

2

PROCESSES AND PROPERTIES INDEX

CA

~~Present status of the theory of superconductivity.~~
A. H. Rumer. *Uspekhi Fiz. Nauk* 18, 131-9

(1937) — Theoretical math. review. The magnetic and thermodynamic properties of superconductors and the nature of intermediate states are discussed. F. H. R. —

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

EA 25/49T108

RUMER, Yu. B.

USSR/Physics
Magnetism
Electron Theory

Dec 48

"The Magnetic Theory of Electron Gas," Yu. B.
Rumer, Yenisei State Teachers Inst, 15 pp

"Zhur Eksper i Teoret Fiz" Vol XVIII, No 12

Analyzes magnetic characteristics of electron
gas in the whole range of temperature variation
and magnetic field intensity. Discusses differ-
ent boundary phenomena thoroughly. Submitted
15 Jun. 48.

25/49T108

RUMER, I.N.B.

Rumer, I. N. B. Action as a space coordinate II. P. 207

In this work it is shown that the single theory of gravitation and electricity is contained as a special case in the general theory of the the 5-field, which determines the matrices in the 5-space of coordinates, time and action.

June 15, 1948

SO: Journal of Experimental and Theoretic Physics (USSR) 19, No. 3 (1949)

PA 61/49T100

USSR/Physics

Electron Gas

Thermodynamics

Aug 49

"Thermodynamics of Electron Gas," Yu. B. Rumer,
Leningrad State Teachers Inst., 3 pp

"Zhur Kasper 1 Teoret Fiz" Vol XII, No 8

Judicious substitutions in the contour integrals describing the thermodynamic potential P of an ideal electron gas (a gas in which the electrons do not interact with each other) as a function of chemical potential Z and temperature T established that the dependence of P upon Z at temperature

61/49T100

USSR/Physics (Contd)

Aug 49

T is uniquely determined by the dependence of P upon Z at absolute zero. Submitted 28 Apr 49.

61/49T100

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

111 AND 112 ORDERS 113 AND 114 ORDERS

PROCESSES AND PROPERTIES INDEX

8

1272/ Action as a Space Coordinate. I. Yu B. Rumer. Zhur. Eksp. i Teoret. Fiz. 19, 36-39(1949)(in Russian).

It is shown that the movement of a point in gravitational and electromagnetic fields, considered as a problem of relativistic mechanics (both in its classical and quantum aspects), is equivalent to a problem of optics (both geometrical and wave optics), viz., to the problem of the propagation of rays in Riemann's 5-space of coordinates, time, and action. Geometrical 5-optics appears as a limiting form of the wave 5-optics, which includes, as a special case, the relativistic wave mechanics of Dirac.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

COMMON VARIANTS INDEX

OPEN

MATERIALS INDEX

GROUP #

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

111 AND 112 ORDERS 113 AND 114 ORDERS

1273 Action as a Space Coordinate. II. Yu. B. Rumer. Zhur. Eksptl. i Teoret. Fiz. 19, 307-14(1949)(in Russian).

The first part of this work appeared in Zhur. Eksptl. i Teoret. Fiz. 19, 86-94(1949). It is shown in the present paper that a comprehensive theory of gravitation and electricity is contained, as a special case, in a general theory of a 5-field that determines the metric in the 5-space of coordinates, time, and action. It appears that such a general field theory, including Einstein's gravitation, Maxwell's electrodynamics and the theory of the χ field, is described by Einstein's equations for the 5-space $P_{\mu\nu} = \chi^2 G_{\mu\nu} + Q_{\mu\nu}$ in which $Q_{\mu\nu}$ is the 5-tensor of the sources of the 5-field. Three cases are examined: (1) The classical case, in which there is no χ field and the metrics do not depend on x^5 . A comprehensive field theory is given, comprising Einstein's gravitation and Maxwell's electrodynamics theories. (2) The weak 5-field in a vacuum: A generalised theory of gravitational waves is obtained that embraces the cases of gravitational, electromagnetic and χ waves. In the general case of a field depending on x^5 , the theory becomes one of particles for which $e_0/m = c^2(x^5)^2$. These particles, called "fundamentons" by the author, play a part analogous to that of photons in electrodynamics, and it can be shown that the photon, the graviton, and the χ -field quantum are special cases of polarization of the fundamenton in its state

of zero charge. (3) Schwarzschild's problem in the 5-space. It is found that, in the close neighborhood of the source, the electric field created by a point charge does not follow Coulomb's law. Furthermore, a point charge always originates a χ field $\chi(r) = (e/2\pi^2)(e/r)$ that is noticeable only at close distances from the charge.

