultraviolet, the author considers the problem of a preliminary estimation of the radiation from extragalactic radio sources.

X-ray emission from the region of extragalactic radio sources is considered. It is shown that the generation of X-rays in the 1-100 A band will be caused by electrons having an energy in the order of $10^{13} - 10^{14}$ ev with a magnetic field strength of $H \sim 10^{-4} - 10^{-5}$ gauss. Assuming that the energy spectrum of the relativistic electrons

Cord 1/3

L 24807-65

ACCESSION NR: AP4048031

responsible for the occurrence of synchrotron radiation in the optical band does not break off in the object under consideration and at the given moment before energies of at least 10^{13} - 10^{14} ev, the author determines the spectrum and the power of the X-radiation generated by M82. It is shown that the spectrum of the X-radiation is characterized by the fact that in the absence of absorption within the interstellar medium the intensity is inversely proportional to frequency, which is in agreement with the results of observations. The length interval is constant and independent of wavelength. This is due to the fact that a characteristic feature of objects of the type of our galaxy (from the point of view of the structure of the interstellar medium) is its practical transparency in the region of short X-rays ($\lambda < 100$ A), however, as the wavelength λ increases, the transparency decreases, reaching 100 at $\lambda \sim 100$ A. A table is given in the article showing the calculated quantity of X-ray quanta (quanta/cm²/sec. A) reaching the Earth from M82 and the Cancer nebula. The author shows how absorption both in the object itself and during the passage of the X-rays through our galaxy greatly changes the results of the calculations. These effects are not taken into account. By way of illustrating this point, a calculation is made of the anticipated quantity of X-ray quanta reaching the Earth in 1 second on 1 square centimeter from the known irregular galaxy M82. It is found that the expected radiation capability of M82 and the Cancer nebula in the X-ray range is very small (in comparison with the Sun) —

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L 24807-65

ACCESSION NR: AP4048031

only a few score quanta per second per 1 cm^2 , but is still within the sensitivity range of the best X-ray detectors. The second mechanism for X-ray generation — the bremsstrahlung of non-relativistic (but fast) electrons in the proton field — operates, in the opinion of the author, most effectively with electron energies of $10^2 - 10^4 \text{ ev}$. With regard to galaxies and nebulae, the possibility of this mechanism depends primarily on the concentration in them of electrons with these energy levels. A calculation is made of the approximate order of this concentration, and it is found that it is unlikely that the mechanism of the deceleration of fast electrons in the proton field plays a perceptible role in the generation of X-rays in conventional and radio galaxies and in the remnants of supernovae. Orig. art. has: 12 formulae, 2 figures and 2 tables.

ASSOCIATION: Byurakanskaya astrofizicheskaya observatoriya Akademrr nauk Arm SSR (Byurakan Astrophysical Observatory Academy of Sciences, Armenian SSR)

SUBMITTED: 18May64

ENCL: 00

SUB CODE: AA

NO REF SOV: 004

OTHER: 004

Cord 3/3

AMBARTSUMYAN, V.A., akademik

Mysteries of the radio galaxy. Radio no.10:14,16 0 '65.
(MIRA 18:12)

1. Prezident AN ArmSSR.

L 08699-67 EWT(1) GW/WS-2

ACC NR: AP7001637

SOURCE CODE: UR/0026/66/000/007/0041/0049

AUTHOR: Ambartsumyan, V. A. (Academician); Ivanova, N. L. (Candidate of
physicomathematical sciences)

24
22
B

ORG: none

TITLE: Byurakan astrophysical observatory

SOURCE: Priroda, no. 7, 1966, 41-49

TOPIC TAGS: astronomic observatory, astrophysics, astronomic telescope

ABSTRACT: The Byurakan Astrophysical Observatory is situated 35 km to the northwest of Yerevan on the southern slope of Mount Aragats; it is the property of the Armenian Academy of Sciences. The observatory is 1,400 m above sea level where there are a large number of clear nights per year and the horizon to the south is particularly open. The construction began in 1946 and the first telescope, for observing variables, was a double 5" astrograph. By the late 1940's it had a double 6" astrograph with a Zeiss objective, used for two-color observations of variables, a 10" telescope with a spectrograph with a quartz prism, making it possible to study stars of early types in the ultraviolet, and an 8-12" telescope with objective prism for investigating star clusters and associations and later planetary nebulae. In 1950 it acquired a 16" telescope with electric photometer in a Cassegrainian focus, used in photoelectric (polarimetric and colorimetric) investigations of

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L 08699-67

ACC NR: AP7001637

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stars. These studies now are being continued on a large scale with a recently acquired 20" reflector constructed by the Leningrad Optical-Mechanical Combine. Much of the work on colorimetric observations of clusters, cometary nuclei and galaxies is being done with the 21" Schmidt telescope acquired in 1954; it has a mirror and correction lens of identical diameter, also supplied with an objective prism, making possible obtaining the spectra of several hundred stars simultaneously. Several years ago the observatory acquired a 40" Schmidt telescope with a spherical mirror 131 cm in diameter and a meter correction lens for correcting aberrations of the mirror. This telescope has three objective prisms with different dispersions. This instrument can be used for obtaining photographs of stars approximately to the 21st magnitude and simultaneously obtaining the spectra of several thousand stars to the 16th magnitude and even fainter. This is used primarily for observing galaxies. At present the Leningrad plant is constructing a modern reflector with a 2.6-m mirror which will be used for study of both distant and near galaxies. The observatory has interference radio telescopes which operate at 0.5, 1.5 and 4.2 m. There is a large interference radio telescope with an area of 5,000 square meters. Three photographs show Byurakan instruments and buildings. Much of the article is a well-presented commentary on the work program of Byurakan astronomers. Orig. art. has: 6 figures. [JPRS: 38,230]

SUB CODE: 03 / SUBM DATE: none

Card 2/2 nat

ACC NR: AP6027540

SOURCE CODE: UR/0384/66/000/003/0002/0006

AUTHOR: Ambartsumyan, V. A. (Academician)

ORG: none

TITLE: Stars and the universe

SOURCE: Zemlya i vseleennaya, no. 3, 1966, 2-6

TOPIC TAGS: galaxy, galactic structure, astronomy, solar system, stellar astronomy

ABSTRACT: Scientific breakthroughs in astronomy are discussed. For this purpose, astronomy is divided into three parts. The first part concerns the solar system where rockets and satellites are making it possible for us to increase our knowledge in this field very rapidly. The second part is concerned with stellar astronomy involving the numerous stars of our galaxy. Rapid developments in this field have occurred in the second half of the 18th century and in the first half of the 20th century due to the use of large telescopes and the application of physical and spectro-photographic methods. At the present time, new discoveries are being made by means of radio telescopes. The third part is concerned with extragalactic astronomy involving the study of individual galaxies. At the Byurakansk Observatory, a concept has gradually been evolved that the center of the galaxy is an extremely active formation which, among other things, is capable of ejecting huge masses of matter. The implications of this fact are dis-

Cord 1/2

ACC NR: AP6027540

cussed as they pertain to the theory of galaxies. Orig. art. has: 4 figures.

SUB CODE: 03/ SUBM DATE: none

Card 2/2

ACC NR: AT6027581

SOURCE CODE: UR/000/66/000/000/0003/0009

AUTHOR: Ambartsumyan, V. A. (Academician)

ORG: none

TITLE: Stars, galaxies, and the universe

SOURCE: Zvezdy i vseleennaya (Stars and the universe). Moscow, Izd-vo Znaniye, 1966, 3-9

TOPIC TAGS: solar astronomy, stellar astronomy, galaxy, supernova

ABSTRACT: Revolutionary changes have occurred recently in all three branches of astronomy: in solar, stellar, and intergalactic astronomy. They involve basic concepts that for centuries have governed this ancient science. Intergalactic astronomy has developed enormously during recent years. It is now known that the universe consists of galaxies and that most of their substances are concentrated in the stars. Our solar galaxy consists of stars and interstellar substances. Only about 2% of matter is concentrated in interstellar substances. Evidently the rest of it is made up of stars. In other galaxies diffusion substances and nebulae account for an even lesser percentage, although there are galaxies having a larger percentage of matter in the form of diffusion substances. Possibly, there are objects in the universe that have no stellar nature and consist of interstellar substances or gas clouds. The discovery of radio-

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ACC NR: AT6027581

galaxies and "synchronous irradiation substances" substantiated this opinion. Scientists working in the same observatory as the author believe that the core of a galaxy is capable of ejecting gigantic clouds of high-energy particles. It can probably eject a huge mass of gaseous substances. The ejection of substances in amounts equal to several million times greater than the mass of the Sun have occasionally been observed. It was assumed that this should result in large changes in surrounding galaxies. The author thinks, however, that the evolution of a galaxy is related mostly to the activity of the core. The gases ejected during an explosion, the clouds of high-energy particles, the spiral branches, and the star clusters are formed from substances ejected from the galaxy core during one or another stage of its development. Instantaneous catastrophic liberation of energies was observed in the universe in addition to a continuous releasing of energy. The exploding stars had a brightness that was 100 million billion times greater than that of the Sun. These are the supernova stars. Their energy is of the order of $\geq 10^{51}$ ergs. The explosion of a galaxy core produces an energy of $10^{59} - 10^{60}$ ergs, i.e., 100 million billion times greater than the flash of the supernova stars. These are huge catastrophes, the magnitude of which is difficult to grasp. In addition to an explosion of galaxy cores, there are new types of celestial bodies called quasars which are relatively small in size, but radiate with such force that their light is equal to about 1000 billion suns. This is a new, peculiar type of celestial body and not a conventional stellar system. A galaxy occasionally contains 100 billion stars, but quasars have a brightness and an energy 10 and 100 times greater than these supergigantic galaxies. There are, therefore, some new sources of energy

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ACC NR: AT6027581

which must be studied and understood before any theory on the origin of quasars can be advanced. (The author is skeptical about Teller's paper "Origin of Quasars".)

SUB CODE: 03/ SUBM DATE: 22Apr66

Card 3/3

L 43151-66 EWT(m)/EWP(j)/EWP(t)/ETI IJP(c) RM/GD/JD
ACC NR: AT6022647 SOURCE CODE: UR/0000/66/000/000/0072/0080

AUTHOR: Ambartsunyan, Ye. A.; Ionov, P. V.; Kon'kov, A. A.

ORG: none

TITLE: Experimental determination of the oscillator strength of the violet system of the CN radical

SOURCE: AN SSSR, Energeticheskiy institut. Issledovaniya po fizicheskoy gazodina-
mike (Studies of physical gas dynamics). Moscow, Izd-vo Nauka, 1966, 72-80

TOPIC TAGS: oscillator strength, emissivity, spectral absorptivity, cyanogen

ABSTRACT: The emissivity and absorptivity of the (0-0) band of the violet system of CN were measured in the range of 5000-10,000°K, and the results made it possible to determine the matrix element of the transition dipole moment of this system. The experiments involved the use of a shock tube which produced shock wave velocities up to 10 km/sec. It was found from the absorptivity data that $R_0 = (0.35 \pm 0.08)$ at. u., and $f_0 = (0.027 \pm 0.06)$. The time required by the system to reach equilibrium was found to be 20-10 μ sec for $T = 5000-6000^\circ K$ and $p = 12-25$ atm; at higher temperatures and pressures, this time approximately coincides with the time resolution of the system ($\sim 2-3 \mu$ sec). Orig. art. has: 6 figures and 14 formulas.

SUB CODE: 0720/SUBM DATE: 31Feb66/ ORIG REF: 003/ OTH REF: 005

Card 1/1 MLP

L 36939-66 EWT(1)/EWP(m)/EWT(m) WW/JW/GD
 ACC NR: AT6022646 SOURCE CODE: UR/0000/66/000/000/0062/0071-
 74
 611

AUTHOR: Ambartsumyan, Ye. N.; Ionov, P. V.; Kon'kov, A. A.

ORG: none

TITLE: Spectroscopic investigation of gases heated by shock waves /

SOURCE: AN SSSR. Energeticheskiy institut. Issledovaniya po fizicheskoy gazodinamike
 (Studies of physical gas dynamics). Moscow, Izd-vo Nauka, 1966, 62-71

TOPIC TAGS: spectrographic analysis, gas spectroscopy, spectral absorptivity,
 radiation spectrum, thermal radiation, radiation spectrometer, SHOCK WAVE HEATING

ABSTRACT: This article reports an experimental study of the spectral characteristics of highly luminous gases heated by strong shock waves with velocities from 2 to 10 km/sec produced in a shock tube. A schematic representation of the experimental setup is presented. A detailed account is given of the techniques used for production of shock waves and for measurements. Nitrogen, argon, air, and a mixture of nitrogen and CO₂ were investigated in temperature ranges from 5000 to 10,000K, with pressure from 5 to 50 atm, and wavelength from 6000 to 3000 Å. A special arrangement for obtaining time-resolved spectra is described which has certain advantages over a drum camera. The analysis of spectra obtained for all gases shows the presence of 1) continuum radiation, 2) impurity lines of Fe, Cr, Cu, Ca, and others, and 3) CN lines of the violet system and probably lines of the N₂(1+), N₂(2+), NO(8) systems in the spectra of air, nitrogen, and CO₂-N₂ mixture. In the time-resolved spectra,
 Card 1/2

AMBARTSUMIAN, V., akad.

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'64.

AMBARTSUMYAN, V. Kh., Cand Tech Sci -- (diss) "Investigation
of ~~the~~ ^{Caterpillar} Slipping of the ~~Crawler~~ Tread on Slopes." Yerevan, 1956.
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19

ARTSIMOVICH, L.A., akademik; KELDYSH, M.V., akademik; KAPITSA, P.L., akademik;
VUL, B.M.; VERESHCHAGIN, L.F.; PISTOL'KORS, A.A.; SHCHUKIN, A.N.,
akademik; SKOBEL'TSYN, D.V., akademik; ALEKSANDROV, A.P., akademik;
AMBARTSUMYAN, V.A., akademik; ZEL'DOVICH, Ya.B.; SEMENOV, N.N.,
akademik; KOTEL'NIKOV, V.A., akademik; LIFSHITS, I.M.; VEKSLER, V.I.,
akademik; GINZBURG, V.L.; MILLIONSHCHIKOV, N.D., akademik

Some problems in the development of modern physics; discussion of
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1. Chleny-korrespondenty AN SSSR (for Vul, Vereshchagin, Pistol'kors,
Lifshits, Ginzburg).

AMBARTSUMYAN, Ye.N.; IONOV, P.V.; KON'KOV, A.A. (Moscow)

"Investigation of the optical properties of gases behind strong shock waves".

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

AMBARTSUMYAN, ZAKHARIY NIKOLAYEVICH

N/5
924
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V.A., red.; DROZDOVA, N.N., red.; ZHAK, D.K., red.; KESSENIKH, V.N.,
red.; KOPALOVA, G.I., red.; LEVASHOVA, Z.P., red.; SMIRNOVA, B.A.,
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L.M., tekhn. red.

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SMIRNOVA, B.A.; TIMOSHENKO, G.G.; KHRENKOVA, A.A.; KHOVANSKIY,
I.P., tekhn.red.

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AMBARTUMIAN, V.A., acad. prof.

Stars appear even today. St si Teh Buc 14 no. 8:57 Ag '62.

1. Chairman of the Academy of Sciences, the Armenian S.S.R.
Chairman of the International Astronomical Union.

AMBARYAN, Asat Sarkisovich; TER-AKOPYAN, E.N., otv.red.; SLKUNI, A.G.,
red.isd-va

[Development of capitalist relations in the Armenian village
between 1860 and 1920] Razvitie kapitalisticheskikh otnoshenii
v armianskoi derevne, 1860-1920. Erevan, Izd-vo Akad.nauk
Armianskoi SSR, 1959. 286 p. (MIRA 12:9)
(Armenia--Rural conditions)

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(Russia--Army--Officers)

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(MIRA 18:11)

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mekh.grun. 4 no.5:21 '62. (MIRA 15:12)
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(Embankments) (Soil mechanics)