

Influence of regions...

S/185/62/007/004/012/018  
D407/D301

scalar wave equation for a field  $\psi$  in a medium with fluctuating permittivity is

$$\Delta\psi + k^2 \left( \epsilon(z) + \delta\epsilon(x,y,z) \right) \psi = 0, \quad (2) \quad \checkmark$$

where  $\delta\epsilon(x,y,z)$  is the permittivity fluctuation. The problem is solved by the method of successive approximations, setting

$$\psi = \psi_0 + \psi_1, \quad (3)$$

where  $\psi_0$  is the solution of Eq. (2) for  $\delta\epsilon = 0$ . The case is considered of a finite jump in permittivity. The boundary condition

$$\frac{\partial\psi}{\partial z} = - \frac{ik\epsilon_1(0)}{\sqrt{\epsilon_2}} \left( 1 + \frac{\Delta_{\perp}}{k^2\epsilon_2} \right)^{1/2} \psi \quad (8)$$

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is set up. The solutions for the wave equation are obtained. The intensity of the scattered radiation is expressed by the formula

$$|\psi_1(\infty)|^2 = \frac{k^2 |R_{1,2}|^2}{2p(\infty)} \int_0^{\infty} \frac{dz}{p^2(z)} \int_{-\infty}^{\infty} W\left(\frac{\alpha^{1/2}}{p(z)} \rho_{z,0}, \rho_{z,z}\right) d\rho_z \quad (10)$$

where  $R_{1,2}$  are reflection coefficients,  $\rho = r - r'$ , and  $W$  is the correlation function for the permittivity fluctuations. Further, the scattering of electromagnetic waves in the presence of a turning point is considered. The boundary conditions are chosen in such a way that the field vanishes exponentially for  $z \rightarrow -\infty$ , and that it passes into a wave which propagates to the right for  $z \rightarrow +\infty$ . With  $z \rightarrow \infty$ , the solution of the

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inhomogeneities only. Further, Maxwell's equation for the i-th component of the electric field  $E$  is considered in the perturbation-theory approximation, viz.:

$$\Delta E_i + \frac{\partial}{\partial x_i} \frac{1}{\epsilon} \frac{d\epsilon}{dz} E_z + k^2 \epsilon E_i = -k^2 \delta\epsilon E_{0i} - \frac{1}{\epsilon} \frac{\partial}{\partial x_i} (E_0 \nabla \delta\epsilon), \quad (18)$$

where the subscript 0 denotes the field with  $\delta\epsilon = 0$ . From Eq. (18) it is evident that with  $\epsilon = 0$  the coefficients, as well as the right-hand side of the equation, become infinite. The infinite value of the scattered field is the result of neglecting nonlinear effects and extinction. There are 7

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S/056/62/043/004/045/061  
B125/B186

9.7845

AUTHORS: Bass, F. G., Blank, A. Ya.

TITLE: Theory of transformation and scattering of waves from  
fluctuations in a plasma

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,  
no. 4(10), 1962, 1479-1488

TEXT: The scattering and transformation of different types of waves in a non-isothermal plasma resulting from interaction with the thermal fluctuations are investigated. When  $T_e > T_i$ , four types of normal waves are possible in a non-isothermal plasma, which can either be scattered or be transformed into another type. The number of transformations possible in this case is limited by the conservation of energy and momentum.  $T_e$  and  $T_i$  are the electron and ion temperatures in ev.  $\omega_0$  and  $k_0$ , or  $\omega$  and  $k$ , are the frequency and wave vector of the incident or outgoing wave respectively. When a transverse wave is scattered from a longitudinal wave, the scattering equation of the longitudinal wave reads

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S/056/62/043/004/045/061  
B125/B186

Theory of transformation and ...

as  $(\omega - \omega_0)^2 = \Omega_e^2 + s_e^2(\vec{k} - \vec{k}_0)^2$ . The symbols are defined in the work of A. I. Akhiezer et al. (ZhETF, 33, 750, 1957). Scattering from a longitudinal wave transforms a longitudinal wave into a transverse wave. Waves cannot be scattered by other waves with the same dispersion law. Transverse waves having frequencies below  $\Omega_e$  cannot be propagated in a plasma. The transformations discussed here are caused by the spatial dispersion; therefore the present problem is investigated in kinetic approximation. The interaction of the waves necessitates the following correction to the equilibrium distribution function:

$$f_s(k, \omega) = -i \frac{F_1(\omega_0, k_0) \partial f_1(\omega', k') / \partial p + F_2(\omega', k') \partial f_1(\omega_0, k_0) / \partial p}{\omega - kv + i/\tau} \quad (20).$$

The spectral correlation function is expressed in terms of correlators between the distribution function and the field fluctuations. The final expression for the spectral intensity of electromagnetic wave emission when longitudinal waves are scattered from transverse waves is

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S/056/62/043/004/045/061  
B125/B186

Theory of transformation and ...

$$\frac{1}{V} \frac{dI}{d\omega d\omega'} = \frac{\pi r_0}{12} |E_1|^2 \Omega_e^4 \frac{s_e^2}{c^2} (\omega - \Omega_e) \omega^2 \left| \frac{(k'n) \omega}{c \sqrt{\omega^2 - \Omega_e^2}} - \frac{\omega - \Omega_e}{c^2} \right|^{-1} \times$$

$$\times \sum_{s=1}^3 \frac{\gamma}{(\omega - \omega_s)^2 + \gamma^2} (\delta_{lk} - n_l n_k) n_{0l} n_{0m} (\delta_{pr} - n'_p n'_r) \Gamma_{llp} \Gamma_{kmr}, \quad (33).$$

$$n_0 = \frac{k_0}{k_e}, \quad n = \frac{k}{k}, \quad n' = \frac{k'}{k'};$$

$$\omega_{1,2} = \frac{(\omega_0^2 - \alpha^2) \omega_0 \pm [\omega_0^2 (\omega_0^2 - \alpha^2)^2 - 4 (\omega_0^2 - \alpha^2 \cos^2 \theta) (\frac{1}{2} (\omega_0^2 - \alpha^2)^2 + \alpha^2 \Omega_e^2 \cos^2 \theta)]^{1/2}}{2 (\omega_0^2 - \alpha^2 \cos^2 \theta)}$$

$$\alpha^2 = c^2 / s_e^2 (\omega_0^2 - \Omega_e^2).$$

A similar formula holds for the scattering of longitudinal and transverse waves from transverse waves. Effective fluctuations can also be caused by Card 3/4

Theory of transformation and ...

S/056/62/043/004/045/061  
B125/3186

turbulence in the plasma.

ASSOCIATION: Institut radiofiziki i elektroniki Akademii nauk  
Ukrainskoy SSR (Institute of Radio Physics and Electronics  
of the Academy of Sciences of the Ukrainskaya SSR)

SUBMITTED: May 3, 1962

Card 4/4  
1

L 10129-63

EWI(1)/KRC(b)-2/BDS--AFFTC/ASD/ESD-3--IJP(c)

ACCESSION NR: AP3000153

S/0141/63/006/002/0290/0296

AUTHOR: Bass, F. G.; Verbitskiy, I. L.

58  
57

TITLE: Frequency spectrum of the electromagnetic waves scattered by a statistically rough surface

SOURCE: Izvestiya vysshikh uchebnykh zavedeniy, radiofizika, v. 6, no. 2, 1963, 290-296

TOPIC TAGS: sea-water scatter, electromagnetic wave scatter

ABSTRACT: As determined experimentally, the frequency spectrum of short and medium waves scattered by the sea surface consists of stable discrete lines that depend on the radiation frequency only. Earlier theories treated the scattering surface as a package of long gravitational waves and solved the problem in the first approximation of the perturbation theory. The present article offers formulae for the correlation tensors of fluctuation field with an allowance for the curvature and the imperfect conductance of an average surface. Effect of the sea-water viscosity on the width of the scattered-wave line is investigated. Corrections for the spectral density of scattered field are found

Association: Radiophysics and Electronics Inst. AN UkrSSSR  
Card 1/2



L 10130-63

EWT(1)/EEC(b)-2/BDS--AFPTC/ASD/RSD-3--TJP(C)

ACCESSION NR: AP3000167

S/0141/63/006/002/0407/0410

AUTHOR: Bass, F. G.; Khankina, S. I.

58

TITLE: Energy losses of a charge moving over a periodical surface

SOURCE: Izvestiya vysshikh uchebnykh zavedeniy, radiofizika, v. 6, no. 2, 1963, 407-410

TOPIC TAGS: moving-charge losses

ABSTRACT: A mathematical investigation of the problem is offered for perfectly conducting corrugated surface. The resulting formulae cover a point charge, a dipole, and a charged filament. Orig. art. has: 15 equations.

ASSOCIATION: Institut radiofiziki i elektroniki AN UkrSSR (Radiophysics and Electronics Institute, AN UkrSSR)

SUBMITTED: 10Jul62

DATE ACQ: 12Jun63

ENCL: 00

SUB CODE: PH

NR REF SOV: 004

OTHER: 001

*elm/du*  
Card 1/1

BASS, F.G.; MEN', A.V.

Spatial correlation of the fluctuations of waves propagating  
in an infinite turbulent medium. Akust. zhur. 9 no.3:283-290  
'63. (MIRA 16:8)

1. Institut radiofiziki i elektroniki AN UkrSSR, Khar'kov.  
(Sound waves)

BASS, F.G.; BLANK, A.Ya.; KAGANOV, M.I.

Galvanomagnetic phenomena in a variable electromagnetic field.  
Zhur. eksp. i teor. fiz. 45 no.4:1081-1086 0 '63. (MIRA 16:11)

1. Institut radiofiziki i elektroniki AN UkrSSR i Fiziko-tekh-  
nicheskiy institut AN UkrSSR.

L 16342-65 EWP(1)/EFA(s)-2/ESD(t)/EEC(b)-2 Pt-10/P1-4 IJP(c)/  
RAEM(c)/ESD(t)/ESD(ts)/SSD/AFWL/ASD(a)-5/AS(mp)-2/AFMD(c)/AFETR/RAEM(a)  
GG

ACCESSION NR: AP5009654

S/0181/64/006/012/3577/3584

AUTHOR: Bass, F. G.; Gredeskul, S. A.; Kaganov, M. I.

TITLE: Interaction between charged particles and a piezodielectric B

SOURCE: Fizika tverdogo tela, v. 6, no. 12, 1964, 3577-3584

TOPIC TAGS: piezoelectric crystal, dielectric crystal, charged particle interaction, Cerenkov radiation, acoustic radiation

ABSTRACT: The authors consider the passage of a single particle and of a compensated beam through a piezodielectric, which for simplicity is assumed to be isotropic in its elastic and electric properties. From the coupled system of equations of elasticity (without account of viscosity) and electrostatics they calculate the acoustic Cerenkov radiation produced by a particle traveling along the axis of a piezodielectric, and the coherent interaction of the compensated beam of charged particles with a piezodielectric. Since direct passage of the particles through the piezodielectric is not realizable, the

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L-16342-65

ACCESSION NR: AP5000654

3

authors consider the minimum channel that can be cut through the dielectric and for which the resultant equations are still valid. It is also indicated in a postscript that the results agree with a recent article by Tsu (J. Appl. Phys. v. 35, 125, 1964).  
Orig. art. has: 4 figures and 21 formulas.

ASSOCIATION: Institut radiofiziki i elektroniki AN UkrSSR (Institute of Radiophysics and Electronics AN UkrSSR); Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University); Fiziko-tekhnicheskij institut AN UkrSSR, Khar'kov (Physicotechnical Institute AN UkrSSR)

SUBMITTED: 28May64

ENCL: 00

SUB CODE: SS, NP

NR REF SOV: 006

OTHER: 003

Card, 2/2

L 13494-65 EWT(1)/ENG(k)/EPA(sp)-2/EPA(w)-2/EEC(t)/T/EEC(b)-2/EWA(m)-2 Po-4/  
PI-4/Pz-6/Pab-10 IJP(c)/AS(mp)-2/AFMD(t)/ASD(a)-5/RAEM(a)/ESD(dp)/ESD(gs)/ESD(t)  
AT  
ACCESSION NR: AP4047900 S/0056/64/047/004/1322/1341

AUTHOR: Bass, F. G.

TITLE: Kinetic theory of propagation of strong electromagnetic waves in semiconductors and in a plasma 21

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 4, 1964, 1322-1341

TOPIC TAGS: electromagnetic wave propagation, kinetic equation, dielectric constant, plasma resonance, cyclotron resonance

ABSTRACT: The effect of the heating of electrons in a plasma and in semiconductors by an electromagnetic field and of the associated nonlinearity, on the propagation of the electromagnetic field is considered with allowance for the influence of an external magnetic field. The only hitherto published article dealing with this subject (A. V. Gurevich, Radiotekhn. i elektron. v. 3, 704, 1956) was con-

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L 13494-65

ACCESSION NR: AP4047900

finned to conditions prevailing in the ionosphere, disregarded the external magnetic field, and was based under the assumption that the electron gas filled a layer with smoothly varying properties. In the present article the carriers are assumed to fill a half-space, in accord with experimental conditions prevailing for semiconductors and plasma under laboratory conditions. The kinetic equation and the dielectric tensor are derived, and the character of the field attenuation in the medium is considered both off-resonance, when the nonlinearity of the Maxwell's equations is small, and in the case of magnetic-plasma and cyclotron resonances, when the nonlinearity is strong. The dependence of the surface impedance on the amplitude and frequency of the incident electromagnetic field and on the external constant magnetic field are determined. Comparison shows that in the linear theory the field attenuates with depth exponentially and the phase is a linear function of the coordinate, so that the phase velocity is independent of the time. In the nonlinear theory off resonance, the phase is likewise linear in the coordinate, but

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L 13494-65

ACCESSION NR: AP4047900

the field attenuates in accordance with a power law. In the presence of resonance in the nonlinear theory, the field attenuates with increasing coordinate in accordance with a power law, and the phase has a complicated logarithmic dependence, making the phase velocity an exponential function. "The author thanks M. I. Kaganov and M. Ya. Azbel' for discussions." Orig. art. has: 2 figures and 67 formulas.

ASSOCIATION: Institut radiofiziki i elektroniki Akademii nauk UkrSSR (Institute of Radiophysics and Electronics, Academy of Sciences, UkrSSR)

SUBMITTED: 27Feb64

ENCL: 00

SUB CODE: EM, ME

NR REF SOV: 006

OTHER: 000

Card 3/3



ACCESSION NR: AP5006034

S/0141/64/007/006/1195/1198

AUTHOR: Bass, F. G.; Khankina, S. I.

21 11

TITLE: Contribution to nonlinear theory of electromagnetic waves in semiconductors and in a plasma

SOURCE: IVUZ. Radiofizika, v. 7, no. 6, 1964, 1195-1198

TOPIC TAGS: electromagnetic wave propagation, nonlinear theory, semiconductor wave propagation, plasma wave interaction, carrier density, carrier temperature

ABSTRACT: An earlier study of the propagation and absorption of strong electromagnetic waves in semiconductors and in a plasma (Bass, ZhETF v. 47, 1322, 1964) is extended to include hybrid waves in the case of a type II semiconductor, surface waves, and hybrid resonance in the presence of electrons and holes with equal densities. An electromagnetic wave is assumed incident from vacuum on a surface plane parallel with the semiconductor, with normal incidence. Expressions are derived for the wave amplitude, the carrier temperature, and the carrier relative temperature for the three cases considered above. Orig. art. has 1. foreign.

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L 38120-65

ACCESSION NR: AF5006034

ASSOCIATION: Institut Radiofiziki i elektroniki AN UkrSSR (Institute of Radio  
Physics and Electronics, AN UkrSSR)

SUBMITTED: 06Apr64

ENCL: 00

SUB CODE: SS, ME

NR REF SOV: 003

OTHER: 000

*mi*  
Card 2/2

BASS, F.G.; KHANKINA, S.I.

Nonlinear theory of electromagnetic waves in semiconductors and  
in a plasma. Izv. vys. ucheb. zav.; radiofiz. 7 no.6:1195-1198  
'64. (MIRA 18:3)

1. Institut radiofiziki i elektroniki AN UkrSSR.

BASS, F.G.

Kinetic theory of the propagation of strong electromagnetic waves  
in semiconductors and in a plasma. Zhur. eksp. i teor. fiz. 47 no.  
4:1322-1341 0 '64. (MIRA 18:1)

1. Institut radiofiziki i elektroniki AN UkrSSR.

I. 31950-65 EWT(1) SFA(s)-2 Pt-10/Pi-4

ACCESSION NR: AP5004402

S/0056/65/048/001/0275/0289

AUTHOR: Bass, F. G.

31  
23  
0

TITLE: Nonlinear galvanomagnetic phenomena, voltage-current characteristics with negative differential conductivity, and runaway electrons

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 1, 1965, 275-289

TOPIC TAGS: galvanomagnetic effect, differential conductivity, negative resistance, impurity scattering, phonon scattering

ABSTRACT: The dependence of conductivity in semiconductors on the external electric and magnetic fields is investigated. The author analyzes the influence of boundary conditions and of the general properties of the bands of electrons scattering by a lattice and by impurities on the form of the current-voltage characteristics, and also the conditions under which negative resistance regions appear. The study is based mainly on the effective temperature method, wherein an equilibrium distribution at an effective temperature is assumed, the latter being determined from the energy balance obtained from a kinetic equation. This approach

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L 11930-65

ACCESSION NR: AP5004402

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equivalent to some degree to the so-called elementary theory, widely used in the study of nonlinear propagation of electromagnetic waves in the ionosphere. An equation is derived for the effective temperature of the electron gas in electric and magnetic fields, and the associated gyroviscosity effects are considered in weak and strong fields. A connection is indicated between the positive and negative

ASSOCIATION: Institut radiofiziki i elektroniki Akademii nauk UkrSSR (Institute of Radiophysics and Electronics, Academy of Sciences UkrSSR)

SUBMITTED: 03/01/64

ENCL: 00

SUB CODES: 35, EM

NR REF SOV: 013

OTHER: 003

Card 2/2

L 00346-66 EWT(1)/EPF(n)-2/ENG(m)/EPA(w)-2 IJP(o) AT

ACCESSION NR: AP5019249

UR/0056/65/049/001/0329/0334

AUTHOR: Bass, F. G.; <sup>44,55</sup>Faynberg, Ya. B.; <sup>44,55</sup>Shapiro, V. D.

44,55

568

TITLE: Quasilinear theory of a weakly turbulent plasma with account of correlation of the electric fields

21,44,55

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 1, 1965, 329-334

TOPIC TAGS: turbulent plasma, plasma beam interaction, plasma electron oscillation, plasma electron temperature, plasma stability

ABSTRACT: Inasmuch as the existing quasilinear theory is based on the premise that the correlation time is infinite, the authors derive the equations for a turbulent plasma with account of the influence of the finite time of correlation of the electric microfields. This approach is shown to be valid for a plasma placed in an external electric field whose phase and amplitude vary at random. The model assumed for the plasma is that proposed by T. H. Stix (MATT-239, Preprint, 1964), wherein the plasma consists of alternating regions in each of which the phase is fixed, but the phase changes from region to region are random. The particular case considered is that of a circularly polarized electromagnetic wave propagating in the direction

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L 00346-66

ACCESSION NR: AP5019249

of the external magnetic field. The nonlinearity of the plasma oscillations is taken into account only by introducing the correlator of the amplitudes of the Fourier components of the electric fields; other effects connected with the nonlinearity of the oscillations are disregarded. It follows from an analysis of the kinetic and Maxwell's equations that energy can be transferred in such a system to nonresonant plasma particles, and that if the correlation time is finite it is possible for the plasma electrons to become heated by the transverse component of the electromagnetic field. The stabilizing effect of such an energy transfer is discussed briefly. Orig. art. has: 24 formulas.

ASSOCIATION: None

SUBMITTED: 25Feb65

ENCL: 00

SUB CODE: ME

NO REF SOV: 003

OTHER: 001

*yw*  
Card 2/2



L 58402-65 EWT(1)

ACCESSION NR: AP5016099

UR/0053/65/086/002/0189/0230  
538.3

AUTHOR: Dass, F. G.; Yakovenko, V. M.

23  
B

TITLE: Theory of emission of a charge passing through an electrically inhomogeneous medium

SOURCE: Uspekhi fizicheskikh nauk, v. 86, no. 2, 1965, 189-230

TOPIC TAGS: transition radiation<sup>21</sup>, inhomogeneous medium, charged particle, phase velocity

ABSTRACT: The present comprehensive review paper deals with radiation emitted by a charged particle passing through a dielectrically inhomogeneous medium. Although transition radiation was discovered by V. L. Ginsburg and I. M. Frank in 1946, according to the authors of the present paper this review is the first systematic exposition of the subject. The major topics covered in the paper are as follows:  
1) transition radiation of a charge passing through a boundary between two media,  
2) radiation of a charged particle passing through a moving boundary, 3) transition radiation as a result of a charge obliquely incident on a boundary, 4) transition radiation with spatial dispersion of the dielectric constant taken into account,  
5) radiation of a point charge passing through a plate, 6) radiation of a particle

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ACCESSION NR: AP5016099

moving in a medium with periodically varying properties, 7) radiation of a particle in a medium with fluctuating dielectric constant, and 8) radiation of a particle in the presence of obstacles. The review is based on 131 papers, all but 10 of which were published by Soviet scientists. (The actual number of papers listed in the bibliography is 145; however, 14 of these deal with propagation of a charged particle parallel to a plane boundary—a variety of Cerenkov radiation—and with emission of a charged particle in a waveguide and are referred to but not discussed in the review.) Of the 10 Western papers, three American articles deal with electromagnetic radiation from thin films attributed to radiation of plasma oscillations and plasmon reradiation, which according to the present authors is well explained by the transition radiation theory. Orig. art. has: 141 formulas. [CS]

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: N/EM

NO REF SOV: 133

OTHER: 011

ATD PRESS: 4042

Card 2/2 *200*

L 12080-66 EWT(1)/T/EWA(h) IJP(c) WW/CG/AT

ACC NR: AP5024713

SOURCE CODE: UR/0056/65/049/003/0914/0924

AUTHORS: Bass, F. G.; Levinson, I. B.

ORG: Institute of Radiophysics and Electronics, Academy of Sciences  
UkrSSR (Institut radiofiziki i elektroniki Akademii nauk UkrSSR);  
Institute of Physics and Mathematics, Academy of Sciences Lithuanian  
SSR (Institut fiziki i matematiki Akademii nauk Litovskoy SSR)

TITLE: Cyclotron-phonon resonance in semiconductors

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 3, 1965, 914-924

TOPIC TAGS: cyclotron resonance, magnetic resonance, absorption coefficient, phonon scattering, electron collision

ABSTRACT: Cyclotron-phonon resonance is defined as resonance in which the transfer of electrons between different energy levels is the result of the simultaneous action of both cyclotron and magnetophonon resonance so that the absorption of a quantum of the high-frequency field is accompanied by simultaneous emission or absorption of a phonon. It is assumed that the frequency is high, the magnetic field is strong and quantizing, and the phonon frequency is monochromatic if interaction takes place with long-wave optical phonons. The absorption coefficient

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L 12080-66

ACC NR: AP5024713

connected with the transitions is calculated by the same method as proposed by H. Frohlich (Adv. in Phys. v. 3, 325, 1954). It is shown that scattering of the electrons by optical phonons of frequency  $\omega_0$  leads to resonance absorption at frequencies  $\omega = |m\omega_H \pm \omega_0|$ , where  $\omega_H$  is the cyclotron frequency and  $m$  is an integer. The shape and intensity of the absorption peak are calculated. The possibility of experimental realization of the effect is considered. Orig. art. has: 5 figures and 48 formulas.

SUB CODE: 20/    SUBM DATE: 17Apr65/    NR REF SOV: 007/    OTH REF: 006

Card

9  
2/2

L 63055-65 EWP(d)/FSS-2/EEC(x)-2/EEC-4 Pn-4/Pp-4/Ppc-4/Pg-4/Pt-7  
Pl-4 WS-4

ACCESSION NR: AP5013339

UR/0109/65/010/005/0859/0867

621.371.165:621.396.96

AUTHOR: Bass, F. G.; Bliokh, P. V.; Fuks, I. M. 102  
B

TITLE: Statistical characteristics of a signal scattered by randomly moving reradiators located on a plane interface

SOURCE: Radiotekhnika i elektronika, v. 10, no. 5, 1965, 859-867

TOPIC TAGS: millimeter wave, radiowave scatter 4

ABSTRACT: The scattering of radiowaves by vacillating reradiators randomly arranged in a flat high-absorption interface is theoretically considered. At variance with W. H. Peake's work (IRE Nat. Conv. Rec., 1959, 7, 1, 27), all reradiators are approximated by plane perfect-conductance plates whose characteristic dimensions considerably exceed the radiation wavelength. The scattering capability of the interface is characterized by the so-called "specific differential effective scattering cross-section" which is a ratio of the power

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L 63055-65

ACCESSION NR: AP5013339

scattered into a unit solid angle by a unit area of the interface to the density of the energy flux falling onto the interface. Formulas for calculating the coherent component of the scattered radiation are derived. The effect of the anisotropy of the reradiator conductance upon the mean-field polarization is investigated. Formulas for the dispersion index are developed for various polarizations of the transmitting and receiving antennas. The time correlation functions and the spectra of the incoherent component of scattered radiation, for various modes, are determined. Orig. art. has: 5 figures and 48 formulas.

ASSOCIATION: none

SUBMITTED: 12Mar64

ENCL: 00

SUB CODE: EC, DC

NO REF SOV: 003

OTHER: 004

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Card 2/2

L 4411-66 EWT(1)/EPA(s)-2/EEC(k)-2/T IJP(c) GG

ACCESSION NR: AP5025391

UR/0181/65/007/010/3090/3098

AUTHOR: Basa, F. G.; Gredeskul, S. A.; Kaganov, M. I.

TITLE: Theoretical basis for the use of a beam of charged particles to amplify sound in piezoelectric crystals

SOURCE: Fizika tverdogo tela, v. 7, no. 10, 1965, 3090-3098

TOPIC TAGS: piezoelectric crystal, ultrasonic amplification, dispersion equation

ABSTRACT: The authors study Cerenkov sound radiation from a uniformly charged filament moving in a slot in a piezoelectric crystal. The mechanism of ultrasonic amplification by the crystal is explained and formulas are derived for the coefficient of ultrasonic amplification by an unfocused plasma beam moving in a slot in a piezoelectric crystal and in a flat waveguide filled with a piezoelectric medium. Elimination of the requirement for a focused beam simplifies the experimental conditions and brings about some interesting effects. Crystals in the  $T_d$  class are examined on the assumption that they are isotropic with respect to elastic properties. The formulas derived may be used for calculating radiation from a cluster of charged particles if the dimensions of the cluster are considerably less than a wavelength. The

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ACCESSION NR: AP5025391

dispersion equation for a beam of charged particles moving in a slot in a piezoelectric crystal depends on the dielectric constant of the crystal due to the fact that the dielectric plasma wave is a surface wave. The energy of the wave is concentrated close to the plasma-crystal interface, and therefore the dispersion equation will always depend on the crystal characteristics. The amplified sound wave is propagated in a direction opposite to the motion of the beam. Orig. art. has: 5 figures, 37 formulas. [14]

ASSOCIATION: Institut radiofiziki i elektroniki AN UkrSSR, Khar'kov (Institute of Radio Engineering and Electronics, AN UkrSSR); Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University); Fiziko-tekhnicheskii institut AN UkrSSR, Khar'kov (Physicotechnical Institute, AN UkrSSR)

SUBMITTED: 26Mar65

ENCL: 00

SUB CODE: 55, G-P

NO REF SOV: 002

OTHER: 001

ATD PRESS: 4126

Card 2/2



BASS, F.G.; GREDESKUL, S.A.; KAGANOV, M.I.

Theory of sound amplification in piezoelectric substances by  
a beam of charged particles. Fiz. tver. tela 7 no.10:3090-  
3098 0 '65. (MIRA 18:11)

1. Institut radiofiziki i elektroniki AN UkrSSR, Khar'kov,  
Khar'kovskiy gosudarstvenny universitet i Fiziko-tekhnicheskiy  
institut AN UkrSSR, Khar'kov.

L 05777-67 EWT(1) IJP(c) GG/AT

ACC NR: AP6031445

SOURCE CODE: UR/0056/66/051/002/0536/0555

AUTHOR: Bass, F. G. ; Gurevich, Yu. G.

56  
B

ORG: Institute of Radiophysics and Electronics, Academy of Sciences Ukrainian SSR (Institut radiofiziki i elektroniki Akademii nauk Ukrainskoy SSR)

TITLE: Nonlinear theory of wave propagation in semiconductors

SOURCE: Zhur eksper i teor fiz, v. 51, no. 2, 1966, 536-555

TOPIC TAGS: nonlinear theory, wave propagation, electron temperature, electromagnetic wave, electron gas, skin effect

ABSTRACT: The propagation of electromagnetic waves in a semiconductor is investigated in consideration of nonlinear effects due to heating up of the electrons by the field. Nonlinear anomalous and normal skin effects are analyzed. The nature of field attenuation and the dependence of effective electron temperatures on the frequency of the incident field and its amplitude are studied for resonance and nonresonance. It is shown that the effective temperature with resonance exceeds that with nonresonance. It is found that the attenuation depth of the electron temperature in the anomalous case is greater and in the normal case is of the same order

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L 05777-67  
ACC NR:

AP6031445

of magnitude as that of the attenuation depth of the field. The dependence of the surface impedance on the amplitude and frequency of the incident electromagnetic field and the stationary magnetic field is found. The specific interaction of electromagnetic waves due to heating of the electron gas is analyzed. It is shown that the propagation of small-amplitude waves may considerably change in the presence of a large amplitude wave. Orig. art. has: 83 formulas. [Based on authors' abstract]

SUB CODE: 20/ SUBM DATE: 15Feb66/ ORIG REF: 008/ OTH REF: 002/

Card 2/2 *eyh*

L 22125-66 EWT(1) IJP(c) GG

ACC NR: AP6004926

SOURCE CODE: UR/0056/66/050/001/0102/0111

AUTHOR: Bass, F. G.; Khankina, S. I.; Yakovenko, V. M. 89  
B

ORG: Institute of Radiophysics and Electronics, Academy of Sciences, Ukrainian SSR  
(Institut radiofiziki e elektroniki Akademii nauk Ukrainskoy SSR)

TITLE: The low-frequency properties of a semiconductor plasma situated in a constant electric field

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 1, 1966, 102-111

TOPIC TAGS: semiconductor plasma, plasma conductivity, plasma heating, dispersion equation, electron collision, kinetic equation, electron distribution, distribution function, plasma wave, LF propagation, constant magnetic field, electric field, electromagnetic wave

ABSTRACT: In view of the fact that nonlinear effects begin to manifest themselves in semiconductors even in relatively weak fields, and lead to phenomena of practical interest such as negative conductivity, interaction between electromagnetic waves of different frequencies, and others, the authors examine certain properties of low-frequency electromagnetic wave propagation associated with the appearance of electron heating as a result of negative differential conductivity. The in-

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L 22125-66

ACC NR: AF6004926

clusion of the effects of negative differential conductivity distinguishes this paper from earlier investigations by others. Dispersion relations are obtained for the transverse and longitudinal electromagnetic and electroacoustic waves in a semiconductor situated in constant electric and magnetic fields. The analysis is confined to semiconductors in which interelectron collisions play a substantial role. It is shown by analysis of the kinetic equation for the electron distribution function that in a certain region of the frequency range, the reversal of sign of the conductivity can result in amplification or generation of waves. The expressions are derived for the growth increments of these waves. Orig. art. has: 30 formulas.

SUB CODE: 20/      SUBM DATE: 31May65/      ORIG REF: 007/      OTH REF: 003

Cont 2/2 BK

L 24104-66 EWT(1)/T LJP(c) GG/AT  
ACC NR: AP6014610

SOURCE CODE: UR/0386/66/003/009/0357/0361

AUTHOR: Bass, F. G.

ORG: Institute of Radiophysics and Electronics, Academy of Sciences, Ukrainian SSR (Institut radiofiziki i elektroniki Akademii nauk Ukrainiskoy SSR)

TITLE: A new resonance connected with mutual dragging of electrons and phonons

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 9, 1966, 357-361

TOPIC TAGS: electron interaction, phonon interaction, kinetic equation, distribution function, uhf wave propagation, cyclotron resonance, semiconductor carrier

2/ ABSTRACT: The author analyzes the effect of mutual dragging of electrons and phonons on the propagation of electromagnetic waves in semimetals and degenerate semiconductors situated in an external magnetic field. The field is assumed weak and spatial dispersion is neglected. A set of kinetic equations is derived for the electron distribution functions by means of procedure used by L. E. Gurevich and I. Ya. Korenblit (FTT v. 6, 856, 1964), assuming the electron-phonon scattering to be elastic. From an analysis of the expression for the current obtained from these distribution functions it follows that at sufficiently high frequencies the

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L 24104-66

ACC NR: AP6014610

dragging does not affect the propagation of the electromagnetic waves. However, the expression for the current does show that a resonance takes place at a frequency which is markedly lower than ordinary cyclotron frequency. The range of the resonance frequencies is established. A numerical estimate for bismuth shows that at a temperature of 10K and for a sample size ~0.1 cm this frequency lies between  $10^6$  and  $10^{10}$  cps. so that it can be checked experimentally. The author thanks I. B. Levinson and Ya. B. Faynberg for valuable remarks. Orig. art. has: 12 formulas. 2

SUB CODE: 20/    SUBM DATE: 01Mar66/    ORIG REF: 001

Card 2/2 *lit*

00002-07 ENR(1) LJP(c) AT

ACC NR: AP6030979

SOURCE CODE: UR/0181/66/008/009/2793/2795

AUTHOR: Bass, F. G.; Yakovonko, V. M.

50  
B

ORG: Instituto of Radiophysics and Electronics, AN UkrSSR, Kharkov (Institut radiofiziki i elektroniki AN UkrSSR)

TITLE: Resonance amplification of associated electromagnetic and sound waves by electron drift in semiconductors and semimetals

SOURCE: Fizika tvordogo tela, v. 8, no. 9, 1966, 2793-2795

TOPIC TAGS: electromagnetic wave, sound wave, electron

ABSTRACT: In the presence of electron drift  $v$  arising in semiconductors and semimetals in a constant electric field, a resonance amplification of associated waves (which are produced by the interaction of weakly damped electromagnetic oscillations) is possible. The physics of this phenomenon is described. The following dispersion relation is derived:

$$\left[ \omega - kv + \frac{k^2 c^2}{\omega_0^2} (iv \pm \omega_H) \right] (\omega^2 - k^2 s^2) = \frac{nm}{p} \omega \times$$

$$\times \left[ \frac{k^2 c^2}{\omega_0^2} \omega_H^2 \mp \omega_H kv - iv \left( \omega \pm \frac{k^2 c^2}{\omega_0^2} \omega_H \right) \right]. \quad (1)$$

Solution of (1) by successive approximations yields two independent equations

Card 1/3



L 06262-67

ACC NR: AP6030979

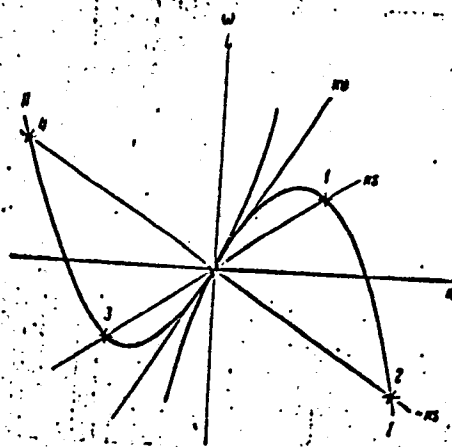
$$\left. \begin{aligned} \omega - kv + \frac{k^2 c^2}{\omega_0^2} (iv \pm \omega_H) &= 0, \\ \omega &= \pm ks. \end{aligned} \right\} (2)$$

The first is a dispersion equation for electromagnetic waves, the second a dispersion equation for sound. In a resonance interaction, the frequencies and wave vectors of both waves coincide; the corresponding branches of the oscillations and resonance points are shown in Fig. 1. As an example, the interaction of the electromagnetic wave (1)  $\omega = kv - \omega_H k^2 c^2 / \omega_0^2$  with the sonic branch  $\omega = ks$  is considered. The case where the frequency of the sound wave does not coincide with the frequency of the electromagnetic wave (nonresonance case) is also discussed. Authors thank E. A. Kaner for discussing the results and for his comments. Orig. art. has: 1 figure and 7 formulas.

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ACC NR: AP6030979

Fig. 1. Dependence of the frequency on the wave vector for sound and electromagnetic waves in the presence of electron drift  $v \gg s$ .



SUB CODE: 20/ SUBM DATE: 02Apr66/ ORIG REF: 002/ OTH REF: 004

Card 3/3 *eq/v*

BASS, G., kand.tekhn.nauk

Water discharge in the flushing of rapid filters. Zhil.-kom.  
khoz. 11 no.7:24-25 J1 '61. (MIRA 14:7)  
(Water-Purification)

69481

16.3500

S/055/59/000/05/014/020

AUTHORS: Bass, G. I., Kostyuchenko, A. G.

TITLE: On the Principle of the Limit Amplitude

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1959, No. 5, pp. 153-164

TEXT: Let the Cauchy Problem  $\nabla$ 

$$(2) \quad \frac{\partial^2 V}{\partial t^2} + L\left(\frac{1}{t} \frac{\partial}{\partial x}\right)V = f(x) e^{i\omega t}$$

$$(3) \quad V(x, 0) = \frac{\partial V(x, 0)}{\partial t} = 0,$$

be considered, where  $x = (x_1, \dots, x_n)$ ,  $L\left(\frac{1}{t} \frac{\partial}{\partial x}\right)$  a positive operator ( $L(s) \geq 0$  for real  $s$ ),  $f(x)$  a finite and sufficiently smooth function; let  $L(s)$  be a homogeneous polynomial of degree  $2m$ .

Theorem 1: Let  $n > 2m$ . Then in every finite domain there exists uniformly with respect to  $x$  the boundary value

$$\lim_{t \rightarrow \infty} V(x, t) e^{-i\omega t} = u(x),$$

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S/055/59/000/05/014/020

On the Principle of the Limit Amplitude

where  $u(x)$  is the solution of the equation

(1)  $Lu - w^2u = -f(x).$

(Principle of the limit amplitude).

Another possibility of determining the solution of (1) shows the principle of the limit absorption (see (Ref.1,3)). For this purpose the authors consider the equation  $Lu - \lambda^2u = -f(x)$ , where  $\lambda^2 = w^2 + i\epsilon$ ,  $\text{Im } w = 0$ , and prove that  $\lim_{\epsilon \rightarrow 0} R_\lambda$  exists, where  $R_\lambda$  is the unique resolvent.

J. G. Petrovskiy is mentioned in the paper. There are 7 Soviet references.

SUBMITTED: July 3, 1958

Card 2/2

X

*BASS, G. I.*

USSR/ Mathematics

Card 1/1      Pub. 22 - 1/60

Authors      : Bass, G. I.

Title        : Formulae for the solution of a Cauchy problem in various differential-difference equations

Periodical   : Dok. AN SSSR 100/4. 613-616, Feb 1, 1955

Abstract     : Conditions under which a Cauchy problem,  $\Delta u(x,t) = \alpha(t) \Delta u(x,t)$  can be solved by differential-difference equations are considered. The conditions in question are analyzed for the following two cases: (1) for  $l=2r$ , and (2)  $l=2s+1$ . Four USSR references (1949-1954).

Institution   : The T. G. Shevchenko Kiev State University

Presented by : Academician A. N. Kolmogorov, June 4, 1954

BASS, G. M., Engineer

"Determination of the Intensity of Rated Rainfall in Designing Storm  
Sewer Pipes." Sub 15 Dec 47, Moscow Order of the Labor Red Banner Construction  
Engineering Inst imeni V. V. Kuybyshev

Dissertations presented for degrees in science and engineering in Moscow  
in 1947

SO: Sum No. 457, 18 Apr 55

BASS, G.M., dotsent, kandidat tekhnicheskikh nauk.

[Industrial sewer systems] Kanalizatsionnaia set' promyshlennykh predpriia-  
tii. Moskva, Gos.izd-vo lit-ry po stroitel'stvu i arkhitekture, 1953. 159 p.  
(MIRA 6:8)  
(Sewerage)



BASS, G.M. (Odessa)

On the water impermeability of sewage pipes placed below the  
ground water level, Vod, 1 san, tekhn. no.7:29-31 VI '56.

(MLRA 9:10)

(Sewer pipe)

BASS, Grigoriy Mendelevich, kand. tekhn. nauk.; REZNICHENKO, I., red.;  
ZELENIKOVA, Ye., tekhn. red.

[Construction of water-supply and sewer systems; organization and operations] Soorushenie vodoprovodnykh i kanalizatsionnykh setei; organizatsiia i proizvodstve rabot. Kiev, Gos. izd-vo lit-ry po stroit. i arkhitekt. USSR, 1958. 197 p. (MIRA 11:12)  
(Water-supply engineering)  
(Sewerage)

<sup>141</sup>  
BASS, G., kand.tekhn.nauk

Methods of protecting sewer systems from pollution with gases.  
Zhil.-kom. khoz. 8 no. 7:15-16 '58. (MIRA 11:8)  
(Sewage--Purification)  
(Gases--Asphyxiating and poisonous)

BASS, G.M. (Odessa)

Use of microstrainers in water works of England. Vod.1 san.  
tekh. no.9:34-36 S '59. (MIRA 12:12)  
(Great Britain--Water--Purification)  
(Filters and filtration)

BASS, G.M.; NIKOLAYEV, N.V. (Odessa)

Reducing the cost of purification works in water-supply systems.  
Vod. i san. tekhn. no.11:22-24 N '59. (MIRA 13:3)  
(Filters and filtration)

ZHED', V.P., kand. tekhn. nauk, Prinsipali uchastiye: BASS, G.S., inzh.;  
VOROB'YEV, I.I., kand. tekhn. nauk; YELISAVETSKIY, A.G., inzh.;  
PAVLOVA, M.A., st. inzh.; SHEYNBERG, S.A., doktor tekhn. nauk;  
LUK'YANOV, A.K., red.; VIKTOROVA, Z.N., tekhn. nauk

[Units and mechanisms of machine tools; survey of foreign design]  
Uzly i mekhanizmy metalloreshushchikh stankov; obsor zarubeshnykh  
konstruktsii. Moskva, TSentr. in-t nauchno-tekhn. informatsii,  
1961. 53 p. (MIRA 14:11)  
(Machine tools--Design and construction)

NIBERG, N.Ya.; YELISAVETSKIY, A.G.; BASS, G.S.

Disk-type friction clutches with remote control. Stan.i instr.  
33 no.9:30-38 S '62. (MIRA 15:9)  
(Clutches (Machinery))

BASS, I.A.; IL'YASHENKO, B.N.

Reproduction of phage in cells of penicillin-treated *Escherichia coli*.  
Mikrobiologiya 28 no.5:730-735 S-0 '59. (MIRA 13:2)

1. Institut biofiziki AN SSSR i Institut epidemiologii i mikrobiologii  
im. N.F. Gamaleya AMN SSSR.

(*ESCHERICHIA COLI* pharmacol.)

(PENICILLIN pharmacol.)

(BACTERIOPHAGE)



17 (2)

**AUTHORS:**

~~Bass, I. A.,~~ Broker, T. N., Gol'dfarb, D. M., SOV/20-129-6-61/69  
~~Gorlenko, Zh. M.,~~ Il'yashenko, B. N.,  
Nankina, V. P., Khesin, R. B.

**TITLE:**

Infectious Properties of Injured Phages

**PERIODICAL:**

Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 6, pp 1421 - 1423  
(USSR)

**ABSTRACT:**

D. Fraser and co-workers (Ref 12) concluded from their investigations that the infectious activity of the destroyed preparations of phage T2 is related to the desoxyribonucleic acid (DNA) which was liberated from the protein covers of the phage particles by the effect of urea. The results obtained by the authors, however, were rather divergent. Therefore, they thoroughly investigated the preparations formed from bacteriophages by treatment with urea. The following dysentery phages were used: T4r, DM (isolated from the soil by T. N. Broker), and N-2 (obtained by F. I. Yershov, 2-y Moskovskiy gosudarstvennyy meditsinskiy institut, Second Moscow State Medical Institute). The effect of the phages was tested on protoplasts (bacteria without cell walls). The authors obtained them from cells of the following bacterial strains by means of lysozyme according to R. Repaske

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## Infectious Properties of Injured Phages

SOV/20-129-6-61/69

(Ref 13): E. coli B (sensitive to phage T4r and DM); E. coli 600 (resistant to all three phages mentioned); and Sh. dys. Newcastle (obtained by F. I. Yershov, sensitive to N-2). Suspensions of phages, concentrated to  $10^{12}$  particles in 1 ml, were treated with an 8 M urea solution. Thereafter, the action of phages on intact cells was completely eliminated. They showed an activity of 0.00001 to 0.001% on protoplasts. This effect concerns bacteria strains sensitive to phages as well as those resistant to phages. Thus, this remaining activity cannot be due to the preservation of a few phage particles. Further experiments showed that the above residual infectivity is not related to the free DNA which has left the virus particles. Thus, it could be assumed that only the part of the DNA is active which is protected against the used desoxyribonuclease by other components of the phage (probably by proteins). In order to check this assumption, the proteins were separated from the preparations by phenol or chloroform. The preparations were completely inactivated in spite of the proved extensive separation of the proteins from the DNA. This proved again that, after

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Infectious Properties of Injured Phages

SOV/20-129-6-61/69

treatment with urea, infectious activity is not due to free DNA. On the other hand, it has been known that the protein component isolated from the phage cannot cause phage reproduction in the bacteria. The only assumption is that one complex of the DNA with the protein has infectious activity. It was serologically proved that the proteins of the active complexes mentioned are similar to the antigens of normal phage particles. The transition of 80-90% of activity into the precipitate could be achieved by centrifugation of virus preparations treated with urea as well as by suspensions of intact phages. The electron microscope showed that the above complex has corpuscular structure and that it is of about the same size as the intact phage. Figures 1 and 2 show that, apparently, urea destroys only the distal parts of the processes. Thus, the phage particles become incapable of depositing on normal bacteria. The inner part of the process axis which consists of protein is uncovered by the urea effect. Further experiments with trypsin, which destroyed the uncovered part, brought about complete suppression of activity. Thus, the protein in the axis of the phage particle is necessary for the occurrence of the infectious activity of the preparations mentioned. There are 1 figure and 13 references.

Card 3/4

Infectious Properties of Injured Phages

SOV/20-129-6-61/69

ASSOCIATION: Institut biofiziki Akademii nauk SSSR (Institute of Biophysics of the Academy of Sciences, USSR). Institut epidemiologii i mikrobiologii im. N. F. Gamaleya Akademii meditsinskikh nauk SSSR (Institute of Epidemiology and Microbiology imeni N. F. Gamaley of the Academy of Medical Sciences, USSR)

PRESENTED: June 10, 1959, by I. L. Knunyants, Academician

SUBMITTED: May 29, 1959

Card 4/4

BASS, I.A.; BROKER, T.N.; GOL'DFARB, D.M.; GORLENKO, Zh.M.; IL'YASHENKO,  
B.N.; NANKINA, V.P.; KHESIN, R.B.

Significance of proteins for the infectivity of bacteriophages treated  
with urea. Biokhimiia 25 no.2:360-367 Mr-Apr '60. (MIRA 14:5)

1, Institut biofiziki Akademii nauk SSSR i Institut epidemiologii  
i mikrobiologii im. N.F.Gamaleya Akademii meditsinskikh nauk SSSR,  
Moskva.

(BACTERIOPHAGE)

(UREA)

(PROTEINS)

ODINTSOVA, M.S. Primali uchastiye: MALKOVA, M.G.; KOSAREVA, Ye.A.  
BASS, I.A. [translator]; BEKINA, R.M. [translator]; GVOZDEV, V.A.  
[translator]; GEORGIYEV, G.P. [translator]; GUMILEVSKAYA, N.A.  
[translator]; KUVAYEVA, Ye.B. [translator]; MIL'MAN, L.S.  
[translator]; MIKHAYLOVA, Ye.S. [translator]; MOSOLOVA, I.M.  
[translator]; PINUS, Ye.A. [translator]; SAL'KOVA, Ye.P.  
[translator]; SAMARINA, O.P. [translator]; CHENTSOV, Yu.S.  
[translator]; VETROVA, I.B., red.izd-va; DOROKHINA, I.N., tekhn.red.

[Functional biochemistry of cell structures; symposium 2]  
Funktional'naya biokhimiya kletochnykh struktur; simpozium II.  
1962. 314 p. (MIRA 16:1)

1. International Congress of Biochemistry. 5th, Moscow, 1961.  
(BIOCHEMISTRY—CONGRESSES)

KHESIN, R.B.; GORLENKO, Zh.M.; SHEMYAKIN, M.F.; BASS, I.A.; PROZOROV, A.A.

Relation between protein synthesis and the regulation of the formation of messenger DNA in the cells of Eschrichia coli B during the development of T2-phage. Biokhimiia 28 no.6:1070-1086 N-D'63 (MIRA 17:1)

1. Institute of Atomic Energy, Moscow.

27.1100

39233  
S/218/62/027/003/005/005  
1018/I218

**AUTHOR:** Shmerling, Zh. G. and Bass, I. A.  
**TITLE:** Amino acid activating enzymes and transfer-rna in Escherichia coli  
**PERIODICAL:** Biokhimiya, v. 27, no. 3, 1962, 502-511

**TEXT:** The problem is whether E. coli cells infected with T<sub>2</sub> phage retain their amino acid activating enzymes and the transfer-RNA or whether the s-RNA formed prior to phage infection is capable of binding the activated amino acids. In the experiments, lysates of E. coli spheroplasts were used. Amino acid activation was ascertained by the hydroxamate formed. s-RNA activity was determined by the use of labelled amino acid and isolation of s-RNA-amino acid complex. It was shown that during phage infection, the enzymes which catalyze the formation of amino acyl-adenylates are fully active, i.e. they are not affected by phage infection. The activity of enzymes catalyzing the transfer of activated amino acids to s-RNA as well as the activity of s-RNA (the capacity to bind amino acids) are not affected by infection with T<sub>2</sub> phage. The authors conclude that in the synthesis of phage protein participate amino acid activating enzymes and s-RNA of E. coli formed prior to phage infection. There are 3 tables and 2 figures.

**ASSOCIATION:** Institut atomoni e'nergii im. I. V. Kurchatova Akademii nauk SSSR, Moscow (Institute of Atomic Energy im. I. V. Kurchatov. Academy of Sciences USSR)

**SUBMITTED:** December 7, 1961  
Card 1/1



BASS, I. A., PROZOROV, A. A., KHESIN, R. V., SHEMYAKIN, M. F., and GORLENKO, G. M.,

"Synthesis of specific RNA on Different Sites of the Phage T2 Chromosome in vivo and in vitro."

report submitted for the 11th Intl. Congress of Genetics, The Hague, Netherlands, 2-10 Sep 63

ACC NR:AP0033074

SOURCE CODE: UN/0210/00/031/002/020702-1

AUTHOR: Shemyakin, M. F.; Bass, I. A.; Kamzolova, S. G.; Gorlenko, Zh. M.; Astaurova, O. B.; Khesin, R. B.

ORG: Order of Lenin Atomic Energy Institute im. I. V. Kurchatov, Moscow (Ordena Lenina institut atomnoy energii)

TITLE: Specificity of RNA synthesis in phage infection

SOURCE: Biokhimiya, v. 31, no. 5, 1966, 910-917

TOPIC TAGS: RNA, RNA synthesis, infective disease, bacteriophage, biochemistry, biosynthesis, ~~E. coli~~, ~~T2 phage~~, polymerase, ~~RNA polymerase~~

ABSTRACT: The specificity of RNA synthesis in different phases of T2 bacteriophage infections of *E. Coli* B and in an *in vitro* RNA polymerase system was investigated using labeled RNA. In early and late infectious stages, mRNA is synthesized largely on different regions of the T2 phage chromosome. Results of *in vitro* experiments show that RNA polymerase synthesizes RNA on the same regions of purified T2 phage which are active in intact cells during early stages of infection. Orig. art. has: 3 fig. and 1 table [LP]

SUB CODE: 06/  
Card 1/1

SUBM DATE: 15Nov65/

ORIG REF: 004/

OTH REF: 014

[WA-50; CBE No. 14]

UDG:547.963.3

BASS, Isaak Berkovich

DECEASED

1964

Production processes  
Light industry

C. 162

8(0)

SOV/112-59-5-9501

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 5, p 149 (USSR)

AUTHOR: Bass, I. Z.

TITLE: Electrical Primary Element for Size Control

PERIODICAL: Vestn. tekhn. inform. Tsentr. byuro tekhn. inform. trakt. i s.-kh. mashinostr., 1957, Nr 6, pp 23-26

ABSTRACT: Disadvantages of electric contact heads manufactured by the "Kalibr," ZIL, and other plants are noted. Electric primary elements are suggested that have this distinctive feature: when the item being machined reaches a certain size, the primary element instantaneously breaks the contacts; this feature eliminates electronic measuring schemes and intermediate relays. Such a primary element can watch a number of limit sizes simultaneously. The contacts that have operated on one limit size are blocked until the contacts of another limit size will operate. The electric primary detector can realize the control in three ways: by visual signaling, by an indicator, or by an automatic action, that is by removing a cutting tool when a specified size has been reached. Its error is 1-2 microns.

Card 1/1

P.V.N.

BASS, I.Z., inzhener.

Evolution of the actual role of counterweights of crankshafts of  
ZIS-120 and ZIS-123 engines. Vest.mash. 34 no.6:27-33 Je '54.

(Crank and crankshafts)

(MLRA 7:7)

BASS, I. Z.

Nakatyvanie rez8by i novaia geometriia nakatnogo instrumenta. Moskva, Mashgiz, 1949. 167 p.

Thread rolling and the new geometry of the knurling tool.

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

BASS, I. Z.

No. 37342--Rez'bonakatnye plashki novoy geometrii. Stanki I nistrument, 1949  
No. 12, s. 15-17.

So: Letopis' Zhurnel'nykk Statey, Vol. 7, 1949.

BASS, I. Z. Cand Tech Sci — (diss) "Examination of the process of knurling screw threads and of a new geometry for a knurling instrument," Moscow, 1960, 15 pp, 120 cop. (Moscow Automechanical Institute) (KL, 44-60, 130)



BASS, J.

BASS, J. The pressure of rocks and tunneling. p. 340  
Vol 4, no. 7, July 1956, INZENYRSKE STAVBY  
(Ministerstvo stavebnictvi)  
Praha, Czechoslovakia

SOURCE: EAST EUROPEAN ACCESSIONS LIST (EAL) VOL 6 NO 4 APRIL 1957

BASS, J.

Protective methods in adit driving. p. 377.

(Inzenyrske Stavby. Vol. 5, no. 6, June 1957. Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.

BASS, Kh. F.

"Data on the Study of the Biosynthesis of Protein and Vitamins From the Carbohydrates of Plant Raw Materials." Cand Biol Sci, Inst of Experimental Medicine, Acad Sci Latvian SSR, Riga, 1953. (RZhBiol, No 8, Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)  
SO: Sum. No. 556, 24 Jun 55

ET-2, KR

✓ Assimilation of cobalt by yeasts. H. Bass and A. Ziz-  
mans. *Laboratory of PSR Zinitsy Akad. Vuzov* 1955, No. 10,  
87-91 (in Russian).—From 5.0 to 560  $\gamma$  % Co added as  
/CoCl<sub>2</sub> to the fermentation medium had no influence on the  
rate of yeast growth, but the Co content in the yeast in-  
creased up to 11-24 mg. % dry substance. Ninety % of  
the Co combined with the cells biologically rather than by  
adsorption. Addn. of Co increased H<sup>+</sup> concn. in the  
medium. A. Dravnieks

med

2/

Country : USSR F  
Category : Microbiology. Physiology and Biochemistry.  
Abs. Jour Ref Zhur-Biol., No 23, 1958, No 103650  
Author : Bass, Kh. E.; Zisman, A. I.  
Institut. : Academy of Sciences Latv SSR  
Title : The Assimilation of Cobalt by Yeasts. Second Report.  
Distribution of the Trace Element Cobalt in Yeasts,  
Saccharomyces cerevisiae.  
Orig Pub. : Latv. SSR zinatnu Akad. Vestis, Izv. AN Latv SSR, 1956, 8,  
109-114  
Abstract : It was shown that from 40 to 63% of the Co assimilated by  
yeasts (RZhBiol, 1956, 62037) is bound to protein  
substances. Thereby, it was shown that one part of the  
Co (up to 30%) is bound to the proteins in a relatively  
labile manner and is liberated during autolysis and  
peptolysis of the yeasts. The other part (up to 32.5%)  
forms a stable compound with proteins.--V. I. Kudryavtsev.  
Card: 1/1

F-11

BASS, L.I:

Cases of extrauterine pregnancy. Akush. i gin. 39 no.3:126-127  
My-Je'63 (MIRA 17:2)

1. Iz khirurgicheskogo otdeleniya Novo-Kubanskoy uchastkovoy  
bol'nitsy (glavnyy vrach T.G. Dolgopolova) Shortandinskogo  
rayona Tselinsgradskoy oblasti.

L 05050-67 EWT(m) JR/QD

ACC NR: AT6027920

SOURCE CODE: UR/0000/66/000/000/0057/0066

AUTHOR: Germogenova, T. A.; Suvorov, A. P.; Utkin, V. A.; Bass, L. P.

36  
B+

ORG: None

TITLE: Neutron transfer<sup>19</sup> in nonmultiplying systems with spherical symmetry

SOURCE: Voprosy fiziki zashchity reaktorov (Problems in physics of reactor shielding); sbornik statey, no. 2. Moscow, Atomizdat, 1966, 57-66

TOPIC TAGS: neutron radiation, radiation source, scattering cross section

ABSTRACT: The literature on methods for solution of radiation transfer problems is briefly reviewed and the problem of an isotropic point source is considered. Since the problem of an isotropic point source in an infinite medium has been studied in more detail in transfer theory than the case of a bounded medium, the solutions for these problems are compared on the basis of the one-velocity model with isotropic scattering for spheres with finite and infinite radii. A comparison of formulas describing the asymptotic behavior of the density of a finite sphere with a large radius shows that the results of calculations of the density of scattered radiation from a point source in an infinite homogeneous medium may be directly used for determining the density only when absorption is less than 1 everywhere except in the region adjacent to the boundary  $r=R$ . Orig. art. has: 6 figures, 9 formulas.

SUB CODE: 20, 18/ SUBM DATE: 12Jan66/ ORIG REF: 007/ OTH REF: 002

Card 1/1 *ala*

BASS M. A.

1674 . BASS M. A. Clinical aspects of primary (infective) polyradiculoneuritis  
Neuropathology and Psychiatry, Moscow 1949, 18/3 (61-64)

A survey of the frequency of symptoms. The author saw the syndrome in various degrees; sometimes with a fatal outcome. It is not rational to differentiate between a curable and a fatal type of polyradiculoneuritis, both of them occurring after the same infection, the only difference being the passing over of the second class of cases into a paralysis of the type of Landry. He recognizes only a more or less generalized polyradiculoneuritis. The disease may occur in a pseudomyopathic form and be diagnosed as a myopathy. If this were generally known, probably the diagnosis would be more frequent.

Boerman - Chaam

So. NEUROLOGY & PSYCHIATRY Section VIII Vol. 3<sup>1</sup> Jan-Jun 1950 Excerpta Medica



LYUBOMUDROV, V.Ye.; BASS, M.A.; SKOCHELYAS, A.R.

Early progressive and late anthracosis. Khim. med. 38 no.5:68-72  
My '60. (MIRA 13:12)

(LUNGS---DUST DISEASES)

MURZENKO, D.I.; BASS, M.A.

Clinicoroentgenological characteristics of anthracosis in persons working in soft coal mines. Vest. rent. i rad. 38 no.5: 31-33 S-0'63 (MIRA 16:12)

1. Iz kafedry rentgenologii i meditsinskoy radiologii (zav. - dotsent I.A. Kumin) Donetskogo meditsinskogo instituta i Donetskogo instituta fiziologii truda (dir. - dotsent L.E.Zhislin).

CHERNOMORDIK, A.B.; BASS, T.M.; BASS, M.A.; KOVALENKO, F.N.; ZAVADSKAYA, TS.Ye.

Neomycin-resistant forms of colienterites in children and their  
treatment. Antiliotiki 10 no.9:859-861 S '65.

(MIRA 18:9)

1. Otdel antibiotikov Kiyevskogo instituta epidemiologii i  
mikrobiologii.

BASS, M. G.

Stroitel' stvo dorog i mosto v Moskve v 1946-1950 gg. [Road and Bridge construction in Moscow in 1946-50 ]. (Gorodskoe khoz-vo Moskvy, 1946, no. 9-10). DLC: HD4677.M6G8

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

1. BASS, M. G.
2. USSR 600
4. Moscow - Streets
7. Directions of the great leader enrich our daily creative experience, Gor. .  
khoz. Mosk, 23, No. 12, 1949.

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"Further development of highway and bridge construction in Moscow."  
Gor. khoz. Mosk., 26, no. 3, 1952

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For lower street and bridge construction costs. Gor.khoz.Mosk. 27 no.8:23-  
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(Moscow--Road construction) (Road construction--Moscow)  
(Bridges--Construction)

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More attention to engineering problems in the reconstruction of Moscow.  
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(Moscow--City planning) (City planning--Moscow)



BASS, M.G., inzhener.

Roads on the grounds and approaches to the All-Union Agricultural Exhibition. Gor.khoz.Mosk. 28 no.8:16-18 Ag '54.(MIRA 7:9)  
(Moscow--Agricultural exhibitions) (Agricultural exhibitions--Moscow) (Moscow--Roads) (Roads--Moscow)

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construction. Gor. khoz. Mosk. 29 no.4:16-19 Ap '55.**

**(MLRA 8:6)**

**(Moscow--Road construction) (Moscow--Embankments)**

BASS, M.G.

The Lenin Central Stadium in Moscow. Gor. khoz. Mosk. 30  
no.9:9-13 S '56. (MLRA 9:12)

1. Glavnyy inzhener Upravleniya stroitel'stva stadiona.  
(Moscow--Stadiums)

BASS, M.G., inzhener; KARAGODIN, V.L., inzhener; MOLCHANOV, Yu.A., inzhener;  
MALITSKIY, S.I., inzhener; KHAZANOV, V.Ye., inzhener; USHAKOV, V.S.,  
inzhener.

Collector with driven in sheet-piled walls. Gor.khoz, Mosk. 31  
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1. Docent. 2. Of the Department of Children's Surgery (Head -- Prof. A. Ya. Sheftel'), Kiev Order of the Red Banner of Labor Medical Institute imeni Academician A. A. Bogomolets (Director -- Docent T. Ya. Kalinichenko).

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