RUMER, YU. B.

PA 150T88

USSR/Physics - Tensor Analysis
Mathematical Physics

Oct 49

"Action as a Spatial Coordinate, III," Yu. B. Rumer,
Yenisei State Teachers Inst, 8 pp

"Zhur Eksper i Teoret Fiz" Vol XIX, No 10

p-868-75
Introduces a new method of tensor analysis which is
suitable for the purposes of 5-optics. By using this
method, spin equations of physics may be formulated
in covariant form. Submitted 3 Feb 49.

150T88

RUMER, YU. B.

PA 27/49T102

USSR/Physics

Feb 49

Flow, Turbulent
Mathematics, Applied

"Annular Turbulent Flow," Yu. B. Rumer, 4 pp

"Dok Ak Nauk SSSR" Vol LXIV, No 4

Studies free flow which arises during the outlet
of a fluid through a narrow annular aperture cut in a
cylindrical surface. Submitted 3 Jul 48.

27/49T102

RUMER, YU B.

Rumer, Yu. B. Physical content of 5-optics. Akad. Nauk
Sov. Zurnal Ekaper Teoret Fiz 20, 197-205 (1950).

This is a summary written by the author of the
original article. It contains the main results of the author's work.

Vol 12, No. 3

PROCESSING AND PROPERTIES INDEX

A 53
U

SA

Yenisey Teachers' Inst.

3025. Periodic relation between the magnetic permeability and the field at low temperatures. Yu. B. Munayev. Letter in *J. Exp. Theor. Phys., USSR*, 20, 573 (June, 1950) in Russian.

[This abstract supplements Abstr. 487 (1951)]. The well-known fact that at sufficiently low fields the period of oscillation of the de Haas van Alphen effect varies approximately as the square of the field is pointed out, both on the basis of theory and on the basis of the experiments of Verkin, Lazarev and Rukhko (see previous abstract). [See also Shoenberg, Abstr. 1830 (1939), 1071 (1950)].

D. SHENBERG

(CA 47 no. 20: 10294 '53)

METALLURGICAL LITERATURE CLASSIFICATION

RUMER, Yu. B.

168T98

USSR/Physics - Thermodynamics, Bose-Gas Sep 50

"Thermodynamics of a Bose Gas," Yu. B. Rumer, Yenisey Teachers' Inst

"Zhur Eksper i Teoret Fiz" Vol XX, No 9, pp 807-810

Makes more general assumptions on energy spectrum of particles than usual. Discusses phenomenon of "condensation" in Bose gas and influence of external parameters upon temperature of condensation. Submitted 25 Feb 50.

(CA 47 no. 10:10299 '53)

168T98

RUMER, Yu. B.

USSR/Nuclear Physics-Quantum Electrodynamics Mar 51

"Action as Space Coordinate," Yu. B. Rumer, Yenisey
Teacher's Inst

"Zhur Eksper i Teoret Fiz" Vol XXI, No 3, pp 454-
461

Presents quantum theory of weak 5-dimensional fld in
vacuum in form of Lagrange and Hamilton functions
in generalized relativity theory of quantum electro-
dynamics. Rumer introduces "fundamentons" which
allegedly reveal themselves in cosmic rays and
beta-decay and are erroneously taken for electrons.

180T90

4 space coordin...

dimensional relativit
 (1919); these Re
 in addition to the
 electromagnetic pot
 and the equations
 in the same way
 this paper only the clas
 theory is, consid
 what will be the effect
 in the classical
 that in the Newtonian
 whenever the non-linear
 the x potential
 the effects it is nec
 exactly in the only case in
 equations are know
 case considered
 are found very
 in the form of a
 potentials are

$$G_{11} = G_{22} = -c^2(1 - \frac{v^2}{c^2})^{-1}$$

$$G_{33} = Z^2, \quad G_{44} = Z^2, \quad c$$

radius vector and

$$Z = 1 - \frac{v^2}{c^2}$$

$$g = 1, \quad v =$$

are constants of
 interpretation. Let
 the central singularity
 potentials at large dist
 and electrical radii of the
 mc^2 , where κ is th
 $\alpha = 1/\sqrt{1 - v^2/c^2}$
 compared with the co
 theory including elec
 again by (1) but with

$Z = 1 - \frac{v^2}{c^2}$
 The difference will only
 when the charge
 of a light-ray pa
 singularity is given by

$$\Delta\phi = (3\gamma + \sqrt{\gamma^2 + 4\epsilon^2})$$

$$\Delta\phi = (2\gamma/R) + (3\pi\epsilon^2/1)$$

to the Einstein theory.

Romer, X₀

same
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 Einstein's
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 potential
 approximation,
 in the field-
 observable
 to solve the
 exact solu-
 the static
 Schwarzschild.
 using the
 principle.

1919

with the
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 classical
 then
 con-
 These solu-
 solutions
 effects,

$$Z = 1 - \frac{v^2}{c^2}$$

when
 particular,
 at a distance R

See Rom Dyson.

RUMER, Y. B.

2000

Rumer, Yu. B. The problem of a submerged...
16 255 256 1952

Navier Stokes

$$\rho \frac{d\mathbf{v}}{dt} = -\nabla p + \mu \nabla^2 \mathbf{v} + \mathbf{f}$$

Smirnov

Mathematical Reviews, Vol 13 No. 1

RUMER, YU. B.

MATTER - PROPERTIES

Field of a charged point mass. Zhur. eksp. i teor. fiz. 22 no. 1, 1952.

Also U-1778, 27 Mar 52

9. Monthly List of Russian Accessions, Library of Congress, October 195~~7~~, Uncl.
2

RUMER, Yu. B.

USSR/Electricity - Conductivity

Feb 52

"Theory of Electric Conductivity of Metals in a
Magnetic Field," Yu. B. Rumer

"Zhur Eksper i Teoret Fiz" Vol XXII, No 2,
pp 214-222

Derives formulas for the resistance of metals in
transversal and longitudinal magnetic field taking
into account quantization of motion of electrons
in the magnetic field. Received 19 Apr 51.

207T38

RUMER, YU. B.

USSR/Mathematics - Relativity

Jun 52

"Action as a Space Coordinate. VI," Yu. B. Rumer

"Zhur Eksper i Teoret Fiz" Vol XXII, No 6, pp 742-754

Explains the relation of 5-optics to the relativistic theory of elementary particles with integral spin.

Received 16 Jun 51. References: W. Pauli,

"Relativistic Theory of Elementary Particles"
published in Russian, by GILL, Moscow, 1947;

V. L. Ginzberg, "Zhur Eksper i Teoret Fiz" Vol IX,
p 981, 1939.

217183

RUMER, Yu. B.

Mathematical Reviews
Vol. 14 No. 7
July - August, 1953
Mathematical Physics.

7-13-54
LL

Phys 1 2

Rumer, Yu. B. Action as a space coordinate. VII. Akad. Nauk SSSR. Zhurnal Eksper. Teoret. Fiz. 23, 35-48 (1952). (Russian)

This paper is the seventh of a series [for part VI see same Zhurnal 22, 742-754 (1952); these Rev. 14, 606] concerned with the development of a 5-dimensional generally covariant quantum theory. The theory is here applied to derive the wave-equation for the electron interacting with an external electromagnetic field. The wave-equation is derived by applying the principle of stationary action, equating to zero the variation of the Lagrangian integrated over the 5-dimensional space. The resulting equation is

$$[-i\hbar(\partial/\partial x_4) + (e/c)A_4]\gamma_4\psi - imc\psi + (eh/8mc^2)F_{ik}\gamma_i\gamma_k\psi = 0.$$

It differs from the usual Dirac equation by the presence of the last term, which is a direct Pauli-type interaction between the electron spin and the electromagnetic field-strengths F_{ik} . The author says nothing about the physical consequences of this equation. The reviewer observes that the additional term represents an anomalous magnetic moment equal to minus one half of the ordinary Dirac moment of the electron. Therefore in the author's theory the electron will have a gyromagnetic ratio of 1 instead of the observed value 2. This makes the theory quite inadmissible as a theory of real physical electrons.

P. J. Dyson (Ithaca, N. Y.).

Rumer, Yu. B.

U S S R .

Rumer, Yu. B. The optical-mechanical analogy. Uspehi Matem. Nauk (N.S.) 8, no. 6(58), 55-69 (1953). (Russian)

This is a review article, tracing the development of the idea of an analogy between optics and dynamics, starting with Hamilton and ending with the author's 5-dimensional theory [Akad. Nauk SSSR. Zhurnal Eksper. Teoret. Fiz. 23, 35-48 (1952); these Rev. 14, 706; and earlier papers there cited].

F. J. Dyson (Princeton, N. J.)

7/20/53

W. J.

RUMER, Yu. B.

USSR.

CVL

1414. Rumer, Yu. B. Convective diffusion in a submerged jet (in Russian); *Pril. Mat. Mekh.* 17, 6, 743-744, Nov./Dec. 1953.

Paper extends the problem of laminar submerged jet emerging from a small-diameter tube into the infinite space occupied by the same incompressible fluid (title source, 16, 2, 1052) to the case of solutions. In addition to the continuity, and Navier-Stokes equations used previously (ibid.), equation of convective diffusion, $\text{div}(c\mathbf{v} - D \text{grad } c) = 0$, is employed. Author finds the flow of solute purely radial and gives specific solution of problem for a weak jet. According to author, the investigated problem offers the first example in which convective diffusion equation offers an exact solution.

H. Hurwicz, USA

PC
22

RUMER, YU B

USSR .

33. Action as coordinate of space. VIII. Yu. B. Rumer. Zh. eksper. teor. Fiz., 24, No. 1, 33-46 (1953) in Russian.

For Pt. VII, see Abstr. 2925 (1953). The relation between S-optics and the theory of pseudovector and pseudoscalar mesons, and of particles with spin 2, is explained. Whereas the contemporary theories describe the motion of elementary particles by relativistically invariant wave equations, the author shows that, at least where particles with whole spin are considered, Ginzburg's relativistic non-invariant calibration may be regarded as equally satisfactory as the relativistically invariant calibrations yielding relativistically invariant wave equations. In electrodynamics Ginzburg's representation is useful for dealing with photons, and in the theory of a weak gravitational field, for dealing with gravitons. In S-optics where the sharp distinction between neutral particles with zero rest mass and charged heavy particles is effaced and their behaviour is represented by the same unique formalism, Ginzburg's calibration deserves preference.

B.F. KRAUS
RMF

RUMER, Yu B

USSR :

34. Action as coordinate of space. IX. Yu. B. Rumer, Zh. Eksp. teor. Fiz., 24, No. 3, 303-11 (1953), Russian.

A general demonstration is presented of the equivalence of the ordinary 5-dimensional tensor analysis and of the D-formalism generally used in quantum mechanics, according to which the consideration of the external electromagnetic field in the wave equations for the elementary particles is obtained by the replacement of the operators $\partial/\partial x^k$ by operators $D_k = (\partial/\partial x^k) + (ie/hc)A_k$. The demonstration is formally based on the introduction of a metric into the Riemann 5-space by means of the metric matrix of Lamé. The paper deals with the special case that the external field is purely electromagnetic. Furthermore a harmonic coordinate system in 5-space is assumed, i.e. that the potentials g_i are normed according to Lorenz, $dg_i/dx^i = 0$, and that their periodic dependence on the action coordinate is neglected (equivalent to the condition of cylindricality $dg_i/dx^i = 0$). Invariant D-differentiation is explained and the equations of the meson field are given, the case of the spinor field being briefly discussed. This is described by Dirac's equation with an additional term, a tentative explanation of which is presented.

H. F. KRAUS

RUMER, YU. B.

3

USSR .

530.12
V9907. Physical sense of the 5-dimensional space in 5-optics. YU. B. RUMER. *Zh. eksper. teor. Fiz.*, 24, No. 3, 312-18 (1953) In Russian.

Two different ways lead to 5-optics, the first of which is a development of Hamilton-Schrödinger's

optico-mechanical analogy, the physical content of which is not yet exhausted by modern quantum mechanics. This enables the action ascribed to the material point to be interpreted as the fifth co-ordinate of its configurational space. To obtain agreement with experiment it must be assumed that the configurational 5-space of the material point is topologically closed in the 5th co-ordinate of action, and that the period of the 5th co-ordinate has the microscopic dimension of Planck's constant. The formal apparatus of point mechanics is then fused with the formal apparatus of conventional optics into the unified apparatus of 5-optics. The second way is a continuation and development of the 5-dimensional generalization of gravitational theory attempted in the author's previous papers [see Abstr. 2925 (1953)]. It is shown that both ways are complementary. It is therefore incorrect to consider 5-optics only as one of the variants of unified field theory, its main content being rather a synthesis of the ideas of modern theory of gravitation rooting in Lobachevskii's teachings, with the ideas of quantum theory and the theory of elementary particles. In 5-optics quantization appears as a manifestation of the periodic dependence of all physical fields (classical as well as ψ -fields) on the fifth co-ordinate of action.
D. F. KRAUS

SPW

RUMER, Yu.B.

Theory of a weak metric (gravitational) field. Zhur.eksp. 1 teor.
fiz. 24 no.4:435-444 Ap '53. (MLRA 7:10)
(Gravitation)

RUMER, Yu.B.

Tensor analysis and Lamé's dimensional analysis. Zhur. eksp. 1
teor. fiz. 25 no.3:271 S '53. (MIRA 7:10)
(Lamé's functions) (Calculus of tensors)

RUMER, Yu.V.
SLEZKIN, N.A.

Comment on IU.V.Rumer's remark: "The problem of a submerged jet flow"
and L.G.Loitsianskii's "Propagation of a twisted jet flow in an infinite
space submerged in the same fluid." Prikl. mat i mekh. 18 no.6:764
N-D '54. (MIRA 8:3)

(Rumer, IU.V.)(Loitsianskii, L.G.)(Jets)

RUMER, Yu. B.

USSR/Physics Dipole lattices

Card : 1/1 Pub. 118 - 2/7

Authors : Rumer, Yu. B.

Title : Thermodynamics of a plane dipole lattice

Periodical : Usp. fiz. nauk 53/2, 245 - 284, June 1954

Abstract : A simplified method for a theoretical interpretation of thermodynamic phenomena, observed in plane dipole lattices during thermal-phase transitions is described. There are two types of thermal-phase transitions. Definitions for both are given. The method mentioned takes care of only the second type of phase transition. The method gives a very satisfactory explanation of thermodynamics of plane dipole lattices, but does not generalize it for a spatial lattice. Eight references. Graphs.

Institution :

Submitted :

RUMER, Y. B.

SUBJECT USS/MATHEMATICS/Geometry
AUTHOR RUMER Ju.B.
TITLE Space, time and action.
PERIODICAL Uspechi mat. Nauk 10, 1, 210-212 (1955)
reviewed 10/1956

CARD 1/2

PG - 343

This is a detailed representation of a conference held at the Moscow Mathematical Society. Rumer gives a survey on the fruitless trials to set up a general field theory which has not only a purely formal combining character but also a physical substance. The introduction of general non-Riemannian spaces is rejected, since there is no physical principle according to which a unique selection would be possible out of the large number of possible spaces. The introduction of a fifth coordinate under remaining Riemannian metric and the additional postulate that the metric potentials shall be independent of the fifth coordinate seems to be very artificial. The five-dimensional space proposed by Einstein and Bergmann which is closed with respect to the fifth coordinate and possesses a microscopical period in it is not satisfying since there is no physical sense of the introduced fifth coordinate.

A possibility of interpreting this fifth coordinate as an action and to interpret its period as the Planck constant is given by the five-dimensional optics to which the author has dedicated several publications (1952-1953). The problem of the classical relativistic mechanics concerning the motion of

Uspechi mat. Nauk 10, 1, 210-212 (1955)

CARD 2/2

PG - 343

a charged point in given electromagnetical and gravitational fields turns out to be equivalent to the problem of the geometrical optics concerning the propagation of the light in the five-dimensional Riemannian space (one time-, one action- and three space-coordinates) the metric of which satisfies a certain condition. The notions "macroscopical" and "microscopical" find a geometrical interpretation in the "four-dimensional" and "five-dimensional".

INSTITUTION: Moscow.

Rumer, Yu. B.
USSR/Physics - Bose-Einstein

Card 1/1 Pub. 22 12/49

Authors : Rumer, Yu. B.

Title : ~~Phase-transitions of the second order of a Bose gas~~
Phase-transitions of the second order of a Bose gas

Periodical : Dok. AN SSSR 100/5, 887-888, Feb 11, 1955

Abstract : The fact, that the temperature of an ideal Bose gas at the beginning of Einstein's condensation is a point of phase transition of the second order is confirmed in a more generalized form. Three USSR references (1950-1954).

Institution : Academy of Sciences of the USSR, West-Siberian Branch

Presented by: Academician L. D. Landau, November 9, 1954

RUMER, Yuriy Borisovich; KHOZYAINOV, V. T., redaktor; GAVRILOV, S. S.,
TEKHINICHESKIY REDAKTOR

[Studies in 5 optics] Issledovaniia po 5-optike. Moskva, Gos.
izd-vo tekhniko-teoret. lit-ry, 1956. 151 p. (MLRA 9:7)
(Physics) (Field theory)

Rumer, Yu. B.

USSR/Theoretical Physics - Quantum Mechanics.

B-4

Abs Jour : Ref Zhur - Fizika, No 4, 1957, 8407

Author : Pokrovskiy, V.L., Rumer, Yu.B.

Inst : Western Siberia Branch, Academy of Sciences USSR.

Title : Remarks on the Pauli Theorem Concerning the Connection
Between the Spin and the Statistics.

Orig Pub : Zh. eksperim. i teor. fizihi, 1956, 31, No 1, 337-338.

Abstract : The proof given by Pauli (Pauli, W. Relativistic Theory
of Elementary Particles, III, 1947, Supplement) for a
theorem concerning the connection between the spin and
the statistics is based on a consideration of irreducible
representations of the tensor and spinor quantities in
transformations of a Lorentz group with a determinant
equal to unity. The authors give a proof of the above
theorem in which it is shown that it is enough to res-
trict oneself to a consideration of the transformation
of the quantities with general inversion (inversion of
all four coordinate axes).

Card 1/1

RUMER, Yu B.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1506
 AUTHOR POKROVSKIJ, V.L., RUMER, JU.B.
 TITLE On PAULI'S Theorem concerning the Correlation between Spin and
 Statistics.
 PERIODICAL Žurn. eksp. i teor. fis, 31, fasc. 2, 337-338 (1956)
 Issued: 10 / 1956 reviewed: 11 / 1956

The proof of this theorem offered here shows that observation of the transformations of the quantities on the occasion of the inversion of all coordinate axes (general inversion I) is adequate. Furthermore, this proof stresses the close connection between SCHWINGER'S ideas and those of PAULI. On the occasion of the transformation of the general inversion for any vector A it is true that $IA = -A$. In the case of the general inversion the tensors of even rank T_{2n} therefore remain invariant ("class +"), whereas the tensors with odd rank T_{2n+1} change their sign ("class -").

Here the transformations of spinors on the occasion of a general inversion are studied. While the general character is maintained, only spinors of the first rank are investigated. On the occasion of reflection on to a twodimensional surface with the normal vector a_k the spinor U is transformed according to the following rule: $U' = \hat{A}U$, $\bar{U}' = \bar{U}\hat{A}$, $\hat{A} = ia_k \gamma_5 \gamma_k$, $\bar{U} = U \gamma_4$. Here $\hat{A}^2 = a_k a_k$.

The bilinear quantities which are composed of U and \bar{U} behave on the occasion of spatial reflections like tensors, but in the case of time reflections they behave like pseudotensors. The definition of the rules of the reflection of

Žurn.eksp.i teor.fis, 31, fasc.2, 337-338 (1956) CARD 2 / 2 PA - 1506

spinors can, however, be modified in such a manner that the bilinear tensors constructed from them behave like tensors both in the case of spatial and of time transformations. This may be attained in extending the conception of complex conjugation by causing two quantities to correspond to each spinor U : U and U^* . For this purpose a "two-leaf spinor space" is introduced, where the transformations which change or do not change the sign of time correspond to the two leaves: $U = U^*$ on the first leaf, $U = -U^*$ for the second leaf. (The star on the right here means "complexly conjugating"). Next, the transformation rules for the conjugated spinor are given.

The transformation of the inversion is a reflection of all four coordinate axes. Therefore the matrix of inversion in our representation is equal to: $i\gamma_5$: $IU = i\gamma_5 U$. The eigenspinors of the inversion operator can belong to the two classes "+" and "-".

Next, the commutator and anticommutator relations for the tensorial and spinorial quantities are studied. Here A and U are to be dissociated into plane waves. Next, the tensors of even and odd rank are constructed which depend quadratically on $A^{(\pm)}$, $A^{*(\pm)}$ and $U^{(\pm)}$, $U^{*(\pm)}$. The energy density cannot be positively defined in the case of the spinor field, but in the case of the tensor field the charge density cannot be positively defined.

INSTITUTION: Westsibirian Branch of the Academy of Science in the USSR.

HUMER, Yu.B.

Institute of Radiophysics and Electronics at the West Siberian Branch
of the Academy of Sciences of the U.S.S.R. Izv. vost. fil. AN SSSR
no.1:141 '57. (MIRA 11:4)

(Siberia, Western--Electronics)

Rumer, Yu. B.

AUTHORS: Rumer, Yu. B., Doctor of Physico -Mathematical Sciences, Krivoshchekov, G. V. 30-10-16/26

TITLE: The Siberian Institute of Radiophysics and Electronics (Sibirskiy institut radiofiziki i elektroniki).*

PERIODICAL: Vestnik AN SSSR, 1957, October, Nr 10, pp. 108-110 (USSR)

ABSTRACT: Scientific research is being conducted at the Siberian Institute of Radiophysics and Electronics in the following fields:

- a) Theoretical physics (applied electrodynamics)
- b) Electronic phenomena at super-high frequencies.
- c) Electronics of cathodes.
- d) Physics of gas-discharges.

Methods of mathematical physics were developed and the following problems studied:

- 1) Theory of directional antennas.
- 2) Studies of distribution of the currents in aerials with optimum radiation pattern.
- 3) Theoretical investigation of wave guides the cross-section of which changes slowly.
- 4) Development of a new theory of the magnetron.
- 5) Experimental determination of a new inversion process of the conductivity of diodes. *[organized from the Section of Technical Physics of the West-Siberian Branch of the AS USSR]

Card 1/2

The Siberian Institute of Radiophysics and Electronics

30-10-16/26

- 6) Focusing by static magnetic fields is used for achieving a well collimated electron ray.
- 7) Construction of an experimental generator with electronic tuning in the decimeter range.
- 8) Determination of the mechanism of the cathod of distillation with thermoelectronic emission. The experts succeeded in designing cathods which show a current density of 2a/cm^2 at a cathode temperature of no more than 900°C .

AVAILABLE: Library of Congress.

Card 2/2

SOV/44-58-4-2995

Translation from: Referativnyy zhurnal, Matematika, 1958,
Nr 4, p 82 (USSR)

AUTHOR: Rumer, Yu. B.

TITLE: Homogeneous Form of Variational Principles and the Laws
of Conservation (Odnorodnaya forma variatsionnykh
printsipov i zakony sokhraneniya)

PERIODICAL: Uch. zap. Novosibirskiy gos. ped. in-t, 1957, Nr 12,
pp 3-8

ABSTRACT: A descriptive derivation of the laws of conservation in
the mechanics of conservative holonomic systems and in field
theory is proposed, based on the transformation to a homogeneous
form of the Lagrange function, studying independent variables as
auxiliary unknown functions of auxiliary parameters with the con-
sequent return to the initial independent variables.

I.S. Arzhanykh

Card 1/1

RUMER, