AUTHOR: Ginsburg, V.L.; Syrovatskiy, S.I.

69
67

TITLE: On cosmic rays in metagalactic space

ABSTRACT: This theoretical discussion attempts an assessment of the possible energy density of cosmic rays in metagalactic (MG) space within the framework of evolutional cosmology. In all probability, the energy density of MG cosmic rays is substantially smaller than that of galactic (G) cosmic rays; the latter approximates 10^{-12} erg/cc. The best possible estimate for the energy density of MG cosmic rays, at this time, approximates 10^{-15} to 10^{-16} erg/cc. The energy density of MG thermal radiation is estimated at 10^{-15} erg/cc or 10^{-3} eV/cc. A discussion is also given of models in which the MG cosmic-ray energy density is comparable with that of G cosmic rays only within the limits of a local supergalaxy or a local group of

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L 11191-63
ACCESSION NR: AP3001240

galaxies. Such models may provide an explanation for the measured cosmic-ray intensities in the Galaxy only if a large number of far-reaching supplementary assumptions are made, all of which appear to have a low probability. By contrast, the galactic theory of the origin of the major portion of the cosmic rays observed on Earth does not encounter any serious objections. The paper discusses also a number of problems of the electron component of cosmic rays and radio emission and gamma emission of MG origin. There are 14 numbered equations.

ASSOCIATION: Fizicheskiy in-t (Physics Institute nauk SSSR, imeni P.N.Lebedevo], Akademii Academy of Sciences, SSSR)

SUBMITTED: 30Oct62   DATE ACQD: 01Jul63   ENCL: 00

SUB CODE: AS, PH   NO REF SOV: 008   OTHER: 009

ls/WW
Card 2/2

L 13937-63   EWT(l)/BDS/EEC(b)-2   AFFTC/ASD/ESD-3   GG/X

AUTHOR: Ginzburg, V. L.

TITLE: Account of the pressure in the theory of second-order phase transitions (with application to the case of superconductivity)

ABSTRACT: The effect of pressure on second-order phase transitions is considered with application to superconductors. The reasons for the study are that the theory is nearly exact in the region of superconducting transition at nonzero temperature, the microscopic Bardeen-Cooper-Schrieffer theory yields in the case of superconductivity additional information, and the pressure dependence of the various quantities can be easily determined by experiment in the case of superconductors. The characteristic parameter used in the theory is the energy-spectrum gap. Particular attention is paid to the dependence of the critical temperature on the critical pressure. Comparison of the method

Card 1/2

L 13837-63
ACCESSION NR: AP3003145

employed with the phenomenological approach is made.   Orig. art. has: 6 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR
(Physics Institute, Academy of Sciences, SSSR)

SUBMITTED: 26Jun63   DATE ACQ: 23Jul63   ENCL: 00

SUB CODE: 00   NO REF SOV: 011   OTHER: 003

Card 2/2

Card 2/2

GINZBURG, V.L.; SYROVATSKIY, S.I.

Gamma rays and magnetic bremsstrahlung X rays of galactic and metagalactic origin. Zhur. eksp. i teor. fiz. 45 no.2:353-363 Ag '63.

(MIRA 16:9)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.
(Cosmic rays)

BULAYEVSKIY, L.N.; GINZBURG, V.L.

Temperature dependence of the shape of the domain wall in
ferromagnetics and ferroelectrics. Zhur. eksp. i teor. fiz. 45
no.3:772-779 S '63.   (MIRA 16:10)

1. Fizicheskiy institut imeni P.N. Lebedeva AN SSSR.
               (Domain structure)

GINZBURG, V.L.

What is proved by measurements of gravitational frequency
shifting? Usp. fiz. nauk 81 no.4:739-743   D '63.

(MIRA 17:1)

AMBARTSUMYAN, V.A., akademk; GINZBURG, V.L.; ZEL'DOVICH, Yu.B.,
akademik; PONTEKORVO, B.K.; SMORODINSKIY, Ya.A., doktor
—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.
Seriia IX: Fizika, matematika, astronomiia, no.12)
                                          (MIRA 17:6)
1. Chlen-korrespondent AN SSSR (for Ginzburg, Pontekorvo).

GINZBURG, V.L.

Some results of radio astronomical research. Vest. AN SSSR 34
no. 2:17-21   F '64.
(MIRA 17:5)

1. Chlen-korrespondent AN SSSR.

ACCESSION NR: AP4034067   S/0126/64/017/004/0631/0633

AUTHORS: Bulayevskiy, L. N.; Ginzburg, V. L.

TITLE: Possibility of the existence of surface ferromagnetism

SOURCE: Fizika metallov i metallovedeniye, v. 17, no. 4, 1964, 631-633

TOPIC TAGS: ferromagnetism, surface property, rare earth, magnetic moment

ABSTRACT: The possible existence of antiferromagnetic or paramagnetic crystals whose surface layer is ferromagnetic is discussed; such would be the case if there were uncompensated magnetic moments at the surface. The particular case of helical structure (structure type of rare-earth metals) is considered, with the axis of the helix assumed perpendicular to the surface and the spins directed along the surface. The angle between the directions of the average values of spins in adjacent layers is θ (neglecting surface effects). Considering only the inter-action between nearest and next nearest neighbors, the exchange energy is

$$E = -N_0 S^2 \sum_{k=1}^{n-2} [I_1 \cos \theta_k + I_2 \cos(\theta_k + \theta_{k+1})]$$

where θ_k is the angle between the spins of the k layer and those of the k + 1

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ACCESSION NR: AP4034067

layer, N_0 is the number of unit cells in a layer perpendicular to the helix axis, S is the spin per cell, $I_1 > 0$ and $I_2 < 0$ are the parameters of the exchange interaction, and the thickness of the sheet is na, a being the lattice constant in the direction of the helix axis. Minimizing E over all θ_k results in a system of n-1 coupled homogeneous equations, the solution of which is sought in the form

$$\theta_k = \theta + \alpha_k, \text{ where } \theta = \arccos\left(-\frac{I_1}{4I_2}\right)$$

Assuming $\alpha_k \ll 1$, a finite-difference equation for α_k is written from which

$$\alpha_k = \alpha_1 e^{-\lambda(k-1)} \text{ for } 1 < k < n/2;$$
$$\alpha_k = \alpha_1 e^{\lambda(k+1-n)} \text{ for } n-1 > k > n/2.$$

where $\operatorname{ch}\lambda = \frac{1}{2\cos^2\theta - 1}$ and $\alpha_1 = -\frac{\sin\theta}{\lambda \sin\theta + \cos\theta}$. Thus, for sufficiently small θ, the surface effects strongly distort the helix near the surface, and the distortion decreases exponentially with depth. A rough calculation shows that the uncompensated magnetic moment per unit surface area can reach $3 \cdot 10^{-4}$ erg/gauss for $\theta \sim 0.1$. Orig. art. has: 18 equations.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Institute of Physics

Card 2/3

ACCESSION NR: AP4034067

AN SSSR)

SUBMITTED: 23Nov63   ENCL: 00

SUB CODE: SS, MM   NO REF SOV: 001   OTHER: 001

Card   3/3

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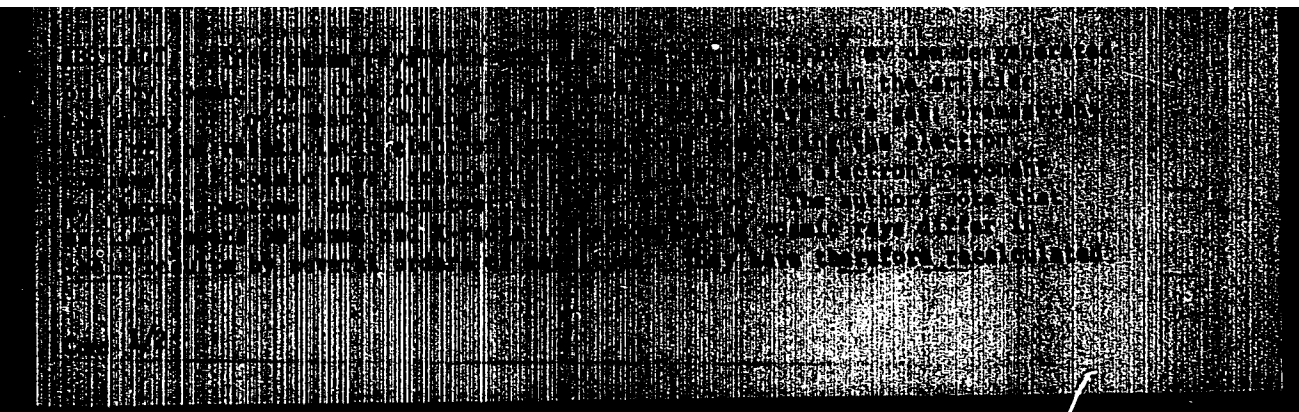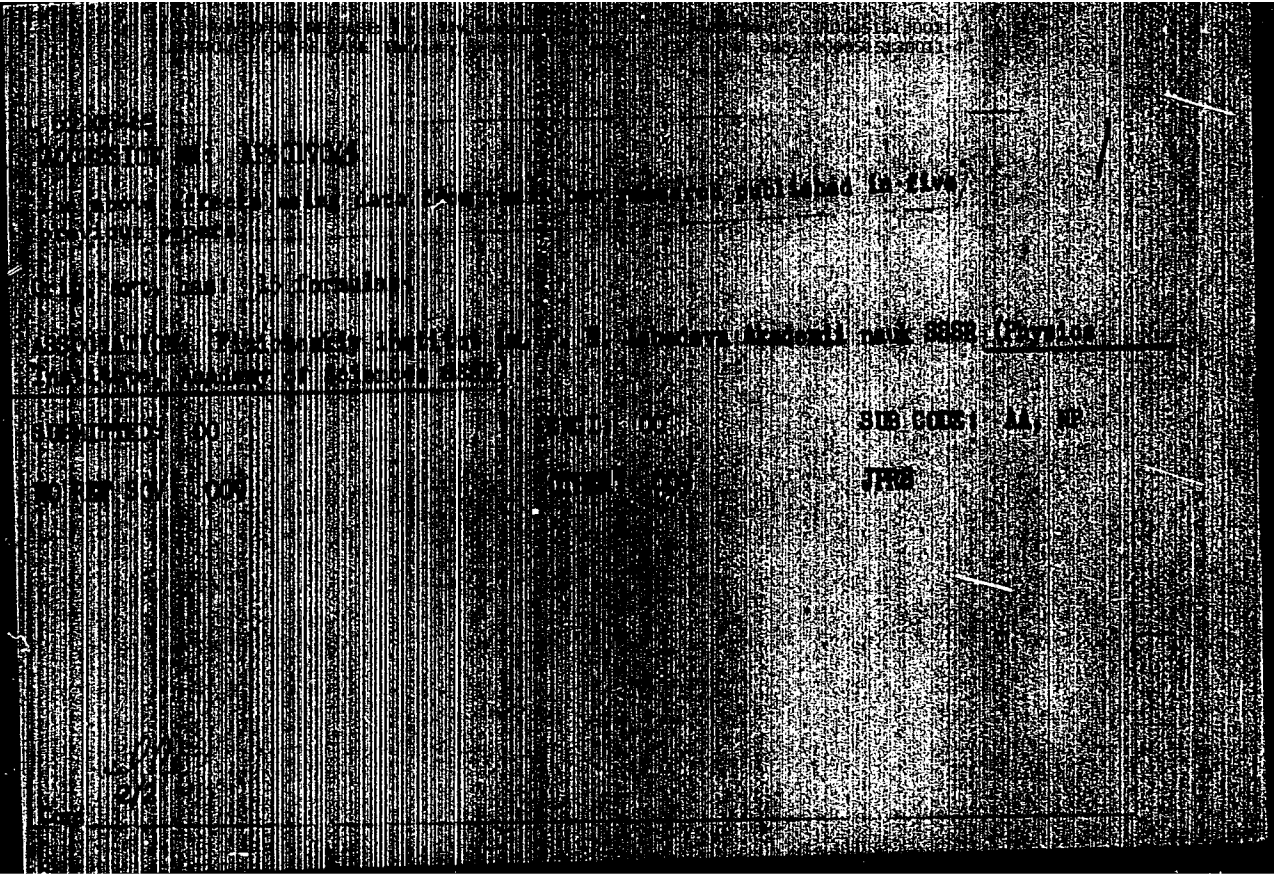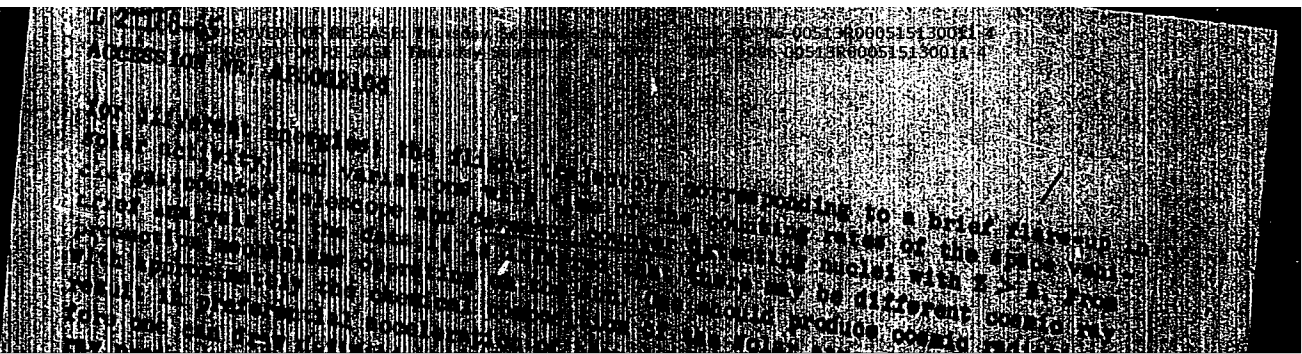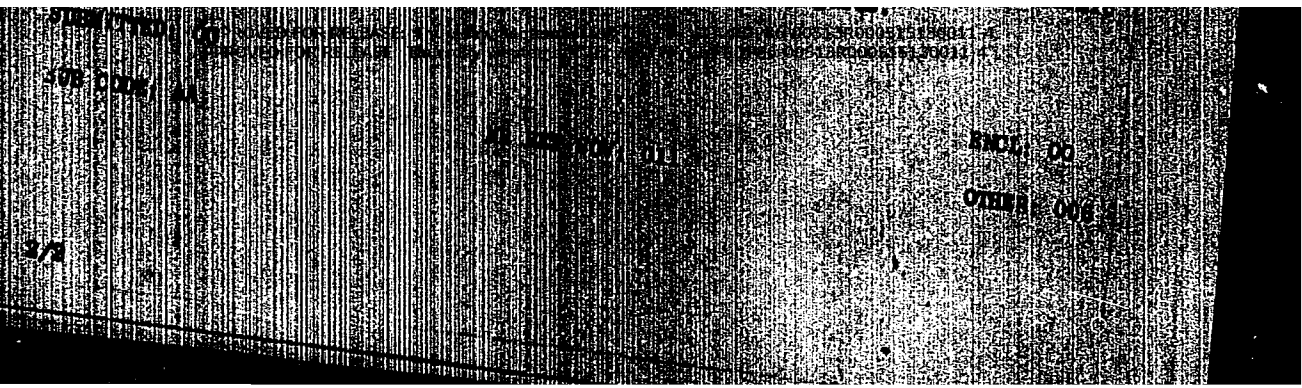
ACCESSION NR: AP4040841   S/0^^3/64/041/003/0430/0445

AUTHOR: Ginzburg, V. L.

TITLE: Secondary electron component of cosmic rays and the spectrum of general galactic radio emission

SOURCE: Astronomicheskly zhurnal, v. 41, no. 3, 1964, 430-445

TOPIC TAGS: astrophysics, cosmic ray electron component, cosmic ray, galactic radio emission, radio emission, Galaxy, interstellar space, galactic halo, super-nova, interstellar gas, synchrotron radiation

ABSTRACT: The authors computed the energy spectrum and spatial distribution of secondary electrons forming at the time of nuclear interactions of cosmic rays in the interstellar gas. The motion of electrons in interstellar space is considered as isotropic diffusion. Synchrotron, Compton and ionization losses of electron energy are taken into account. The authors also computed the intensity of the synchrotron radiation of secondary electrons. This intensity is appreciably less (by at least two orders of magnitude for wavelengths $\lambda \lesssim 1$ m) than the observed value. It therefore follows that the general galactic radio emission is generated by primary electrons which enter interstellar space from certain sources (in a stationary model, from the envelopes of supernovae). There is a discussion of

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ACCESSION NR: AP4012551   S/0056/64/046/001/0243/0253

AUTHORS: Ginzburg, V. L.; Meyman, N. N.

