GAZARYAN, Yu. L.
GAZARYAN, Yu. L.

"On Waveguide Propagation in Inhomogeneous Media".
Abstracted for inclusion in the Second International Congress on Acoustics,
Cambridge, Mass., 17-24, Jun 1956

Acoustical Institute of AS, USSR, Moscow

Category : USSR/Acoustics - Sound vibrations and waves   J-2

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 2101

Author   : Gazaryan. Yu. L.
Inst   : Acoustics Institute, Academy of Sciences USSR
Title   : Concerning Waveguide Propagation of Sound in Non-Uniform Media

Orig Pub : Akust. Zh., 1956, 2, No 2, 133-136

Abstract : Analysis of the field of a point-source harmonic radiator, placed in an
unevenly stratified medium, in which the speed of sound varies in the man-
ner indicated by Epstein (smooth transition layer between two homogeneous
half-spaces). An integral representation of the solution is obtained. Also
considered is the case of the presence of a perfectly-reflecting boundary
on the waveguide axis.

Card   : 1/1

AUTHOR: Gazaryan, Yu.L.   46-2-5/23

TITLE: Waveguide sound propagation in one class of inhomogeneously
          stratified media. (Volnovodnoye rasprostraneniye zvuka dlya
          odnogo klassa sloisto-neodnorodnykh sred)

PERIODICAL: "Akusticheskiy Zhurnal" (Journal of Acoustics), 1957,
            Vol. 3, No.2, pp. 127-141 (U.S.S.R.)

ABSTRACT: (Some of the results have been given in (9) Yu.L.Gazar-
      yan: Waveguide sound propagation in inhomogeneous media.
      Acoustical Journal, 1956, 2, 2, 133-136)
         In investigations of waveguide sound propagation the usual
      method of linear sound velocity approximation leads to very
      complicated computations and yields cumbersome results. It is
      therefore thought to be of interest to investigate this propa-
      gation when the sound velocity in the medium is determined by
      one analytical function only. In the present article, the
      author presents results of analysis of propagation for the type
      of medium as postulated by Epstein and as used by him in the
      investigation of reflection and of propagation of a plane
      electro-magnetic wave (1). In case of a sound wave, if the
      density of the medium is constant, the Epstein medium may be
Card 1/5 represented in approximation as two homogeneous half-volumes
      bound together by a transitional layer, the sound velocity in

46-2-5/23

Waveguide sound propagation in one class of inhomogeneously
stratified media. (Cont.)

which varies between two values, corresponding to the two half-
volumes. The sound velocity, moreover, in such a layer either
has no maxima and minima, or has one maximum or minimum only.
For the last case, the layer would represent a waveguide depen-
dence of sound velocity $c(z)$ on distance z from its axis
(for one of the parameters combinations as shown in Fig. 1.).
The variable parameters are: the values of c at infinities,
the minimum value of c and the layer width. It is shown that
the solution for the field of a spherical point harmonic radiator
is much simplified for the symmetrical Epstein level when
  $c(\infty) = c(-\infty)$. The integral representation of the point
source harmonic radiator field is found next, first for the case
of homogeneous medium assuming that the sound propagation
velocity depends only on the z ordinate of the cartesian
system eq.(2). The same equation may also be represented in the
form of eq.(3). Eq.(2) has been obtained by the separation of
variables method in cylindrical co-ordinates, where the expon-
entials under the integrands are solutions of eq. (4). These
have been so chosen that, when multiplied by $(i x)$, they
represent incident plane waves. This corresponds to the physical
concept of a spherical wave, for $z \gg z_0$, represented by the

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Waveguide sound propagation in one class of inhomogeneously
stratified media. (Cont.)

superimposition of a travelling up homogeneous incident waves
and of a travelling down inhomogeneous decaying waves, the
sequence being reversed for $z \ll z_0$ (3). In an inhomogeneous
space, when c is varying, the plane waves cannot propagate
without reflection, so that a solution in the form of eq. (5)
should be sought (an incident wave travelling up for $z > z_0$
and a reflected travelling down wave for $z < z_0$). The normal-
ising factor 1/W is found to be the   Wronskian of the system
Φ_+ and Φ_- . Under certain conditions eq. (4) becomes eq.(6)
and various solutions of this equation are given (1), (4), these
solutions determining the incident plane waves in the homogeneous
media. Solutions for the standing waves may also be obtained.
(5), Using method of (3) and (6) and substituting for the
Hankel functions in eq. (5) their asymptotic approximations, it
is found that for large distances from the source the integrand
in eq. (5) represents the ratio of a "slowly varying function"
to the expression given in eq.(13), where $\chi = \cos^{-1} r/R$.

Card 3/5 Further mathematical treatment leads to eq. (20), which permits
investigation of the field changes for $r/H \gg K_\infty H$ at

Waveguide sound propagation in one class of inhomogeneously
stratified media.   (Cont.)

frequencies near to one of the critical values (the critical
value of the frequency is determined from eqs (15) and (16)).
The above applies to the sound propagated in an unbounded space.
Considering the sound propagation in the sea, the author assumes
that at a height z = h   there is a surface at which pressure is
zero. Eq. (5) is then modified and he shows that under certain
conditions solutions for normal waves, with twice the amplitudes
obtained from eq. (16), may be obtained. When the level z = o
is ideally non-resilient (e.g. in the case of waveguide low
frequency sound propagation in air, with the propagation axis
at the earth surface) the solution is obtained by the addition
of a positive apparent source, radiating normal waves of ampli-
tudes twice as large as those given by eq. (15). Eventually,
an arbitrary Epstein layer is considered. Eqs. (23) and (24)
are derived, permitting the evaluation of the reflection
coefficient and the propagation of the incident plane wave (1),
(7). Normal waves and critical frequencies are determined from
previous considerations, using appropriate transformations of
equations derived previously. There are 1 diagram of cartesian
co-ordinates propagation and 4 diagrams of integration paths

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46-2-5/23

Waveguide sound propagation in one class of inhomogeneously
stratified media. (Cont.)

in Riemann space are given. There are two mathematical appen-
dices and 9 references, 5 of which are Slavic.

ASSOCIATION: Institute of Acoustics Ac.Sc. U.S.S.R.
              (Akusticheskiy Institut AN SSSR, Moskva)

SUBMITTED: December 12, 1955.

AVAILABLE: Library of Congress

Card 5/5

GAZARIAN, Yu. L.

"Pulse Propagation in X Inhomogeneous Media."

paper presented ath the 4th All-Union Conf. on Acoustics, Moscow, 26 May - 0 Jun 58.

AUTHOR: Gazaryan, Yu. L.   46-: 4 -1-5/23

TITLE: Generation of an Acoustic Pulse of a Given Form by
           Means of a Piezoelectric Plate. (O sozdanii zvukovogo
           impul'sa zadannoy formy pri pomoshchi p'yezoelektricheskoy
           plastinki.)

PERIODICAL: Akusticheskiy Zhurnal, 1958, Vol.IV, Nr.1.
           pp. 33-36.   (USSR)

ABSTRACT: A uni-dimensional problem of generation of a pulse
           of given form using a piezoelectric plate polarized
           along its thickness is discussed in the present paper.
           The problem is solved by generalization of D'Alembert's
           method to piezoelectric media.   The special case of a
           rectangular pulse is dealt with in detail.   Fig.3
           gives the potential difference which has to be applied
           to the electrodes of a piezoelectric plate in order to
           produce a rectangular pulse.   This is a purely
           theoretical paper.   There are 3 figures and 1 Soviet
           reference.

Card 1/2

46-4-1-5/21

Generation of an Acoustic Pulse of a Given Form by Means of a
Piezoelectric Plate.

ASSOCIATION: Acoustics. Institute, Academy of Sciences of the
USSR,   Moscow   (Akusticheskiy institut AN SSSR,
Moskva.)

SUBMITTED: January 15, 1957.

1. Noise generators   2. Piezoelectric plates—Applications

Card 2/2

SOV-46-4-3-3/18

AUTHOR: Gazaryan, Yu. L.

TITLE: The Sonic Field Generated by a Point Source in a Layer Lying on a Half-Space (O pole tochechnogo izluchatelya v sloye, lezhashchem na poluprostranstve)

PERIODICAL: Akusticheskiy Zhurnal, 1958, Vol 4, Nr 3, pp 233-238 (USSR)

ABSTRACT: The 'side' wave field is considered. In the case of the total internal reflection the field is calculated at frequencies close to the critical frequency of one of the normal waves   It is well-known that the field of a point harmonic radiator placed in a homogeneous liquid half-space can be represented at points distant from the source as a sum of normal waves and a certain contour integral ('side wave'). The character of the field depends on the frequency. The properties of normal waves were considered in sufficient detail in (Ref.1). In the present paper the frequency dependence of this 'side wave' is estimated. A formula is obtained (Eq.7) which may be used to study the variation of

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SOV-46-4-3-3/18

The Sonic Field Generated by a Point Source in a Layer Lying on a Half-Space

the 'side wave' field at a certain distance when the frequency varies near one of the critical values. V. P. Bazhnichkin is thanked for carrying out some of the numerical calculations. There are 2 figures, 1 table and 5 references, 4 of which are Soviet.

ASSOCIATION: Akusticheskiy institut AN SSSR, Moskva (Acoustical Institute of the Academy of Sciences of the USSR, Moscow)

SUBMITTED: April 19, 1957.

1. Sound--Mathematical analysis

Card 2/2

GAZARYAN, Yu.L.

Geometrical acoustical approximation of the sound field in the
neighborhood of a nonspecific caustical section. Vop. din.
teor. raspr. seism. voln no.5:73-89 '61.   (MIRA 14:11)
                    (Sound waves)

GAZARYAN, Yu.L.

Propagation of sound in inhomogeneous media. Vop. din. teor.
raspr. seism. voln no.5:90-114 '61.   (MIRA 14:11)
                                    (Sound—Transmission)

6.8000 (and 1155, 1063)

20233
S/046/61/007/001/003/015
B104/B204

AUTHOR: Gazaryan, Yu. L.

TITLE: Normal waves of infrasonic frequencies in the atmosphere

PERIODICAL: Akusticheskiy zhurnal, v. 7, no. 1, 1961, 26-32

TEXT: The results obtained by numerical computations of the dispersion-properties of normal waves having very low frequencies are given for two different kinds of temperature distribution. These temperature distributions were approached in the first case with a single sound channel, and in the second with two sound channels. In both cases, the square of the sound velocity was a function of altitude, which could be represented by a continuous, open polygon. For the single sound channel it was assumed that with $z = 0$, the velocity of sound $c = 336$ m/sec; with $z = 15$ and $z = 32$ km, $c = 296$ m/sec and with $z = 50$ km and more, $c = 375$ m/sec. For two sound channels, the same altitude dependence of the velocity of sound was assumed as in the first case, with $z = 80$ km, however, $c = 310$ m/sec, and with $z = 110$ km, $c = 375$ m/sec. Exact numerical computations were carried out by means of the digital computer "Ural" at the Institute of Acoustics of the AS USSR. Fig. 1

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Normal waves of ...

represents the phase and group velocities for sound propagation in a sound channel. As it turned out, four normal waves exist within the range of from 1 minute to ∞. The first three group velocities Γ_i and the phase velocities Φ_i (i = 0, 1, 2) are approximately equal to that in air. The fourth group has considerably lower group- and phase velocities, which are denoted by Γ_{2p} and Φ_{2p}. The latter are described as gravitational waves, because their low velocity may be explained by a considerable raising and lowering of the number of particles taking part in the waves. This kind of waves exists, only within a very narrow frequency range. In the further course of the investigations, the distribution of amplitudes with respect to altitude is investigated for the four normal waves. Finally, the phase- and group velocities for sound propagation in an atmosphere with two channels, which are m.? presented by Fig. 6, is dealt with. It is found that two gravitational waves occur and that the normal waves with the index 0 have a critical period of about 13 minutes. Below this critical period, the zero waves have the same phase and group velocities in the case of a single channel as those with two channels. This is due to the fact that the energy of waves at higher frequencies is concentrated in the lower "stronger" channel, and the effect produced by the second channel becomes insignificant. For the first normal

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Normal waves of ... .

wave it must be stated that its energy propagates mainly in the second chan-
nel. Only at periods below 1.4 minutes is the upper channel negligible.
For the second normal wave the second channel produces no effect upon veloc-
ities at periods that are lower than 1 minute. Likewise, the velocities of
the gravitational waves in the case of two sound channels differ somewhat
from those with a single sound channel. There are 8 figures and 4 references:
1 Soviet-bloc and 3 non-Soviet-bloc.

ASSOCIATION: Akusticheskiy institut AN SSSR Moskva (Institute of Acoustics
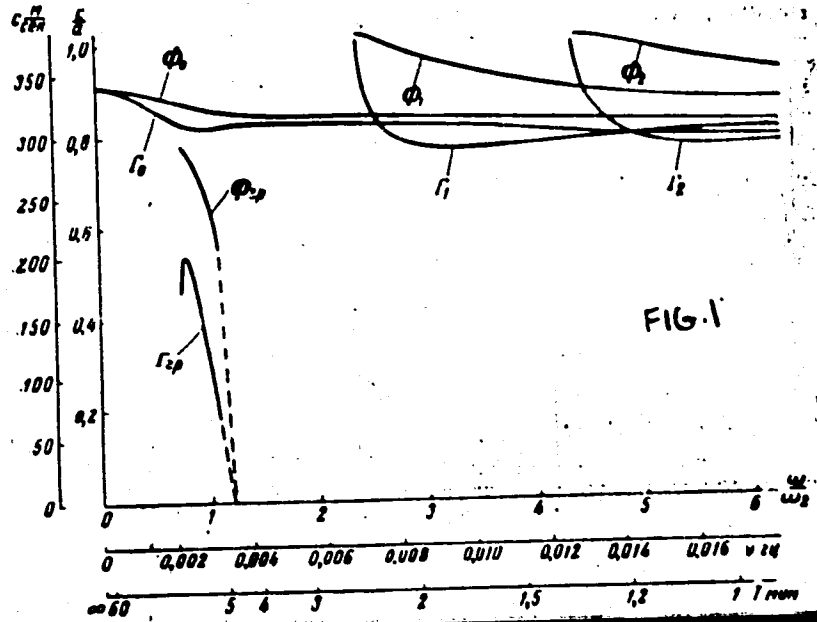   of the AS USSR, Moscow)

SUBMITTED: April 11, 1960

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20233

Normal waves of ...

FIG.1

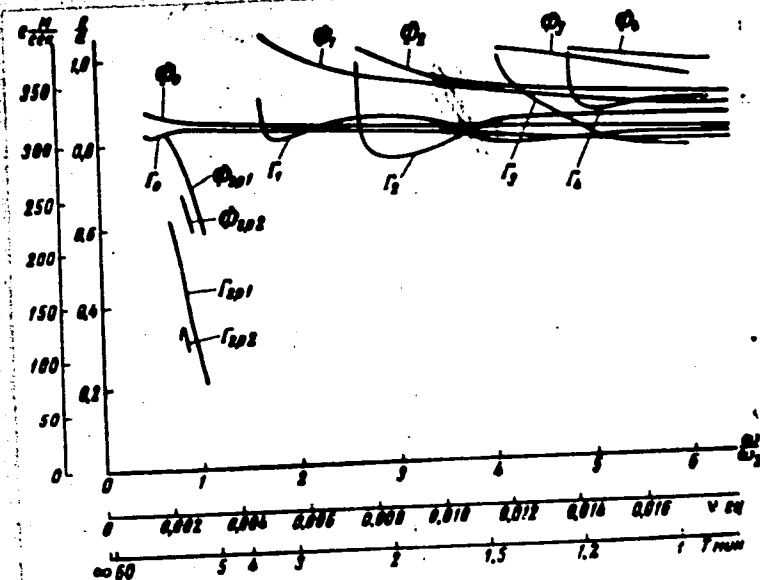Card 4/5

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B104/B204

Fig. 6

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GAZAR'YANTS, Z.; KRIPITSER, M.

From separate enterprises to a consolidated maintenance unit. Avt.transp. 41 no.1:33-35 Ja '63.   (MIRA 16:2)

1. Zamestitel' ministra avtomobil'nogo transporta i shosseynykh dorog Uzbekistana (for Gazar'yants). 2. Glavnyy inzh. tresta "Uzavtoremont" (for Kripitser).
        (Motor vehicles—Maintenance and repair)

GAZATSEVA, V. A.

Gazatseva, V. A. "A case of psychosis connected with a combined pentothal-ether narcosis," Trudy Sev.-Oset. gos. med. in-ta, Issue 2, 1949, p. 71-75.

SO: U-3736, 21 May 53, (Letopis ' Zhurnal 'nykh Statey, No. 17, 1949).

GAZAZHA, M.

USSR/ Electronics - Radio station

Card   1/1   Pub. 89 - 14/28

Authors   : Gazazha, M.

Title   : Feeding the radio station "Urozhay" from a 6-volt battery

Periodical : Radio 1, 25-26, Jan 1954

Abstract   : Experiments were conducted with supplying power to the "Urozhay"
               radio station from 6-volt, instead of 12-volt batteries for which
               it was designed. The results were found to be very satisfactory.
               A redesign of the "Urozhay" station is suggested. Diagram.

Institution: .....

Submitted: .....

9.9300

24.2500 (1143,1482)

AUTHORS: Ter-Mikayelyan, M. L., Gazazyan, A. D.

TITLE: Resonance Effects of Radiation in a Laminated Medium

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
             Vol. 39, No. 6(12), pp. 1693 - 1698

TEXT: A previous paper (Ref.1) dealt with the radiation associated with
the motion of a charged particle in any "periodic" medium and presented a
formula for the resonance radiation in a medium made up of two plates of
equal thickness. The case of a laminated medium has been studied by
I. M. Frank, V. L. Ginzburg, N. A. Khizhnyak, Ya. B. Faynberg, and
G. M. Garibyan. Since, from an experimental point of view, laminated media
are particularly suitable for detecting resonance radiation, the authors
derived and checked the most important formulas for the calculation of this
effect. This has been done for layers of different thicknesses and for
any Δ.($\Delta = (N_1 - N_2)/(N_1 + N_2)$; N_1 and N_2 are the electron densities in two
successive media). The formulas obtained in Ref.1 are used in quasi-
classical approximation. To be able to apply the quasi-classical theory to

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88444

Resonance Effects of Radiation in a Laminated S/056/60/039/006/036/063
Medium   B006/B063

a laminated medium, the boundaries between the layers must be smooth.
Though the quasi-classical approximation leads to incorrect results for
reflected waves, it may be used here since the effects related to
reflection are negligible if the dielectric constants of the media of the
two adjoining layers differ only slightly, i.e., if $\left|(\varepsilon_2-\varepsilon_1)/(\varepsilon_2+\varepsilon_1)\right| \ll 1$.

This condition is satisfied within the range of high frequencies. In
addition, it must be assumed that for $v \approx c$, the angles of radiation
emission are small. This condition is satisfied if $\lambda \ll 1$, with $\lambda = \omega \sqrt{\varepsilon}/c$;
l is the period of the medium. Using the results obtained in Ref.1, a
formula is derived for the emission of a relativistic particle during the
penetration of n layers:

$$S = \frac{d\omega}{\omega} \frac{e^3 n}{l} (\varepsilon_2-\varepsilon_1)^2 \sum_{r=1}^{r_{max}} \sin^2 \frac{\omega \Delta l_2}{2} \left(\frac{2\pi r v}{l\omega} - \frac{2\pi e^2}{m\omega^2} \frac{\Delta l_1}{\Delta l} (N_1 - N_2)\right) \times$$

$$\times \left[\frac{2\pi}{l} r \frac{v}{\omega} - \left(1 - \frac{v}{c}\right) - \frac{2\pi e^2}{m\omega^2} \left(N_1 \frac{\Delta l_1}{\Delta l} + N_2 \frac{\Delta l_2}{\Delta l}\right)\right] \times \qquad (14)$$

$$\times \left[\frac{2\pi}{l} r \frac{v}{\omega} - \frac{2\pi e^2}{m\omega^2} \frac{\Delta l_1}{\Delta l} (N_1 - N_2)\right]^{-2} \left[\frac{2\pi}{l} r \frac{v}{\omega} - \frac{2\pi e^2}{m\omega^2} \frac{\Delta l_2}{\Delta l} (N_2 - N_1)\right]^{-2}.$$

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Resonance Effects of Radiation in a Laminated   S/056/60/039/006/036/063
Medium   B006/B063

r is an integer by which the harmonics are numbered; $r \geqslant 1$;
$v\Delta t = v(\Delta t_1 + \Delta t_2) = 1$ is the total thickness of two successive media;
t_i is the time of flight in the i-th layer. The emitted frequencies lie
between $\omega_{min} = 1\pi e^2(N_1 + N_2)/2\pi r v m$ and $\omega_{max} = 4\pi r v(E/mc^2)^2/1$. For the
number of quanta emitted one obtains the following relation if $\Delta \ll 1$:

$$M = \sum_{r=1,3,5} \left(\frac{N_1 - N_2}{N_1 + N_2}\right)^2 \frac{1}{1371r} \frac{8}{3\pi} \; ; \text{ if } \Delta \text{ is not much smaller than 1, then}$$

$$M = \frac{4}{137} \frac{1}{l\pi}(q+p)^2 \sum_r \frac{1}{r} \int \frac{dy\,[y - (b/a^2)(1-v/c) - y^2]}{l(1-py)^2(1+qy)^2} \times$$

$$\times \sin^2\left[\frac{q}{p+q}\pi r - y\pi r \frac{pq}{p+q}\right], \qquad (32)$$

$$p = \Delta t_1(N_1 - N_2)/(N_1\Delta t_1 + N_2\Delta t_2), \qquad q = p\Delta t_2/\Delta t_1.$$

holds for the case of layers with different thicknesses; $y = b\frac{r}{y}/a^2$;

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Resonance Effects of Radiation in a Laminated   S/056/60/039/006/036/063
Medium   B006/B063

$a = 2\pi r v/l; \quad b = \dfrac{2\pi e^2}{m}\left(N_1 \dfrac{\Delta t_1}{\Delta t} + N_2 \dfrac{\Delta t_2}{\Delta t}\right); \quad a/\omega = 2\pi v r/\omega l = \xi$. There are
3 Soviet references.

ASSOCIATION: Yerevanskiy gosudarstvennyy universitet (Yerevan State
            University). Fizicheskiy institut Akademii nauk
            Armyanskoy SSR (Institute of Physics, Academy of Sciences
            Armyanskaya SSR)

SUBMITTED: June 10, 1960

Card 4/4

ACC NR: AP7003227   SOURCE CODE: UR/0056/66/051/006/1863/1869

AUTHOR: Gazazyan, A. D.

ORG: Yerevan State University (Yerevanskiy gosudarstvennyy universitet)

TITLE: Interaction between coherent radiation and atoms

SOURCE: Zh eksper i teor fiz, v. 51, no. 6, 1966, 1863-1869

TOPIC TAGS: electronmagnetic interaction, laser emission, laser emission coherence, coherent light, atom

ABSTRACT:
An investigation was made of the interaction of coherent radiation with a system of two-level atoms. A general expression was derived for the average number of photons as a function of time. The coefficients in the expression were defined by a set of differential equations. A detailed examination was made of a case of one atom being in the excited state and a case of two atoms, one of which was in the ground state and the other in the excited state. Exact solutions of the equations were obtained. For a system of an arbitrary number of atoms, an approximate solution of the equations was investigated. The author thanks Professor M. L. Ter-Mikayelyan and V. M. Arutyunyan for valuable advice and for evaluating the results. Orig. art. has: 38 formulas.

SUB CODE: 20/ SUBM DATE: 30Jun66/ ORIG REF: 003/ OTH REF: 002/
ATD PRESS: 5113
Card   1/1

L 17974-63   EWT(m)/BDS   AFFTC/ASD

ACCESSION NR: AP3000085   S/0022/63/016/002/0069/0078

AUTHORS: Gazazyan, A. D.; Sekhposyan, E. V.; Ter-Mikayelyan, M. L.

TITLE: Bremsstrahlung of soft quanta in second Born approximation

SOURCE: AN ArmSSR. Izv. Seriya fiziko-matem. nauk, v. 16, no. 2, 1963, 69-78

TOPIC TAGS: differential cross section, dielectric, polarization

ABSTRACT: Unlike the mathematical difficulties encountered in the general bremsstrahlung radiation problem given by P. Urban (Bremsstrahlung in 2 tornscher Naherung, Acta phys. Austriaca, 13, No. 4, 1960) the author discusses the simpler solution which is restricted to the case of radiation in soft quanta. Expressions are obtained for the bremsstrahlung differential radiation cross section, given by the second Born approximation. The analysis is extended to the derivation of radiation cross section in a dielectric medium in the limit of no cherenkov radiation (i.e., particle transit time approaching infinity) and for the bremsstrahlung radiation polarization. Finally, the differential cross section in the dielectric medium is integrated 1) over the solid angle of photon emission and 2) over the angle at which secondary electron emission is obtained. Orig. art. has: 31 equations

Card 1/2

L 17974-63
ACCESSION NR: AP3000085

/

and 2 figures.

ASSOCIATION: Yerevanskiy gosudarstvenny*y universitet, Fizicheskiy institut
GKAE (Yerevan State University, Institute of Physics)

SUBMITTED: 30Sep62   DATE ACQ: 12Jun63   ENCL: 00

SUB CODE: PH   NO REF SOV: 001   OTHER: 003

Card 2/2

L 00810-67   EWT(1)

ACC NR: AP6028594   SOURCE CODE: UR/0252/66/042/005/0288/0293

AUTHOR: Gazazyan, A. D.

ORG: Joint Radiation Laboratory, Yerevan State University and Academy of Sciences, Armenian SSR (Ob'yedinennaya rediatsionnaya laboratoriye Yerevanskogo gosudarstvennogo universiteta i Akademii nauk Armyanskoy SSR)

TITLE: Interaction of coherent radiation with atoms

SOURCE: AN ArmSSR. Doklady, v. 42, no. 5, 1966, 288-293

TOPIC TAGS: coherent radiation, photon field, field atom interaction

ABSTRACT: Interaction of fully coherent radiation with two-level atoms was analyzed using a method presented elsewhere (V. M. Arumyunyan, Izv AN ArmSSR, fizika, v. 1, no. 2, 1966). Two particular cases of a single atom in the ground and excited states were considered. In each case formulas were derived for the photon distribution in the incident beam. The author thanks M. L. Ter-Mikayelyan and

Card   1/2

L 00810-67

ACC NR: AP6028594

V. M. Arutyunyan, corresponding members AN ArmSSR, for valuable advice and
evaluation of results. Orig. art. has: 30 formulas.   [GC]

SUB CODE: 20/   SUBM DATE: 01Oct66/   ORIG REF: 004/   OTH REF: 002

Cord   2/2   vlr

L 63612-65   EWT(m) Peb DIAAP

ACCESSION NR: AP5012167   UR/0022/65/018/001/0126/0133

AUTHOR: . Gazazyan, A. D.

TITLE: Proton beta decay induced by electromagnetic radiation

SOURCE: AN ArmSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 18, no. 1, 1965, 126-133

TOPIC TAGS: proton decay, beta decay, laser radiation, induced decay

ABSTRACT: The author considers the beta decay induced from a proton by intense electromagnetic radiation with either linear or circular polarization. The interaction between the proton and the electromagnetic radiation is taken into account rigorously, while weak interaction is regarded as a perturbation. The beta decay p → n + e^+ + ν is energy-forbidden for the free proton. Equations are derived for the differential probability of induced beta decay of the proton following absorption of a given number of photons, for the case of both types of polarizations. The results show that at the

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L 63612-65

ACCESSION NR: AP5012167   4

presently attainable laser fields ($\sim 10^8$ V/cm), the effect of induced beta decay of the proton is very small, being of the order of 10^{-6}s sec^{-1} (s is the number of absorbed photons). 'In conclusion the author thanks Professor M. L. Ter-Mikayelyan for continuous interest in the work, and also V. I. Ritus and I. I. Gol'dman for discussions.' Original article has 30 formulas

ASSOCIATION: Ob''yedinennaya radiatsionnaya laboratoriya Yerevansko-go gosudarstvennogo universiteta i Akademii nauk Armyanskoy SSR (Joint Radiation Laboratory of the Yerevan State University and of the Academy of Sciences, ArmSSR)

SUBMITTED: 14Aug64   ENCL: 00   SUB CODE: EC, EM

NR REF SOV: 004   OTHER: 001

Card 2/2

L 63997-65   EWT(1)   IJP(c)

ACCESSION NR: AP5018418   UR/0252/65/041/001/0027/0033 /3

AUTHORS: Gazazyan, A. D.; Chaltykyan, V. O.   /0

                                                                    6

TITLE: Ionization of hydrogen atom under the influence of
intense electromagnetic radiation 2|

SOURCE: AN ArmSSR. Doklady, v. 41, no. 1, 1965, 27-33

TOPIC TAGS: hydrogen ionization, intense electromagnetic radiation,
tunnel effect, multiphoton transition, ionization probability

ABSTRACT: Following ideas advanced by L. V. Keldysh (ZhETF v. 47,
1945, 1964), the authors determine the ionization of a hydrogen atom
in the field of intense circularly polarized electromagnetic radia-
tion, accompanied by absorption of several quanta of light. Such
ionization is of interest since it can be induced by a laser emis-
sion. The period of the external field is assumed to be much long-
er than the time of passage of the electrons through the potential

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L 63997-65

ACCESSION NR: AP5018418

barrier, so that the ionization has the same character as the tunnel
effect in a constant electric field, and its probability can be cal-
culated by standard methods.   If the field period is much shorter
than the tunneling time, then the process has a multiphoton character,
but its nature remains the same.   The ionization probability is cal-
culated theoretically as well as numerically, using both the tunnel-
effect and the multiphoton-effect formulas, as functions of the ex-
ternal field intensity and of the number of absorbed light quanta
at 1.8 eV energy.   The results become comparable only when the number
of absorbed quanta is large. *We thank Professor M. L. Ter-Mikayelyan
for numerous useful discussions.   This report was presented by M.
L. Ter-Mikayelyan.*   Orig. art. has: 22 formulas and 1 table.   [02]

ASSOCIATION: Ob"yedinennaya radiatsionnaya laboratoriya Akademii nauk Armyan-
skoy SSR i Yerevanskogo gosudarstvennogo universiteta (Joint Radiation Laboratory
of the Armenian Academy of Sciences and the Yerevan State University)

Card   2/3

L 63997-65

ACCESSION NR   AP5018418

SUBMITTED: 00   ENCL: 00   SUB CODE: NP, EM

NO REF SOV: 004   OTHER: 001   ATD PRESS: 4057

Card 3/3

44195

S/109/62/007/012/014/021
D266/D308

AUTHORS: Laziyev, E. M. and Gazazyan, E. D.

TITLE: Cylindrical cavity filled with dielectric

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 12, 1962,
               2086-2088

TEXT: The purpose of the paper is to determine the resonant fre-
quency of a cavity resonator partially filled with dielectric. The
exact equation from which the wave number can be determined is

$$F(\kappa) = \frac{\sqrt{\varepsilon} J_0(\sqrt{\varepsilon}\, \kappa r)}{\varepsilon J_1(\sqrt{\varepsilon}\, \kappa r)} - \frac{J_0(kr)N_0(k R_0) - J_0(k R_0)N_0(kr)}{J_1(kr)N_0(k R_0) - J_0(k R_0)N_1(kr)} = 0 \qquad (1)$$

where ε - dielectric constant, r - radius of the dielectric filling,
R_0 - radius of the cavity, J_n, N_n - Bessel functions of the first

Card 3

Cylindrical cavity filled ...   S/109/62/007/012/014/021
                                               D266/0335

and second r_1, $a = \omega/c$, c - velocity of light. ω - resonant fre-
quency. The solution is attempted using the principle that a small
change in the radius of the dielectric filling can only slightly
affect the resonant frequency. The value of the wave number after
the i-th approximation is

$$k_i = k_{i-1} + \Delta k_i$$

(2)

where k_{i-1} - known solution of (1) corresponding to the radius r_{i-1},
Δk_i - small increment in k satisfying the inequality $\Delta k_i/k_{i-1} \ll 1$.
Expanding F(k) in a Taylor series at the point k_{i-1} and retaining
only the linear terms a long analytical formula is obtained for
Δk_i. An alternative approach is based on the fact that the dielec-
tric filling changes only the equivalent capacitance of the cavity.
The increase in capacity is

Card 2/3

Cylindrical cavity filled ... $S/109/62/007/012/014/021$
                                                 $D266/D308$

$$\frac{\Delta C}{C_0} = (\mathcal{E} - 1)\left[\frac{r^2}{R_0^2} + J_2\left(\frac{r}{R_0} x_1\right) + 0.141 \, J_2\left(\frac{r}{R_0} x_2\right)\right]$$ (5)

from which the wave number is obtained by using the formula

$$\frac{\Delta C}{C_0} = \frac{k_0^2}{k^2} - 1, \quad k_0 = \frac{\omega_0}{c}$$

where ω_0 is the resonant frequency of the empty cavity. Numerical calculations performed for a number of dielectric constants and for the complete range of r/R_0 show that both approaches lead to the same results. The theory was confirmed experimentally using a dielectric material of $\sqrt{\mathcal{E}} = 1.6$. There is 1 figure.

SUBMITTED: July 2, 1962

Card 3/3

S/022/62/015/002/009/009
D218/D302

9.3130

AUTHORS: Gazazyan, E.D., and Laziyev, E.M.

TITLE: Two-frequency bunching of electron beams

PERIODICAL: Akademiya nauk Armyanskoy SSR. Izvestiya. Seriya fizi-
             ko-matematicheskikh nauk, v. 15, no. 2, 1962, 173-179

TEXT: The authors discuss the characteristics of a radio-frequency
buncher consisting of two resonators operating at frequencies ω_1
and $k\omega_1$ respectively. A harmonic analysis is made of the output cur-
rent of the buncher and it is shown that the phase width of a bunch
leaving this system is of the form

$$\Phi = \omega_1 t_1 - A_{13}\sin \omega_1 t_1 - \frac{1}{k} A_{23} \sin k(\omega_1 t_1 + \varphi_{12} - A_{12}\sin\omega_1 t_1).$$
$$(2.5)$$

The output beam contains very high harmonics (~ 800) of the funda-
mental frequency ω_1. In a sample calculation it was found that 48 %
of all the particles were grouped within $2\Phi = 0.022$ radian. The

Card 1/2

J

S/022/62/015/002/009/009
Two-frequency bunching of electron beams D218/D302

formulas derived in the present paper can be used in a full design
calculation of this type of buncher. There are 3 figures and 2 non-
Soviet-bloc references.

ASSOCIATION: Fizicheskiy institut AN Armyanskoy SSR (Physics Insti-
tute of the AS Armenian SSR)

SUBMITTED: November 21, 1961

Card 2/2

L 18046-63

ACCESSION NR: AP3000086   S/0022/63/016/002/0079/0085

AUTHORS: Gazazyan, E. D.; Laziyev, E. M.

TITLE: Cherenkov radiation in wave-guide

SOURCE: AN ArmSSR.Izv. Seriya fiziko-matem. nauk, v. 16, no. 2,1963,79-85

TOPIC TAGS: point charge, fine charge, line spectrum, radiation

ABSTRACT: The cherenkov radiation intensity generated by a charge moving with
velocity v along the axis of a wave-guide filled with a dielectric e is con-
sidered. Expressions are obtained for three such charges: a point charge of
magnitude e (where e is the electronic charge); a line charge of length a and
charge magnitude q per unit length; and a consecutive motion of several charged
lines separated by a distance d between their centers. For the point charge
the radiation frequency produces a line spectrum. Equation (1)

$$\omega_n = \frac{\lambda_n v}{\sqrt{\varepsilon_1 - 1}}$$

indicates that the frequency is proportional to the characteristic value λ
of the characteristic wave function ψ. It is shown that the moving line charge

Card   1/2

L 18046-63
ACCESSION NR: AP3000086 O

radiates with equivalent point charge magnitude $qa=e$. An interference pattern
is obtained for the case of the consecutively moving line charges. "The author
thanks M. L. Ter-Mikayelyan and V. M. Arutyunyan for their interest in this work."
Orig. art. has: 44 equations.

ASSOCIATION: Fizicheskiy in-t GKAE (Institute of Physics)

SUBMITTED: 30Oct62   DATE ACQ: 12Jun63   ENCL: 00

SUB CODE: PH   NO REF SOV: 005   OTHER: 000

Card 2/2

GAZAZYAN, E.D.; LAZIYEV, E.M.; POGOSYAN, E.S.

Determining the natural frequency of a resonator with an
arbitrary dielectric filling. Izv. AN Arm. SSR. Ser. fiz.-
mat. nauk 16 no.4:103-105 '63.   (MIRA 16:8)

1. Fizicheskiy institut Gosudarstvennogo komiteta po
ospol'zovaniyu atomnoy energii SSSR.

GAZAZYAN, E.D.; MERGELYAN, O.S.

Emission of linear currents in optically active and gyrotropic media. Dokl. AN Arm. SSR 37 no.4:185-189 '63. (MIRA 17:8)

1. Predstavleno chelenom-korrespondentom AN ArmSSR N.M. Kocharyanom.

ACCESSION NR: AP4026808   S/0022/64/017/001/0105/0112

AUTHORS: Gazazyan, E. D.; Mergelyan, O. S.

TITLE: A study of Vavilov-Cherenkov radiation from a linear charge and finite dimension beams in an optically active medium

SOURCE: AN ArmSSR. Izv. Seriya fiziko-matematicheskikh nauk, v. 17, no. 1, 1964, 105-112

TOPIC TAGS: optically active medium, Vavilov-Cherenkov radiation, finite dimension beam, field equation, charge density, Fourier component, radiation spectra

ABSTRACT: The Vavilov-Cherenkov radiation from a linear charge and finite dimension beams have been studied analytically in an optically active isotropic medium. The field equations describing the radiation phenomena are given by

$$\mathrm{rot}\, \vec{H} = \frac{1}{c}\frac{\partial D}{\partial t} + \frac{4\pi}{c}\frac{qv}{2a}\,\delta(x)\,\delta(z - vt)\,\sigma(y),$$

$$\mathrm{rot}\,\vec{E} = -\frac{1}{c}\frac{\partial \vec{B}}{\partial t},$$

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ACCESSION NR: AP4026808

$$\text{div } \vec{B} = 0,$$

$$\text{div } \vec{D} = 4\pi \frac{q}{2a} \delta(x) \delta(z - vt) \sigma(y).$$

where the charge density is described by

$$\rho = \frac{q}{2a} \delta(x) \delta(z - vt) \sigma(y).$$

Using the Fourier components of the field equations, expressions are obtained for energy loss and the field energy, and a relationship is established between charge dimension and radiation spectra. For $a \rightarrow 0$, the results are shown to lead to those derived by B. M. Bolotovskiy and O. S. Mergelyan (Teoriya izlucheniya Vavilova-Cherenkova v izotropnoy opticheski aktivnoy srede. Optika i spektroskopiya, 14, 3, 1963). The case of an infinite line charge is also considered in the optically active medium where the current density is represented by

$$\vec{j} = \rho\vec{v} = \frac{q}{8abd} \sigma(x) \sigma(y) \sigma(z - vt),$$

Card 2/3

ACCESSION NR: AP4026808

where

$$\sigma(x) = \begin{cases} 1 & |x| < b \\ 0 & |x| > b, \end{cases}$$

$$\sigma(y) = \begin{cases} 1 & |y| < a \\ 0 & |y| > a, \end{cases}$$

$$\sigma(z - vt) = \begin{cases} 1 & |z - vt| < d \\ 0 & |z - vt| > d. \end{cases}$$

Orig. art. has: 23 equations.

ASSOCIATION: none

SUBMITTED: 20May63   DATE ACQ: 16Apr64   ENCL: 00

SUB CODE: PH   NO REF SOV: 004   OTHER: 000

Card 3/3

GAZAZYAN, E.D.; MARGELYAN, O.S.

Transient radiation in gyrotropic dielectrics.   Izv.AN Arm.SSR.
Sor.fiz.-mat.nauk 17 no.3:87-91 '64.   (MIRA 17:9)

1. TSentral'naya rauchno-issledovatel'skaya fiziko-tekhnicheskaya
laboratoriya AN Armyanskoy SSR.

.(s)..2/EMG(k)/EPA(sp)..2/EPA(w)..2/EEC(t)/T/EEC(b)-2/EWA(m)-2
-10/P1-4/P1-4 , IJP(c)/ASD(a)-5/RAEM(c)/SSD/AFETR/AFWL/AFMD(c)/
ACCESSION NR: AP4044087 RAEM(a)/ESD(gs)/   S/0022/64/017/004/0097/0101
ESD(t)/RAEM(t) GG/AT

AUTHORS: Gazazyan, E. D.; Mergelyan, O. S.

TITLE: Radiation of pointlike and extended charges moving near the
separation boundary of a gyrotropic dielectric

SOURCE: AN ArmSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk,
v. 17, no. 4, 1964, 97-101

TOPIC TAGS: gyrotropic dielectric, Maxwell equation, polarization,
Cerenkov radiation, surface property

ABSTRACT: The dielectric in question is situated in an external
magnetic field, and the problem is solved in the approximation
wherein the gyration parameter g is small, of the order of 10^{-3}--10^{-6}
in realistically feasible magnetic fields. This means that g does
not influence greatly the amplitudes of the fields and the radiation
intensity, but rotates appreciably the plane of polarization of the

Card   1/3

L 2141-65
ACCESSION NR: AP4044087

$\mathcal{2}$

radiation, so that the results can be useful for the generation of radiation with specified polarization. Solution of the Maxwell material equations yields a dispersion relation for the gyrotropic dielectric and an equation for the far field. These equations show that the radiation in the gyrotropic medium has circular polarization. The distance over which the plane of polarization makes a complete revolution and the Cerenkov angle are evaluated, along with the energy lost by the particle per unit path. Solutions are given for a point charge, for a linear charge of finite length and constant charge density, and for a charge moving along the axis of an empty channel in a dielectric medium. It is shown that in the latter case the radiation of a particle moving along the axis of an empty channel does not differ from the radiation in a solid dielectric placed in a magnetic field. "The authors are grateful to B. M. Bolotovskiy and M. L. Ter-Mikayelyan for interest in the work and for valuable remarks." Orig. art. has: 15 formulas.

Card   2/3

ACCESSION NR: AP4044087

ASSOCIATION: Fizicheskiy institut GKAE (Physics Institute, GKAE);
TsNI fiziko-tekhnicheskaya laboratoriya AN Armyanskoy SSR (Central
Scientific Research Physicotechnical Laboratory, AN ArmSSR)

SUBMITTED: 30Dec63

SUB CODE: EM, NP   NR REF SOV: 005   ENCL: 00

OTHER: 000

Card 3/3

L 16549-65   EWT(1)/EED-2   ESD(dp)
ACCESSION NR: AP4049202   S/0022/64/017/005/0087/0091

AUTHORS: Gazazyan, E. D.; Mergelyan, O. S.

TITLE: Study of linear sources flying along the boundary of a
gyrotropic ferrite

SOURCE: AN ArmSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk,
v. 17, no. 5, 1964, 87-91

TOPIC TAGS: linear charge, linear current, charge motion, ferrite,
gyrotropy

ABSTRACT: The authors consider the radiation from linear charges
and currents traveling in vacuum parallel to the boundary of a gyro-
tropic ferrite. Simple gyrotropy is assumed, such as can be pro-
duced by superposition of an external magnetic field parallel to
the motion of the charge. The problem is solved for arbitrary gyra-
tion constant, and the simplifications arising in the particular

Card   1/2

L 16549-65
ACCESSION NR: AP4049202

cases when the gyration constant is much larger or much smaller
than the magnetic permeability are stated. Orig. art. has: 14
formulas.

ASSOCIATION: Fizicheskiy institut GKAE (Physics Institute, GKAE);
TsNI Fiziko-tekhnicheskaya laboratoriya AN ArmSSR (Central Scien-
tific Research Physicotechnical Laboratory AN ArmSSR)

SUBMITTED: 31Mar64   ENCL: 00

SUB CODE: EM   NR REF SOV: 003.   OTHER: 000

Card 2/2

GAZAZYAN, E.D.; MERGELYAN, O.S.

Radiation from linear sources flying along the interface with a gyro-
tropic ferrite. Izv.AN Arm.SSR. Ser. fiz.-mat. nauk 17 no.5:86-91 '64.

(MIRA 17:12)

1. Fizicheskiy institut Gosudarstvenr go komiteta po ispol'zovaniyu
atomnoy energii SSSR i TSentral'naya nauchno-issledovatel'skaya fiziko-
tekhnicheskaya laboratoriya AN ArmSSR.

ACCESSION NR: AP4042930   S/0057/64/034/008/1432/1435

AUTHOR: Gazazyan, E.D.; Mergelyan, O.S.

TITLE: The Vavilov-Cerenkov effect in a magnetized ferrite

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.8, 1964, 1432-1435

TOPIC TAGS: Cerenkov radiation, Cerenkov effect, ferrite

ABSTRACT: The authors develop the theory of the Cerenkov radiation from a charged particle moving parallel to the magnetic field in a magnetized ferrite. The calculation is performed in terms of the Fourier components of the fields and current in much the same way as for an isotropic medium. The only complication arises from the fact that here the relation between the magnetic field, H, and the induction, B, is $B = \mu H + iHxg$ (exponential time dependence has been introduced), where g is proportional to the magnetic field and depends on the frequency. This complication is minimized and the problem rendered tractable by assuming that g is small and that $(g/\mu)^2$ may be neglected compared with unity. It is found that near the radiating particle the radiation field may be represented by two elliptically polarized waves of nearly the same intensity propagating at angles $\theta_\pm$ given by $\tan^2\theta_\pm = \tan^2\theta_0 +$

1/2

ACCESSION NR: AP4042930

+ (g/μ)sec θ_0, where θ_0 is the propagation angle for Corenkov radiation in the un-
magnetized medium. Far from the radiating charge, however, the field represents a
circularly polarized wave of intensity equal to that of Corenkov radiation from the
particle in the unmagnetized medium and an elliptically polarized wave, the inten-
sity of which is smaller by a factor of the order of $(g/\mu)^2$. "The authors are
grateful to M.L.Tor-Mikayolyan for pleasant discussions." Orig.art.has: 21 for-
mulas.

ASSOCIATION: none

SUBMITTED: 30Oct63   ENCL: 00

SUB CODE: EM, NP   NR REF SOV: 006   . OTHER: 000

2/2

GAZAZYAN, E.D.; MERGELYAN, O.S.

Transient radiation in gyrotropic ferrite. Dokl. AN Arm. SSR 38
no.3:143-147 '64.   (MIRA 17:6)

1. TSentral'naya fiziko-tekhnicheskaya laboratoriya AN Armyanskoy
SSR. Predstavleno chlenom-korrespondentom AN Armyanskoy SSR G.M.
Garibyanom.

L. 63123-65   EWT(1)/EEC-2

ACCESSION NR: AP5020375

UR/0141/65/008/003/0629/0631
621.372.853.2/3

AUTHOR: Gazazyan, E. D.; Mergelyan, O. S.

TITLE: Cerenkov radiation of charged particles in a circular waveguide filled with a gyrotropic ferrite

SOURCE: IVUZ. Radiofizika, v. 8, no. 3, 1965, 629-631

TOPIC TAGS: Cerenkov radiation, circular waveguide, gyrotropic medium waveguide, ferrite

ABSTRACT: The authors examine the Cerenkov effect in a circular waveguide filled with a medium with a known magnetic permeability with magnetic gyrotropism. This may be a ferrite in a constant magnetic field. First the field of a point charge in a gyrotropic ferrite is computed. Then the charged particle is moved along the axis of a circular waveguide and expressions for the reflections from the waveguide walls are found. These produce a deceleration force on the particle with resulting energy losses. The spectrum of the radiation is determined. Under certain conditions the results coincide with those which have been found for the isotropic case.

Card 1/2

L 63123-65

ACCESSION NR: AP5020375

"The authors thank G. M. Garibyan for interest in the work and discussion." Orig.
art. has: 8 formulas.

ASSOCIATION: Tsentral'naya nauchno-issledovatel'skaya fiziko-tekhnicheskaya
laboratoriya AN Arm. SSR (Central Scientific Research Physicotechnical Laboratory,
AN Arm. SSR)

SUBMITTED: 21Jul64   ENCL: 00   SUB CODE: EC, NP

NO REF SOV: 004   OTHER: 000

Card 2/2

L 64470-65 - EWT(1)/EWA(h)
ACCESSION NR: AP5012632   UR/0051/65/018/005/0913/0915
                                           537.24:535.23.001.1

AUTHORS: Gazazyan, E. D.; Mergelyan, O. S.

TITLE: Vavilov-Cerenkov effect in a waveguide field with an iso-
tropic optically active medium

SOURCE: Optika i spektroskopiya, v. 18, no. 5, 1965, 913-915

TOPIC TAGS: Cerenkov effect, waveguide, electron radiation, circular
polarization, optic activity

ABSTRACT: The authors calculate the radial and longitudinal field
components, the field reflected from the walls of the waveguide, and
the energy loss per unit path of a particle moving with constant
velocity in a cylindrical waveguide filled with an isotropic optical-
ly active medium on the axis of the waveguide. The energy loss is
expressed in the form of a sum of the intensities of the right and

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L 64470-65

ACCESSION NR: AP5012632   /

left circularly polarized radiations. The length within which the
polarization vector makes a complete revolution is calculated. It
is shown that the spectrum of the Cerenkov radiation from such a
particle is discrete. 'The authors thank G. M. Garibian for interest
in the work and valuable discussions.' Orig. art. has: 7 formulas.

ASSOCIATION: None

SUBMITTED: 27Jun64   ENCL: 00   SUB CODE: OP, EM

NR REF SOV: 003   .   OTHER: 000

Card 2/2

L 26968-65

AUTHOR: Gazazyan, E.D./ Mergelyan, O.S.

TITLE: Radiation from a point charge in a waveguide in the presence of an exter-
nal magnetic field

ABSTRACT: The authors calculate the radiation from a point charge moving uniform-
ly along the axis of a circular waveguide filled with dielectric material and lo-
cated in a longitudinal magnetic field. The equations for the electric field of
the moving charge are quoted from the textbook literature and the calculation re-
duces to fitting the boundary conditions on the waveguide surface. The energy ra-
diated per unit path length is calculated. The spectrum of the radiation is dis-
crete and the same for both right- and left-hand circularly polarized components,
but the intensities of these components and the conditions for their radiation are
different. The authors are grateful to G.M.Garibyan for interesting discussions

Card 1/2

L 26968-65
ACCESSION NR: AP5003254

and valuable advice."   Orig.art.has: 7 formulas.

ASSOCIATION: none

SUBMITTED: 09Jul64   ENCL: 00   SUB CODE: EM

NR REF SOV: 006   OTHER: 000

Card 2/2

GAZAZYAN, E.D.; MERGELYAN, O.S.

Interaction between charged particles and gyrotropic ferrite.
Zhur. tekh. fiz. 35 no.3:539-541 Mr '65.   (MIRA 18:6)

ACC NR: AP6027207   SOURCE CODE: UR/0431/66/001/003/0200/0202

AUTHOR: Gazazyan, E. D.; Kazandzhyan, L. V.

ORG: Institute of Physics GKAE (Institut fiziki GKAE)

TITLE: Spectrum and radiation intensity of a sequence of cylindrical bunches in an optically active medium

SOURCE: AN ArmSSR. Izvestiya. Fizika, v. 1, no. 3, 1966, 200-202

TOPIC TAGS: radiation intensity, plasmoid, optic activity, charge density, electron motion, electron radiation, electron spectrum

ABSTRACT: This is a continuation of earlier work (Izv. AN ArmSSR Seriya fiz.-mat nauk v. 17, 105, 1964), where expressions were derived for the fields and radiation intensities produced by a single bunch of charged particles, in the form of a rectangular parallelepiped, passing through an isotropic optically active medium. The present article deals with the passage of a sequence of bunches, and equations are derived for the total values of the field, for the charge density, and for the energy lost by the aggregate of bunches per unit path. It is shown that the presence of many periodically repeating bunches gives rise to an additional term in the expression for the energy loss and under certain conditions the radiation from the different bunches may become coherent. The conditions for maximum intensity are derived and it is shown

Card 1/2

L 09413-67

ACC NR: AP6027207

that at best the intensity of a number of bunches can be increased in proportion to the number of bunches. The expression for the frequency spectrum shows that there exists a certain discrete spectrum at which the radiation is maximal. Orig. art. has: 5 formulas

SUB CODE: 20/ SUBM DATE: 24May65/ ORIG REF: 004.

Card 2/2

DEAK, Pal, dr.; GAZDA, Endre, dr.

X-ray diagnostic problems in tuberculous spondylitis. Magy.
radiol. 7 no.4:229-234 Oct 55.

1. As Allami Fodor Jozsef Szanatorium (Igazgato-foorvos
Tisko, Tibor dr.) koslemenye.
        (TUBERCULOSIS, SPINAL, diag.
            x-ray, early, tomography.)

GAZDA, Endre, dr.

Platybasia and basilar impression. Magy. radiol. 8 no.2:81-89
May 56.

1. A Peterfy Sandor utcai Korhaz-Rendelointezet (igazgato:
Lendvai, Jozsef, dr.) rontgenosztalyanak (foorvos: Deak, Pal, dr.)
kozlemenye.
      (OCCIPITAL BONE, abnorm.
          basilar impression & platybasia, differentiation by
          x-ray diag. (Hun))
      (ABNORMALITIES
          same)

GAZDA, E.

On a method of measuring the diffusion coefficient of ions
in dielectric liquids. Acta physica pol 24 no.2:209-216 Ag '63.

1. II Institute of Physics, Technical University, Gdansk.

GAZDA, G.

GAZDA, G.   Metallurgic innovators for execution of the March decision. p. 5
        Vol. 7, no. 18, Sept. 1955. UJITOK LAPJA. (Orszagos Talalmanyi
        Hivatal) Hungary.

SOURCE: East European Accessions List (EEAL), Library of Congress Vol. 5,
        no. 6, June 1956

GAZDA, J.

"The Processing of Poultry by Machinery on an Assembly Line." p. 211 (PRUMYSL POTRAVIN,
Vol. 4, No. 5, 1953) Praha, Czechoslovakia

SO: Monthly List of East European Accessions, Library of Congress, Vol. 3, No. 4,
     April 1954. Unclassified.

GAZDA, Jan, inz.

Problem of economic indexes of condensing power plants. Energetika
Cz 12 no.2:60-62 F '62.

1. Organizace pro racinalizaci energetickych zavodu, n.p., Praha.

GAZDA, Jan, inz.

Technical aging of steam power plants. Energetika Cz 13 no.3:127-129 Mr '63.

1. Organizace pro racionalizaci energetickych zavodu, Praha.

Z/032/63/013/004/003/011
E073/E183

AUTHORS: Sálek J., Engineer, and Gazda J., Engineer

TITLE: Use of sintered carbides for difficult machining
            conditions

PERIOEICAL: Strojírenství, v.13, no.4, 1963, 297-301

TEXT: The most common causes of excessive wear of cutting
tools are incorrect selection of cutting-tool material, cutting-
tool geometry and cutting conditions. Owing to the increasing
tendency to use sintered-carbide tools for machining operations,
for which hitherto tougher high-speed tools were used, the authors
review published information on the properties of six types of
recently-developed Soviet sintered carbides. Two of these are
suitable for machining oxidation-resistant materials, Ti alloys,
and hardened cast iron, while the others are suitable for
intermittent cutting of austenitic steels and steel castings.:
Machining tests have been carried out with the Czech-produced
sintered carbides S4 and S5; these consisted of intermittent cuts
on castings of a heat-treated cast steel of 75 to 85 kg/mm^2 tensile
strength, 36 kg/mm^2 yield point (0.42% C, 0.71% Mn, 0.22% Si).
Card 1/2

Use of sintered carbides for ...   Z/032/63/013/004/003/011
                                           E073/E183

The method proposed by Professor Křístek (Strojírenství, v.12, no.1, 44-48) was used for the tests; it is suitable both for measuring the width of the wear trace and for assessing the state of the cutting edge and the tool in general. The service life can be considerably influenced by hand-honing (with a negative angle $\gamma \sim 30°$). The cutting edge did not chip except for one isolated case. The wear rates obtained for carbides S4 and S5 were very low, particularly for the carbide S4. To obtain full benefit from the properties of these carbides they should be used only for relatively high rates of feed and low cutting speeds similar to those used in the experiments carried out under the following conditions: $v = 31$ m/min, $s = 0.43$ to 0.80 mm/rev, $t = 1.5$ mm. There are 12 figures and 1 table.

ASSOCIATION: Vysoká škola strojní a textilní, Liberec
              (Technical University on Mechanical Engineering
              and Textiles, Liberec)

Card 2/2

GAZDA, Jan, inz.

Organization of temporary storage of technological equipment in building electric power plants. Energetika Cz 13 no.12: 657-660 D '63.

1. Organizace pro racionalizaci energetickych zarizeni, n.p., Praha.

GAZDA, Jan, inz.; POS, Milan

Application of the critical path method (CPM) in power engineering.
Energetika Cz 15 no.3:113-117 Mr '65.

1. Organization for Rationalization of Power Engineering
Plants National Enterprise, Prague (for Gazda). 2. Energoprojekt,
Prague (for Pos).

GAZDA, Ladislau, prof. (Sf. Gheorghe, Reg. Brasov)

From my experience in teaching geography to the 3d and 4th classes.
Natura Geografie 15 no.2:59-60 Mr-Ap '63.

GAZDA, C.

"Choice of a Building Site for Thermoelectric Power Plants and transformer stations." p. 112 (ENERGETIKA, Vol. 3, No. 3, March 1953, Praha, Czechoslovakia).

SO: Monthly List of East European Accessions, LC, Vol. 3, No. 5, May 1954, Unclassified.

DENES, G.; GAZDA, Z.

Studies on the enzymatic synthesis of acid amide and peptide bonding.
I. Enzymatic synthesis of glutamine in Lupinus albus. Acta physiol. hung.
4 no.1-2:1-12 1953.   (CLML 25:1)

1. Of the Medical Chemistry Institute of Budapest University.

LAPIS, Karoly, dr.; HOFFMANN, Ida, dr.; GAZDA, Zsuzsa, dr.

2 Cases of Letterer-Siwe disease. Orv.hetil. 100 no.34:
1225-1229 Ag '59.

1. A Szabadsaghegyi Allami Gyermekszanatorium (igazgato-
foorvos: Szederkenyi Janos dr., tudomanyos igazgato:
Gorgenyi-Gottche Oszkar dr. az orvostudomanyok doktora) es az
Onkopathologiai Kutato Intezet (vezeto: Keliner Bela dr. az
MTA lev. tagja) kozlemenye.
                    (LETTERER-SIWE DISEASE in inf. & child.)

GAZDAG, A.

LORINC, Andor; PETER, Ferenc, dr.; GAZDAG, Anndrasno

Use of 2-etylaniline and its derivatives in azodyeing developed
on fibers. Magy textil 14 no.3:113-116 Mr '62.

1. Kozponti Koloriaztikai Kutato Laboratorium (for Lorinc and
Gazdag). 2. Textilipari Kutato Intezet (for Peter)

HUNGARY

SZORADY, Istvan, TOTH, Gyorgy, GAZDAG, Istvan; Medical University, Pe-
diatric Clinic and X-Ray Clinic (Orvostudomanyi Egyetem Gyermekklinika-
ja es Rontgenklinikaja), Szeged.

"Observations Concerning the Protective Action of Pantothenic Acid
Against Radiation."

Abstract: [Authors' Hungarian summary] Preliminary tests indicate that
the life-span of mice exposed to whole body X-ray irradiation may be
lengthened by a prior treatment with pantothenic acid. It may be assumed
that the mechanism of the protective action is dependent on the effect
of pantothenic acid on the protection of the epithelium and the capillary
walls, and its activating role in tissue regeneration, protein synthesis,
antibody production and corticoid synthesis, and also its general anti-
allergic properties. Details of the protective action must be worked
out by further study. Of 37 references, 8 are Eastern European, the rest
is Western.

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6

GAZDAG, Jozsef; TOMA, Laszlo

Uniform training of collective farm deliveries of goods and
the canning industry receivers of raw material. Konzerv
paprika no.4:147-148 Jl-Ag '63.

1. Konzerv- es Paprikaipari Igazgatosag.

GAZDAG, Jozsef, dr. (Szombathely)

What to do in case of car cancellation? Magy vasut 6 no.24:4 15 D
'62.

GAZDAG, Jozsef, dr.

Loading time of freight-car goods in the regular handling
places of railroad stations and on their rented spaces.
Vasut 12 no.10:21-22 25 O '62.

GAZDAG, Jozsef, dr. (Szombathely)

Use of industrial tracks according to timetables (graphs).
Vasut 12 no.8:4-5 25 Ag '62.

GAZDAG, Jozsef

       Some examples of bad organization of transportation. Kozleked
       kozl 18 no.11:171 Mr '62.

       1. Szombathelyi Vasutigazgatosag.

GAZDAG, Jozsef, dr. (Szombathely)

How can we keep the book of registering freight cars?
Magy vasut 7 no.9:5 1 My '63.

GAZDAG, L.

Planning maps for a historical atlas. p. 215 (Geodezia es Kartografia Vol. 8, no. 3, 1956 Budapest)

SO: Monthly List of East European Accession (EEAL) LC, Vol. 6, no. 7, July 1957. Uncl.

GAZDAG, L.

A. G. Bogshchanin and A. V. Mishulin's <u>Atlas of the World History of Antiquity</u>;
a review. p. 339.
(GEODEZIA ES KARTOGRAFIA, Vol. 8, no. 4, 1956. Budapest, Hungary)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 9, September 1957. Uncl.

GAZDAG, Laszlo

A cartographic conference and cartographic exhibition. Foldrajzi
ert 9 no.1:110-112 '60.   BEAI 9:8)
        (Budapest--Exhibitions)
        (Hungary--Cartography)

GAZDAG, Laszlo, dr.

Water system of the Szaraz Brook. Foldrajzi ert 13 no.3:367-374 '64.

GAZDAG, Miklos

Model of work organization and some of its psychological
aspects. Munka szemle 7 no.8:15-19 Ag'63.

GAZDAGH, :stvan; CSOKA, Magda; PETHO :

Innovation week in Pecs and Baranya County. Ujit lap 17 no.8:
3-4 30 Ap '65.

GAZDANOVA, S. B.

Po goram i ploskosti Severnoi Osetii; kratkii putevoditel'. /In the mountains
and on the plainsof North Ossetia/. Vladikavkaz, 1927. 46 p. illus., fold. mpa.
Ossetian Military Road (p. 23).   DLC: DK511.08G3

SO: Soviet Transportation and Communications, A Bibliography, Library of Congress,
    Reference Department, Washington, 1952, Unclassified.

GAZDAROV, A. A.

1247. Rost prdizvoditel'nosti truda na Beslanovskom krakhmalo-patochnom kombinare
im. A. I. Mikoyana. Ordzhonikidze, 1954. 16s. 20sm. (M-vo vyssh. obrazovaniya
SSSR,. Mosk. Tekhnol. in-t pishchevcy prom-sti. kafedra organizatsii i
planirovaniya predpriyatiya). 125 ekz. B. ts. (54-52824)

SO: Knizhnaya Letopis, Vol. 1. 1955

GAZDAROV, E.

"Organization of Operations Involved in Sugar Beet Harvest by Use of the Three-Row Beet Combine SKEM-3" Tr. from the Russian. p. 899, (ZA SOCIALISTICKE ZEMEDELSTVI, Vol. 2, no. 8, August 1952, Praha, Czechoslovakia).

SO: Monthly List of East European Accessions, LC, Vol. 2, No.11, Nov. 1953, Uncl.

GAGDALOV, L.

Beets and Beet Sugar

Organization of sugar-beet harvesting with the three-row beet harvester SKEN-3.
Sots. sel'.khoz. 23, no. 4, April 1952.

MONTHLY LIST OF RUSSIAN ACCESSIONS, LIBRARY OF CONGRESS, AUGUST 1952.   UNCLASSIFIED.