TITLE: On the dispersion relations for the refraction and absorption indices

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 243-253

TOPIC TAGS: dispersion relations, anisotropic medium, refractice index, absorption index, electrodynamics, macroscopic electrodynamics, dielectric tensor, plasma, magnetoactice plasma

ABSTRACT: This work is mainly a continuation of the work of one of the authors (V. L. Ginzburg) to which many references are given, particulary to two articles by V. M. Agranovich and V. L. Ginzburg (UFN, v. 76, 643, 1962 and v. 77, 663, 1962). Dispersion relations for the complex index of refraction in electrodynamics are considered. It is pointed out that the transition from dispersion

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ACCESSION NR: AP4012551

relations for the dielectric tensor to dispersion relations for the
index of refraction is not in general as trivial a matter as it is
for an isotropic medium. Analyticity questions for appropriate
functions in anisotropic media, for example, magnetoactive plasmas,
are discussed, and conditions are given under which the dispersion
relations for the index of refraction are expected to hold even for
such media. It is also observed that in optical problems spatial
dispersion, if present, is usually sufficiently weak so that dis-
persion relations for those indices of refraction that refer to the
behavior of normal waves (i.e., waves present also when there is no
spatial dispersion) remain valid at least within a certain domain of
complex values of the wave vector. Orig. art. has: 22 equations.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR
(Physics Institute, AN SSSR); Institut teoreticheskoy i eksperimen-
tal'noy fiziki (Institute of Theoretical and Experimental Physics)

Card 2/2

ACCESSION NR: AP4012571   S/0056/64/046/001/0397/0398

AUTHORS: Ginzburg, V. L.; Kirzhnits, D. A.

TITLE: Superconductivity of electrons in surface levels

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 397-398

TOPIC TAGS: superconductivity, surface superconductivity, surface electron, surface electron state, surface electron level, Cooper effect, Cooper pairs, metal superconductivity, dielectric superconductivity

ABSTRACT: The question is raised whether the Cooper phenomenon (Phys. Rev., v. 104, 1957, 1189) is possible for surface electrons (electrons at surface levels) which, as pointed out by I. Ye. Tamm (Phys. Zs. Sowjetunion, v. 1, 1932, 733), can be localized on crystal surfaces. It is pointed out that an interaction Hamiltonian can be formulated also for the two-dimensional case, that a negative value for the interaction constant cannot be excluded, and that the electrons then pass into a superconducting state. The possible existence of surface superconductivity is also considered for dielectrics. The effect of a magnetic field on surface conductivity is qualitatively considered. Orig. art. has: 3 formulas.

Card 1/2

ACCESSION NR: AP4012571

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 26Nov63   DATE ACQ: 26Feb64   ENCL: 00

SUB CODE: PH   NO REF SOV: 006   OTHER: 002

Card 2/2

ACCESSION NR: AP4037602   S/0056/64/046/005/1865/1879

AUTHOR: Ginzburg, V. L.; Sy*rovatskiy, S. I.

TITLE: Gamma and x-ray radiation associated with galactic and metagalactic cosmic rays

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 5, 1964, 1865-1879

TOPIC TAGS: gamma ray, x-ray, cosmic ray, galactic cosmic ray, relativistic electron, interstellar gas, intergalactic gas

ABSTRACT: The intensity of γ-rays produced as a result of various interaction processes between cosmic rays (including the electron component) and the interstellar and intergalactic gas, or between cosmic rays and thermal radiation is calculated. It is shown that the main contribution to the γ-ray intensity is from the scattering of relativistic electrons by thermal photons, although γ-rays from the decay of π^0-mesons and electron bremsstrahlung may also be important. Comparison of calculations with experimental data indicates

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ACCESSION NR: AP4037602

that the intensity of the electron component of cosmic rays in the
Metagalaxy is at least one-and-a-half or two orders smaller than that
in the Galaxy. The region of ultrahigh-energy electrons which
could yield synchrotron x-rays and produce atmospheric showers with
an anomalously small number of mesons is discussed. Orig. art. has:
49 formulas, 1 figure, and 2 tables.

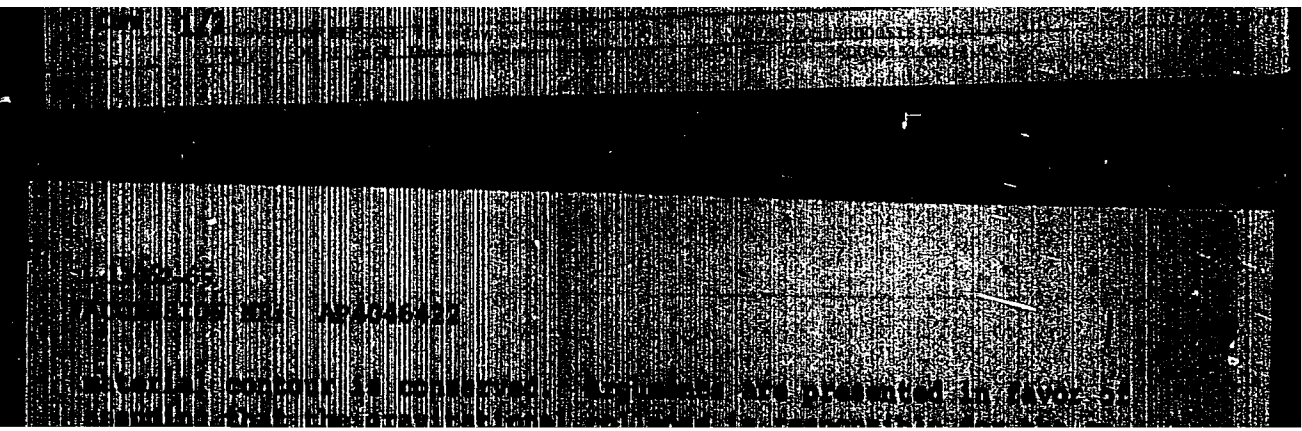ASSOCIATION: FIAN

SUBMITTED: 06Dec63   DATE ACQ: 09Jun64   ENCL: 00

SUB CODE: AA   NO REF SOV: 016   OTHER: 011

Card 2/2

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii
nauk SSSR (Physics Institute, Academy of Sciences SSSR)

SUBMITTED: 03Nov64

SUB CODE: AA, GP

NO REF SOV: 003

ENCL: 00

OTHER: 008

Card 2/2

Accession nr: AP400853

Author:

Title: ... and ... radiation ... charged ... in a magnetic field

Source: ... v. 47, no. 6, 1964, 2219-2204

TOPIC TAGS: synchrotron radiation, ... radiation, beta radiation, proton ...

ABSTRACT: ... associated with cyclotron ... the transformation of a ... emission of a β-positron or a ... whether it is possible for ... in principle, the ... conditions where the protons ... show that as the magnetic ... collapsing stars, the

continued

Accession Nr: AR 000 053

Author:

Title: Proton and beta radiation background levels in a magnetic field.

Source: Soviet ... v. 47, no. 6, 1964, 2279-2284

Topic tags: synchrotron radiation, ... , beta radiation, proton interaction

Abstract: ...associated with cyclotron ... the neutralization of a ... annihilation of a β particle or a ... whether it is possible for ... to exceed, in principle, the ... conditions where the protons ... calculations show that in the magnetic field ... even near collapsing stars, the ...

Card 1/2
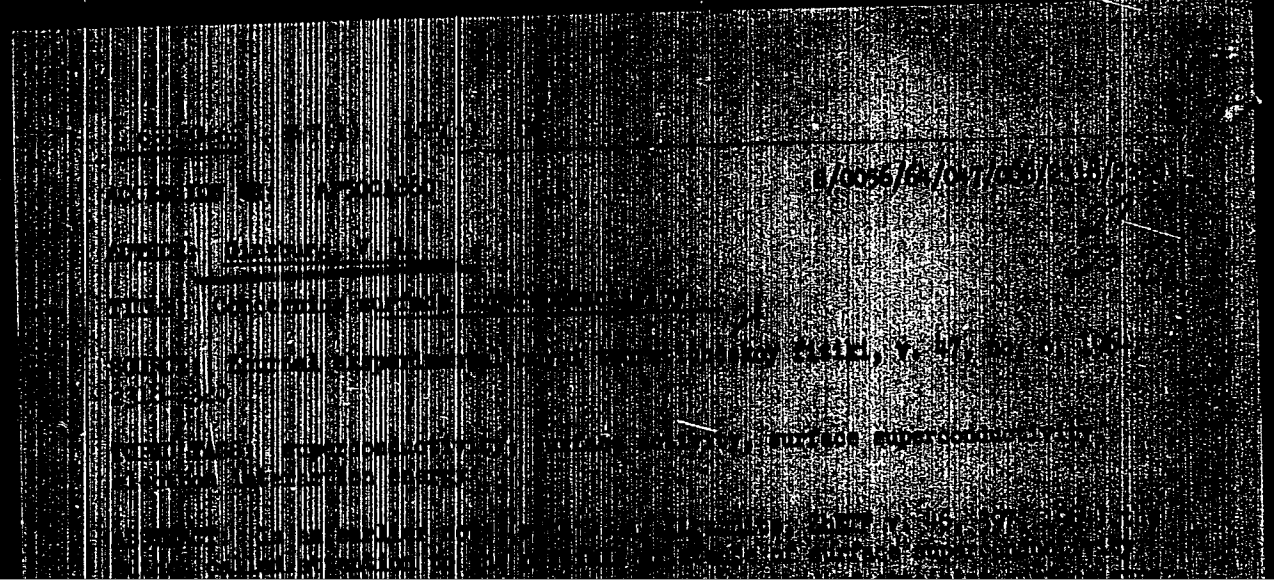
S/0053/64/082/004/0585/0647

ACCESSION NR: AP4031621

AUTHOR: Ginzburg, V. L.; Kurnosova, L. V.; Razorenov, L. A.; Fradkin, M. I.

TITLE: Investigations of the nuclear component of cosmic radiation performed on Soviet satellites and rockets

SOURCE: Uspekhi fizicheskikh nauk, v. 82, no. 4, 1964, 585-647

TOPIC TAGS: cosmic ray, satellite measurement, space probe, cosmic ray charge distribution, cosmic ray flux, cosmic ray energy spectrum, solar cosmic ray, primary cosmic radiation, nuclear active component, electron positron component, galactic cosmic ray

ABSTRACT: This review summarizes results of measurements of cosmic-ray particle fluxes, cosmic-ray energy spectra, and intensity variations of the cosmic-ray components. performed by the authors with satellite-borne equipment and reported in various publications (Geomagnetizm i aeronomiya, v. 2, 193, 1962. Iskusstvennyye sputniki zemli, no. 2, 70, 1958; no. 5, 20, 1960; no. 8, 87, 1961; no. 12, 16, 1961; no. 6., 131, 1961; no. 12, 31, 1961; no. 15, 66, 1962. J. Phys. Soc. Japan v. 17, Suppl. A-II, 315, 1962. Izv. AN SSSR ser. fiz. v. 26, 782, 1962)..

Card 1/3

ACCESSION NR: AP4031621

The experimental results are compared with the data by others. In addition, some
problems and possibilities of cosmic-ray research outside the earth's atmosphere
and magnetic field are also discussed. The advantages and limitations of satellite
and rocket studies are briefly enumerated. Certain features of Cerenkov counters,
which provided the bulk of the information, are discussed. Difficulties in the com-
parison of the results of different researches and the effect of the solar-
activity cycle and of the individual solar flares are extensively dealt with. The
correlation with solar radio emission is also discussed in connection with the
electron-positron component of cosmic radiation. The section headings are:
Introduction. I. Investigation of the nuclear component of cosmic rays with Soviet
satellites and space probes. 1. Procedure. 2. Chemical composition of cosmic rays,
fluxes of different nuclear groups and their energy spectra. 3. Variations of the
flux of the nuclear cosmic-ray component and nuclei of solar origin. II. Use of
satellites and rockets to   study primary cosmic radiation. 4. Nuclear component
of galactic cosmic rays. 5. Solar cosmic rays and high-latitude cutoff. 6. Elect-
ron-positron component of cosmic rays. Bibliography. Orig. art. has: 31 figures,
15 tables, and 6 formulas.

2/3

ACCESSION NR: AP4031621

ASSOCIATION: None

SUBMITTED: 00

SUB CODE: SV, AA

ATD PRES&:3059

NO REV SOV: 063

ENCL: 00

OTHER: 074

Card 3/3

ABSTRACT: The author discusses various mechanisms for the production of gamma rays ... significance of these mechanisms. Principal attention is ... the converse problem, that of obtaining ... gamma ray ... of the intensity and spectrum of the meta... radiation of cosmic rays. ... The study of x-ray astronomy is limited at ... galactic gamma rays, also dealt ... question whether cosmic rays contribute to the ... tively to cosmic rays ... in intergalactic space. The existence of particles of ... intensity of the cosmic ray ... generating the extraterrestrial x-rays is discussed ... low energy ... x rays ...

Card 1/2

ACCESSION NR: AP4013323   S/0020/64/154/003/0557/0560

AUTHORS: Ginzburg, V.L. (Corresponding member); Ozernoy, L.M.; Sy*rovatskiy, S.I.

TITLE: On the radiation mechanism of galaxy 3C 273-B

SOURCE: AN SSSR. Doklady*, v. 154, no. 3, 1964, 557-560

TOPIC TAGS: extragalactic, radiation source 3C 273-B, metegalactic object, optical radiation, bremsstralung, luminosity, Compton loss, free-free transition, bound-free transition, relativistic electron, photon, visible frequency

ABSTRACT: The extragalactic radiation source 3C 273-B, identified as an emissive star-shaped object of the 12th magnitude (M. Schmidt, Nature, 197, 1040/1963/), is one of the recently discovered new types of metagalactic objects. The exceptionally high luminosity and irregular changes in the brillance of that galaxy are indica- tive of an unusual nature of the radiating object. The latter is

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ACCESSION NR: AP4013323

probably a "super star" rather than a cluster of stars, but the
word "galaxy" is used here for want of a better term. It would be
interesting to find out whether the continuous optical radiation
from the galaxy 3C 273-B is due to magnetic bremsstralung. The
optical radiation of galaxy 3C 273-B is not polarized, and could
therefore easily be characterized also as non-magnetic bremsstralung.
A contrary assumption would of course be wrong inasmuch as magnetic
bremsstralung can, for a number of reasons, be completely depolariz-
ed. If the radiation from the object is of a braking nature (free-
free and bound-free transitions), it cannot be considered as black
body radiation in view of its spectral characteristics. Although
the possibility of the bremsstralung nature of the mentioned radia-
tion is not excluded, the spectrum of the other star-shaped extra-
galactic sources makes such a hypothesis considerably less probable
(in the opinion of I. Shlovskiy). Orig. art. has: 11 formulas and
1 table.

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva Akademii nauk

Card 2/3

ACCESSION NR: AP4013323

SSSR (The P.N. Lebedev Physics Institute, Academy of Sciences SSSR)

SUBMITTED: 10Oct63   DATE ACQ: 26Feb64   ENCL: 00

SUB CODE: PH   NO REF SOV: 002   OTHER: 009

Card 3/3

ACCESSION NR: AP4035806

AUTHOR: Ginzburg, V. L. (Corresponding member)

TITLE: On Magnetic Fields of Collapsing Masses, and the Nature of Superstars

SOURCE: AN SSSR. Doklady*, v. 156, no. 1, 1964, 43-46

TOPIC TAGS: superstar, collapsing protostar, superstar magnetic field, general relativity theory, cosmic x ray, cosmology, cosmic radio wave

ABSTRACT: The author points out that the observation of a protostar (a gas cloud with a mass of many million times that of the sun) in an advanced stage of collapse will be difficult, if not impossible, because of the decrease of surface and the curvature of light waves. Therefore, one should look for other phenomena that might be connected with a collapsing superstar, such as a magnetic field. A magnetic field existing before the collapse, may be expected to be preserved during the collapse if a reasonable electroconductivity of the medium is assumed. The presence of a magnetosphere may cause a noticeable Zeeman splitting of spectral lines and a rotation of the plane of polarization of radio waves. Particles in this field will be the source of electromagnetic waves in the radio, optical,

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ACCESSION NR: AP4035806

and x-ray range (cyclotron radiation). This may explain the recently discovered discrete source of x-rays. Orig. art. has: no figures, 1 table, 3 equations.

ASSOCIATION: Fizicheskiy Institute im P. N. Lebedeva Akademii nauk SSSR (Physics Institute, Academy of Sciences SSSR)

SUBMITTED: 31Jan64   DATE ACQ: 26May64   ENCL: 00

SUB CODE: I; , AA:, GP   NO REF SOV: 006   OTHER: 004

Card 2/2

AUTHOR: Chudakov, A. Ye. (Corresponding member AN SSSR); Syrovatskiy,
S. I.

TITLE: A discrete source of x-radiation

ABSTRACT: A near x-ray source of cosmic origin was detected. The
details of this source are unknown. V. L. Ginzburg and
S. I. Syrovatskiy have proposed a hypothesis about the source of
cosmic x-radiation. They consider the source as emitting
magnetobremsstrahlung in a volume filled with relativistic electrons.
The intensity of the emission in one small part of this volume
attains a very high intensity which favors the occurrence of magneto-
bremsstrahlung. A formula was developed which expresses the magneto-
bremsstrahlung flux. Another formula represents the ratio of two

Card 1/2

8/0020/64/158/004/0808/0810

AUTHOR: Ginzburg, V. L. (Corresponding member AN SSSR); Syrovatskiy,
S. I.

TITLE: Discrete sources of x-radiation

ABSTRACT: Discrete x-radiation of cosmic origin was detected. The
discrete sources of such radiation are unknown. V. L. Ginzburg and
S. I. Syrovatskiy have proposed a hypothesis about the source of
cosmic x-radiation. They consider the source as emitting
magnetobremsstrahlung (gas of cloud filled with relativistic electrons
the intensity of the magnetic field in one small part of this volume
attains a very high strength which favors the occurrence of magneto-
bremsstrahlung. A formula was developed which expresses the magneto-
bremsstrahlung flux. Another formula represents the ratio of two

Card 1/2

TITLE: Discrete sources of x-radiation

ABSTRACT: Recently x-radiation of cosmic origin was detected. The
discrete sources of this radiation are unknown. V. L. Ginzburg and
S. I. Syrovitskiy have advanced a hypothesis about the source of
cosmic radiation. Both consider the source as emitting
electrons... volume filled with relativistic electrons
... is one small part of this volume
... which favors the occurrence of magneto-
bremsstrahlung. A formula is developed which expresses the magneto-
bremsstrahlung flux. Another formula represents the ratio of two

Card 1/2

S/0020/64/158/004/0808/0810

ACCESSION NR: AP4047317

AUTHOR: Ginzburg, V. L. (Corresponding member AN SSSR); Syrovatskiy, S. I.

TITLE: Discrete sources of x-radiation

TOPIC TAGS: cosmic x radiation, discrete source, magnetobremsstrahlung, relativistic electron, magnetic field, electron spectrum, collapsed star, neutron star

ABSTRACT: Recently, x-radiation of cosmic origin was detected. The discrete sources of this radiation are unknown. V. L. Ginzburg and S. I. Syrovatskiy have proposed a hypothesis about the source of cosmic x-radiation. Both authors consider the source as emitting magnetobremsstrahlung from a volume filled with relativistic electrons. The intensity of the magnetic field in one small part of this volume attains a very high strength which favors the occurrence of magneto-bremsstrahlung. A formula was developed which expresses the magneto-bremsstrahlung flux. Another formula represents the ratio of two

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ACCESSION NR: AP4047317

fluxes from different parts of the emitting volume where the electron
spectra differ and the difference is characterized by a coefficient.
The size of the emitting volumetric part is determined with assumed
numerical values for the electron energy and the intensity of the
magnetic field. Strong magnetic fields may exist only in parts of
collapsed stars as neutron stars. Orig. art. has: 4 formulas.

ASSOCIATION: Fizicheskiy Institut im. P. N. Lebedeva Akademii nauk
SSSR (Institute of Physics, AN SSSR)

SUBMITTED: 10Jul64   ATD PRESS: 3120   ENCL: 00

SUB CODE: AA   NO REF SOV: 005   OTHER: 004

Card 2/2

L 1888-66   EWT(1)/EWT(m)/FCC/T/EWA(h)   IJP(c)   GS/GW

ACCESSION NR: AT5022822

UR/0000/65/000/000/0008/0022

AUTHOR: Ginzburg, V. L.; Kurnosova, L. V.; Logachev, V. I.; Razorenov, L. A.; Fradkin, M. I.

TITLE: Primary component of cosmic rays

SOURCE: Vsesoyuznoye soveshchaniye po kosmofizicheskomu napravleniyu issledo- vaniy kosmicheskikh luchey. 1st, Yakutsk, 1962, Kosmicheskiye luchi i problemy kosmofiziki (Cosmic rays and problems in cosmophysics); trudy soveshchaniya. Novosibirsk, Redizdat Sib. otd. AN SSSR, 1965, 8-22

TOPIC TAGS: primary cosmic ray, cosmic ray particle, cosmic ray measurement, cosmic radiation composition

ABSTRACT: The article is a survey of reported experimental data on the composi- tion of cosmic rays. The following groups of nuclei (other than protons and alpha particles) with charge $Z \geqslant 3$ are considered: (1) light nuclei with charge $3 \leqslant Z \leqslant 5$ (group L); (2) nuclei of the middle group with $6 \leqslant Z \leqslant 9$; (3) heavy nuclei with $Z > 10$ (group H). The symbol S is also used and designates nuclei with $Z \geqslant 6$ ($S = M + H$). It is shown that fluxes of different nuclei (including protons) should be compared for a given value of their hardness. As a rough general rule, nuclei of elements with atomic number Z are Z times more

1/2

L 1889-66
ACCESSION NR: AT5022822   /

frequent in cosmic rays than in nature. Difficulties involved in measurements
of fluxes of the different groups of nuclei are described. High-altitude ex-
periments definitely indicate the presence of lithium, beryllium, and boron
nuclei (20-30% of the quantity of heavier nuclei) in the primary component of
cosmic rays in the vicinity of the earth. Findings concerning the electron-
positron component of cosmic rays are discussed, and the chemical composition of
solar cosmic rays is considered. Differential energy spectra of protons and
nuclei and their hardness spectra are analyzed. On the basis of the body of
data accumulated thus far it is now possible to state that not only protons,
but also multiply-charged nuclei are accelerated on the sun; however, this
mechanism of particle acceleration is still unknown, and several such mechanisms
may exist. Orig. art. has: 14 figures and 3 tables.

ASSOCIATION: Fizicheskiy institut im. N. P. Lebedeva AN SSSR (Physics
Institute, AN SSSR)

SUBMITTED: 29Oct64   ENCL: 00   SUB CODE: AA, NP

NO REF SOV: 014   OTHER: 020

L 2326-66   EWT(1)/FCC/EWA(h)   GS/GW   UR/0000/65/000/000/0486/0501

ACCESSION NR: AT5023626   36

AUTHORS: Ginzburg, V. L.; Kurnosova, L. V.; Razorenov, L. A.; Syrovatskiy, S. I.;
Fradkin, M. I.

TITLE: Some problems and perspectives in the investigation of primary cosmic rays

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow,
1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii.
Moscow, Izd-vo Nauka, 1965, 486-501

TOPIC TAGS: cosmic ray, gamma ray, x ray, solar activity, antiparticle

ABSTRACT: Problems associated with the investigation of primary cosmic rays and
gamma rays are presented in a three-part report. Part I deals with the proton-
nucleus component of the cosmic rays, Part II covers the electron-positron component,
and Part III discusses cosmic gamma- and x-rays. Although the proton-nucleus
component of primary cosmic rays has been studied quite completely, a group of
problems still remains unanswered. Eight such problems discussed in Part I are:
1) energetic spectra of protons and nuclei in the energy interval below 100 Mev/
nucleon. These spectra are represented by the form $N(E) \sim E^{1.8}$. 2) The relation-
ship between fluxes of different nuclei groups (L, M, H) in the energy range 55 to
550 Mev/nucleon, which is still not well known. 3) Isotopic components of primary

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L 2326-66
ACCESSION NR: AT5023626

cosmic rays. This would require the measurement of three independent parameters such as dE/dx, E, and po. 4) The presence of high speed antiprotons generated by the interaction of cosmic rays with interstellar media. Some measurements place the percent composition of antiparticles at 0.23%. 5) The verification of the presence of superheavy nuclei, Z > 30. 6) Estimates of the time rate of change of the fluxes in primary nuclei components which have their origin either in solar bursts or in modulated galactic cosmic rays. These intensity variations should be recorded continuously, outside the terrestrial atmosphere. 7) Intensity gradients of cosmic rays in the solar system as evidenced by data from Pioneer-5 and Mariner-1. 8) Anisotropy among particle fluxes of low, near-threshold energies. Two similar problems are discussed in Part II. Here the flux and energy spectra of primary cosmic ray electron-positron components are analyzed first, where data are shown to be rather scant. Next, the relationship between positron and electron fluxes is considered by measuring the charge composition of the primary cosmic rays. In Part III, calculation results of expected γ - and x-ray intensities from important galactic sources are considered. The γ-ray generation is attributed to processes such as π^0-meson decay, bremsstrahlung radiation of relativistic electrons and positrons, and Compton γ-rays by the scattering of photons on x-ray electrons.

Experiments indicate I_γ (> 50 Mev) $\lesssim 3.5 \times 10^{-4}$ photons/cm^2/sec/stere which is larger than expected galactic estimates. This then implies γ-rays of

Card 2/3

L 2326-66

ACCESSION NR: AT5023626

meta-galactic origin. For lower energies (0.51 Mev) I_γ = 1.2 to 300 x 10^{-6} photons/cm^2/sec/stere. Orig. art. has: 6 tables, 2 figures; and 4 formulas. [04]

ASSOCIATION: none

SUBMITTED: 02Sep65

NO REF SOV: 020

ENCL: 00

OTHER: 046

SUB CODE: AA, NP

ATD PRESS: 4/07

Card 3/3

L 28865-66   EWT(m)/T

ACC NR: AP6018865   SOURCE CODE: UR/0357/65/002/006/1103/1114

AUTHOR: Ginzburg, V. L.; Man'ko, V. I.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR (Fizicheskiy institut AN SSSR)

TITLE: Relativistic oscillator models of elementary particles /This paper was given at the 14th Annual Conference on Nuclear Spectroscopy, Tbilisi, February 1964/

SOURCE: Yadernaya fizika, v. 2, no. 6, 1965, 1103-1114

TOPIC TAGS: nuclear particle, nuclear spin

ABSTRACT: Relativistic invariant equations are considered for particles described by the "center of mass" coordinates x_i and three 4-vectors u_i^α ($i = 1,2,3,4,$; $\alpha = 1,2,3$); u_i^α are the intrinsic variables which obey the oscillator equations. The solutions of these equations express the group SU(3) in the rest system. It is possible to write the equations which give the solution corresponding to the octet and decouplet for the case of half-integer spin and to the octet and singlet for the case of integer spin. The authors thank M. A. Markov for his discussions. Orig. art. has: 25 formulas and 3 tables. /Based on authors' Eng. abst./ /JPRS/

SUB CODE: 20 / SUBM DATE: 15May65 / ORIG REF: 008 / OTH REF: 006

Card 1/1

L-55071-65   EWT(1)/T/EWC(b)-2   Pi-4   IJP(c)   GG
ACCESSION NR: AP5012541   GE/0017/65/013/005/0175/0210

25

B

AUTHOR: Agranovich, V. M.; Ginzburg, V. L.

TITLE: Some problems in crystal optics with spatial dispersion and the exciton
theory

SOURCE: Fortschritte der Physik, v. 13, no. 5, 1965, 175-210

TOPIC TAGS: crystal optics, exciton, crystal structure, crystal theory

ABSTRACT: The purpose of this article, which was translated from the Russian by
K. M. Herrmann, was to provide additional data and clarification for the authors'
article published earlier in Fortschritte der Physik v. 11, 1963, p 163. The
salient features of both the original article and the present article are
scheduled for early publication by John Wiley and Sons. The following subjects
are discussed: introduction of the $c_{ij}(\omega, k)$ tensor into crystals, separation of
this tensor from the transverse field, dispersion relations for the refraction
index of light waves in the medium, ray direction and group velocity in an ab-
sorbing medium, relations between the refractive index of light waves and fre-
quency considering spatial dispersion and adsorption both in optically active and

Card 1/2

L 31894-65
ACCESSION NR: AP5015941

optically inactive media, the boundary conditions, and the macroscopic theory of
surface excitons. Orig. art. has: 79 formulas and 7 figures.

ASSOCIATION: None

SUBMITTED: 00   ENCL: 00   SUB CODE: OP

NO REF SOV: 022   OTHER: 006

Card 2/2

ANTIPOV, A.A., inzh.; BAKALEYNIK, Ya.M., inzh.; ..., S.I.,
inzh.; BEIK, I.S., inzh., BELOV, A.I., inzh.; ..., V.L.,
inzh.; ZABELIN, V.L., inzh., ZUBOGREY, ..., inzh.; ISAYEV,
B.V., inzh.; KLIMOVITSKIY, A.M., inzh.; ..., V.V., inzh.;
KOTOV, V.A., inzh.; LEYDERMAN, A.Ye., inzh.; ...SKIY,
M.L., inzh.; SAZHAYEV, V.I., inzh., SEVAST'YANOV, V.V., inzh.;
FILIPPOV, S.F., inzh.; FROLBERG, A.B., inzh.; ...KOV, M.S.,
inzh.; SALIKH, ..., inzh.; VESENSKIY, ..., red.; ...KOV,
G.A., red.; KA...INA, T.D., red.; OV...E...E ..., Ya., red.;
ANTONOV, ..., tekh. red.

[New means of automatic and centralized ... for nonfer-
rous metal mines] Novye sredstva avtomatizatsii i dispetcher-
skog upravleniia dlia rudnikov tsvetnoi metallurgii. Moskva,
Nedra, 1965. 95 p.   (MIRA 18:4)

L 6946-66   EWT(l)/EWA(h)/T/EWA(h)   CW

ACC NR: AP 6026225   **SOURCE CODE:** UR/0048/65/029/010/1819/1824

29
B

AUTHOR: Ginzburg, V.L.; Syrovatskiy, S.I.

ORG: Physics Institute im. P.N.Lebedev, Academy of Sciences,SSSR(Fizicheskiy institut Akademii nauk SSR)

TITLE: Fundamental problems in cosmic ray astrophysics /Report, All-Union Conference on Cosmic Ray Physics held at Apatity, 24-31 August 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.29, no.10,965,1819-1824

TOPIC TAGS: Primary cosmic ray, galaxy,cosmology, astrophysics

ABSTRACT: Recent literature on the astrophysical aspects of cosmic ray physics is reviewed and some related questions, particularly that of the origin of cosmic rays, are discussed. Advances in astronomy and radioastronomy in the past decade have attracted attention to the possible cosmological significance of cosmic rays. Cosmic rays, for example, might serve as a mechanism for carrying off the energy released in the gravitational collapse of stars or galaxies. There is convincing evidence that the energy density of cosmic rays is much less in metagalactic space than in our Galaxy. Arguments to the contrary by G.R.Burbidge and F. Hoyle (Proc.Phys.Soc.,84 141 (1964) are specifically criticized. Most of the galactic cosmic rays, therefore, must be of galactic origin. The electron component of the primary cosmic radiation has been shown to arise mainly from the direct acceleration of electrons rather than

Card 1/2

ACC NR: AP 5026225

from meson decay. The stationary model of cosmic ray origin given by the authors (Proiskhozhdeniye kosmicheskikh luchey, Izd. AN SSSR, 1963), according to which most cosmic rays originate in supernovae, has not encountered any difficulties but cannot be regarded as proved. There is no convincing evidence that an explosion of the nucleus of our Galaxy has occurred in the past 10^9 years. The explosions observed in M82 and NGC 5128 do not indicate that such explosions are probable in our Galaxy, for M 82 and NGC 5128 are not spirals and differ considerably from our Galaxy. It has been argued that if all cosmic rays originated simultaneously, the relativistic particles would have travelled farther and encountered more interstellar matter than the low-energy particles, and would therefore contain a larger fraction of light nuclei, whereas such observational evidence as exists indicates that the higher energy socmic rays have a smaller fraction of light nuclei. This argument is not decisive, however, because the high-energy cosmic rays may have travelled through regions in which the density of interstellar matter is less than in those through which the low-energy cosmic rays passed. It may be possible soon to determine whether the cosmic ray intensity was significantly greater some 10^8 years ago than now by investigating meteorites as proposed by the authors (Proc. Internat. Conf. Cosmic Rays, Jaipur, 3 301 (1964); Izv. AN SSSR. Ser.fiz.,28,1910 (1964); Astron.zh. 41,430 (1964). Although the authors do not see any real arguments in favor of a non-stationary model for the origin of cosmic rays in the Galaxy,they agree that further investigation of this matter is justified. Orig.art. has 2 formulas and 1 table

SUB CODE: AA   SUBM DATE: 00/--Oct65   ORIG.REF: 012   OTH REF: 007

Card 2/2

GINZBURG, V.L.; SATARINA, G.I.

Use of various light sources for atomic absorption analysis. Zav. lab.
31 no.2:249-250 '65.   (MIRA 18:7)

1. Konstruktorskoye byuro "TSvetmetavtomatika".

GINZBURG, V.   ; PAVLOV, I. A., red.

[Modern astrophysics; some results and prospects. Tendency of
development] Sovremennaia astrofizika; nekotorye rezul'taty i
perspektivy. Tendentsiia razvitiia. Moskva, Znanie, 1965.
?? p. (Novoe v zhizni, nauke, tekhnike. IX Seriia: Fizika,
matematika, astronomiia; n .10)   (MIRA 18:7)

                                        (For Ginzburg).

AGRANOVICH, Vladimir Moiseyevich; GINZBURG, Vitaliy Lazarevich;
VIEKO, I.G., red.; KAYSKAYA, N.A., red.

[Crystal optics with allowance for spatial dispersion and
exciton theory] Kristallooptika s uchetom prostranstvennoi
dispersii i teoriia eksitonov. Moskva, Nauka, 1965. 377 p.
(MIRA 18:5)

ARTSIMOVICH, L.A., akademik; KELDYSH, M.V., akademik; KIKOIN, I.I., akademik;
          . L. B.F.; VERESHCHAGIN, L.F.; LISITSYN, L.A.; SKOBEL'TSYN, A.S.,
          akademik; SKOBEL'TSYN, D.V., akademik; ...., ..., akademik;
          AMBARTSUMYAN, V.A., akademik; ZEL'DOVICH, Ya.B.; KAGANOV, M.I.,
          akademik; KOTEL'NIKOV, V.A., akademik; LIFSHITS, I.M.; MIGDAL, V.I.,
          akademik; GINZBURG, V.L.; MIKHEYSHCHENK, I.P., akademik

          New problems in the development of modern physics; discussion of
          the work of the Department of General and Applied Physics. Text.
          VE AN 35 no.2:3-46 F '65.   (MIRA 18:3)

          1. Chleny-korrespondenty AN SSSR (for Bol, Vereshchagin, Kotel'nikov,
          Lifshits, Ginzburg).

L 3676-66   EWT(m)/EWP(w)/T/EWP(t)/EWP(b)   JD

UR/0020/65/163/006/1352/1355

ACCESSION NR: AP5021885

AUTHORS: Ginzburg, V. L. (Corresponding member AN SSSR); Motulevich, G. P.;
Pitayevskiy, L. P.

TITLE: Optical properties of polyvalent metals and interelectronic interaction

SOURCE: AN SSSR. Doklady, v. 163, no. 6, 1965, 1352-1355

TOPIC TAGS: Fermi surface, optical electron, valence electron, polyvalent metal,
polyvalent metal electron

ABSTRACT: A critical examination of literature data pertaining to the ratio of
optical electrons to valence electrons for Au, Ag, Al, Sn, and Pb is presented.
The data are examined in terms of the Fermi surface integral

$$\oint v\, dS \simeq \frac{4\pi p_F^3}{m} \simeq \frac{3\,(2\pi\hbar)^3}{2m} N_{val}.$$

where m and p_F are the mass and momentum on the Fermi surface of the free electron
and N_{val} the number of valence electrons per cm^3. It is concluded that the ob-
served decrease of N optical from N valence in Al, Sn, and Pb is most probably
due to interelectronic interactions. However, two difficulties regarding the

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L 3676-66   6

ACCESSION NR: AP5021885

above explanation are noted. For all polyvalent metals, the number of optical electrons per atom n opt $\simeq 1$, a fact the authors are unable to explain. The assumption that interelectron interaction exerts a strong influence on the ratio n_{opt}/n_{val} is not supported by any existing theoretical model. The authors thank M. Ia. Azbel', and D. Payns for their helpful criticism. Orig. art. has: 2 tables and 7 equations.   55

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva, Akademii nauk SSSR (Physical Institute, Academy of Sciences, SSSR); Institut fizicheskikh problem, Akademii nauk SSSR (Institute for Physical Problems, Academy of Sciences, SSSR)

SUBMITTED: 04Jun65   ENCL: 00   SUB CODE: MM, OP

NO REF SOV: 013   OTHER: 004

Card 2/2

ACC NR: AR6019473   SOURCE CODE: UR/0269/66/000/002/0037/0037

AUTHOR: Ginzburg, V. L.

TITLE: Space-physics trend in cosmic-ray research

SOURCE: Ref. zh. Astronomiya, Abs. 2.51.313

REF SOURCE: Sb. Kosmich. luchi i probl. kosmofiz. Novosibirsk, Sib. otd. AN SSSR, 1965, 5-6

TOPIC TAGS: cosmic ray, electromagnetism, radiation belt, INTERPLANETARY SPACE

ABSTRACT: A brief historical review of cosmic-ray research is given. It is noted that in the 1955-57 period a new era in cosmic-ray research began, i.e., a study of the origin of cosmic rays and the relationship between the variations of cosmic rays and electromagnetic phenomena in interplanetary space, in the radiation belts of the earth and of the planets. The significance of the new space-physics aspect of cosmic-ray research is stressed in conjunction with the launching of artificial satellites and space rockets. N. K. /Translation of abstract/

SUB CODE: 04/

Card 1/1   UDC: 523.165

ACC NR:

AUTHOR: Ginzburg, V. L.

SOURCE CODE: UR/0033/66/043/005/0897/0902

ORG: Physics Institute im. P. N. Lebedeva, Academy of Sciences SSSR (Fizicheskiy institut, Akademii nauk SSSR)

TITLE: X ray emission of radio galaxies

SOURCE: Astronomicheskiy zhurnal, v. 43, no. 5, 1966, 897-902

TOPIC TAGS: galaxy, galactic radiation, x ray emission, bremsstrahlung

ABSTRACT: The cause of the intense x ray emission from radio galaxies Virgo and Cygnus is discussed. Objections are made to magnetic and Compton mechanisms and to quasar type nuclei in the radio galaxy or to stellar groups as explanations of the source of the x ray emission. Instead, the bremsstrahlung mechanism is proposed. In the case of such emission from large clouds of hot gas, the internal energy of the gas would be of the same order of magnitude as the total cosmic ray energy in the source and the gas could be heated by the change in the energy of the cosmic rays during their isotropization. The difficulty with the proposed mechanism is that for an extended source the hot gas mass should be larger. X ray emission of the Crab nebula is also discussed in the light of the proposed small hot gas cloud. Need for additional measurements of polarization, dimensions, shape and spectra of the x ray

Card 1/2

UDC: 523.164.4

ABSTRACT: The first revolution in astronomy, followed by a rapid progress of the science, occurred in 1610 when Galileo observed the sky for the first time with an armed eye. This opened up the optical era in astronomy. The second revolution occurred in 1945 when optical astronomy became universal. Now, twenty years after this second revolution, six new branches of astronomy have been developed: astronomy of radiofrequency waves; x-ray and gamma-ray astronomy; study of primary cosmic rays; optical astronomy from satellites in visible, infrared, and ultraviolet rays; direct methods using satellites (e.g., photographing the Moon and Mars from short distances) and reception of neutrinos (they pass through the Sun and Earth in small but detectable amounts). These new methods have already yielded significant results. The development

of new techniques has eliminated the disadvantage of the small angular resolution of radiofrequency astronomy and made its angular resolution even greater than that of optical astronomy. This is done by three methods: the use of radiofrequency interferometry (placing several long-wave telescopes at large distances from each other), use of overlapping the sources of radiofrequency-wave radiation by the Moon, and scintillation twinkling of very small radiation sources. A number of significant discoveries were made in 1965 based on new astronomical methods. The small source, especially powerful on long waves, was discovered by the British (and confirmed in the USSR) in a nebula remaining from a supernova star, the envelope of which expanded at the rate of 1000 km/sec. It is possible that this source is a remnant of the supernova star. This fact could possibly solve the problem of the nebulae. Other important discoveries made in 1965 included the detection of quasiastral galaxies, among them the 3S-9 quasar, which is moving away from us at a velocity equal to 80% of the speed of light, and a most spectacular discovery of radiation that was emitted 10 billion years ago.

SUB CODE: 03/ SUBM DATE: 22Apr66

AUTHOR: Ginzburg, V.M.

TITLE: Relationship between information and energy during
measurements

TEXT: The quality of measuring equipment can be estimated by
the formula $\eta = I/W$, where I is the desired information and W
is the energy consumed during measurement leading to the recovery
of information. The problem consists of calculating η and deter-
mining the conditions for which η is a maximum. The measured
system is in the form of material particles which are either
stationary or mobile. It is found in the case of stationary par-
ticles that: 1) the quantity of energy required for measuring the
position of a finite number of particles in an enclosed volume is
independent of the number of particles and is directly proportional
to the quantity of the resolution elements in volume; 2) for a
known number of particles in the observation volume the information
per unit of energy is a maximum when the number of particles n is
approximately equal to the overall number of the resolution elements
Card 1/3

N in the volume; 3) if any number of particles from 0 to N
is equally probable, the information per unit energy decreases mono-
tonically with increasing N from $1 - 1/2$ bit; 4) if a probability
distribution p(n) is given, where $0 < n < N$ and its maximum occurs
at $n = n_1$, the information is a maximum for N slightly smaller
than $2n_1$. In the case of moving particles, the measurement is
effected by equipment producing probe pulses of duration   and
a period τ. Two cases are possible. In the first case, the
character of motion of the particles is not known and each of the
particles can be found in any of the N elements contained in the
volume under observation. The measurements are conducted for this
case in the same manner as that used for the stationary particles.
In the second case the particles can appear only in a portion
$N_1 < N$ of the volume under observation and the maximum time during
which the particles remain inside the volume is known (T_n). Now,
the analysis shows that there exists an optimum measurement period
when a minimum energy is necessary for securing the required
information; the optimum period decreases with increasing velocity
of the particles. Secondly, the gain due to the correct choice of
Card 2/3

Relationship between ....

parameters of the measuring equipment increases with the number
of particles passing through the volume under observation.

Card 3/3

AUTHOR: Ginzburg, V. M.

TITLE: Electromagnetic energy propagation in a circular waveguide filled with gas discharge plasma whose parameters are variable

SOURCE: Radiotekhnika i elektronika, v. 8, no. 7, 1963, 1269-1274

TOPIC TAGS: waveguide propagation, circular waveguide, gas discharge plasma

ABSTRACT: A method for determining average electron concentration by the deviation of a beam in a plasma-containing slot antenna was investigated theoretically and experimentally. A formula for average electron concentration is developed for the case of a discharge tube that is also a metal cylindrical waveguide. The formula was experimentally verified by a metal-coated (Ar, 0.09-mm Hg) tube with a longitudinal slot which acted as a directional antenna. Tabulated data shows good agreement between the values of electron concentration measured

Card 1/2

L 18390-63
ACCESSION NR: AP3003729   Q

by the author's method and those measured by the conventional Langmuir's probe
method. Orig. art. has: 4 figures, 14 formulas, and 2 tables.

ASSOCIATION: none

SUBMITTED: 05Jul62   DATE ACQ: 02Aug63   ENCL: 00

SUB CODE: PH, GE   NO REF SOV: 007   OTHER: 001

Card 2/2

GINZBURG, V. L.; FEDOROV, A.

Electromagnetic waves in a plane waveguide with anisotropic conductive plates. Radiotekh. i elektron. v. 1 no.5 2418-2422 My '65.

(MIRA 9:6)

GINZBURG, V. M.

A method is proposed to compute the directivity pattern of image antennas with beam hunting on an electronic digital computer.

Results are presented of a computation on the BESM of the spatial amplitudes and phases of the directivity pattern of parabolic antennas for the main and cross-polarization field components. The results of the computation of the amplitude patterns for the main polarization are confirmed experimentally to hunting angles of 30° for a beam width of about 1.

Universal dependences of the direction of the fundamental maximum, the side lobe levels, beam width, drop in gain, phase at the maximum and width of the vector directivity patterns on the displacement of the emitter from the focus are constructed for various antenna parameters for hunting angles which do not exceed ten times the beam width.

GINZBURG, Vera Moiseyevna; BELOVA, Inessa Nikolayevna; ALEKSANDROVA,
      A.A., red.; SMUROV, B.V., tekhn.red.

    [Calculation of parabolic antennas] Raschet parabolicheskikh
antenn. Izd-vo "Sovetskoe radio," 1959. 249 p. (MIRA 13:2)
         (Antennas (Electronics))

AUTHOR: Ginzburg, V. M.; Maripov, A.

TITLE: Electromagnetic waves in a flat waveguide containing heterogeneous isotropic plasma

TOPIC TAGS: flat waveguide, plasma, rectangular waveguide

ABSTRACT: The propagation of a magnetic wave in a flat laminated waveguide, whose internal layer is represented by a plasma, is theoretically considered. A method is developed for calculating the propagation constant of such a waveguide which contains a heterogeneous plasma with a supercritical concentration of electrons at the axis. The possibility is considered of using the method for designing a rectangular waveguide with a round discharge tube; a small distortion of the field by the plasma and limited electron concentration are assumed.

L 20957-66

ACCESSION NR: AP5013340

Formulas are derived for computing the distribution of field amplitude and phase
over the waveguide cross-section, and an example of the application of these
formulas for the cases of low and supercritical concentrations in the center of the
discharge is given. Orig. art. has: 7 figures, 25 formulas, and 1 table.

ASSOCIATION: none

SUBMITTED: 07Mar64   ENCL: 00   SUB CODE: EC, EM

NO REF SOV: 005   OTHER: 000

Card 2/2

ABSTRACT: A method is described for computing the electromagnetic wave-propagation
constant through a coaxial line containing an isotropic dielectric with inhomogene-
ous losses over the cross section. An analysis is made of a case in which a line
filled with gas-discharge plasma, whose dielectric constant changes along the cross
section, approximately following the parabolic law from the minimal value of less
than one on the axis line up to one along its walls. A study has been made of the
distribution of the amplitude and the field phase in this line. For comparative
purposes, a field has been considered in a coaxial line filled with an inhomogeneous
dielectric whose constant changes according to the same law from the maximal value
of more than one at the axis to one along the walls. Orig. art. has: 6 figures
and 23 formulas. [Translation of author's abstract.]   [AM]

FLEGONTOVA, L.N.; GINZBURG, V.N.

Amperometric determination of the total phenol group content of epoxide resins. Lakokras.mat.i ikh prim. no.5:70-73 '60. (MIRA 13:11)

(Epoxy resins)

GINZBURG, V. V.

32430. TADZHIKI predgoriy. (Materialy antropol. obsledovaniy). Sbornik Muzeey antropologii i ethografii, t. XII, 1949, s. 27-332.

GINZBURG, V. V.

32429. GINZBURG, V. V. Kraniologicheskoye robraniye Muzeya antropologii i
ethografii. Sbornik Muzeya antropologii i etnografii, t. XII, 1949, s. 4C2-16

SO: Letopis Zhur.al'nykn Statey, Vol. 44

GINZBURG, V. V.

"Ancient and Modern Anthropological Types of Central Asia," Trudy Inst.
etn. AN SSSR, No.16, 1951

GINZBURG, V. V.

"Anthropological Study of the Ancient Inhabitants of Eastern Kazakhstan,"
Krat. soob. Inst. etn., AN SSSR, No. 14, 1952

GINZBURG, V.V.

Anatomical collection of F.Ruysch in collections of the Petrovskaia
Art Gallery. Sbor.Muz.ant.i etn. 14:263-305 '53.   (MLRA 7:4)
          (Ruysch, Frederic, 1638-1731) (Anatomical museums)

GINZBURG, V.V.

Ancient population of the central Tien Shan and the Altai on the
basis of anthropological data (1000 B.C. - 1000 A.D.) Trudy Inst.
etn. 21:354-412 '54.   (MLRA 7:7)
   (Tien Shan--Anthropology) (Anthropology--Tien Shan)
   (Altai Mountains--Anthropology) (Anthropology--Altai
                                          Mountains)

GINZBURG,V.V.; ZALKIND,N.G.

Materials on the craniology of the Kazakhs; concerning problems of
ethnogeny. Sbor.Muz.ant.i etn. no.16:432-461 '55.   (MIRA 8:11)
                    (Kazakhstan--Craniology)

GINZBURG, Y.Y.

Sources of development of collateral circulation in obliterating
processes of the lower extremities in man. Arkh. anat. gist. i
embr. 32 no.3:69-73 Jl-S '55.   (MLRA 9:5)

1. In kafedry normal'noy anatomii (nach. prof. B.A. Dolgo-Saburov)
Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.
        (VASCULAR DISEASES, PERIPHERAL, physiology,
            collateral circ.)

PRIVES, Mikhail Grigor'yevich; GINZBURG,V.V., redaktor; RULEVA, M.S.,
     tekhnicheskiy redaktor

[Methods of preserving anatomical specimens] Metody konservirovaniia
anatomicheskikh preparatov. [Leningrad] Gos. izd-vo med. lit-ry,
Leningradskoe otd-nie, 1956. 126 p.   (MLRA 9:8)
         (ANATOMICAL SPECIMENS--COLLECTION AND PRESERVATION)

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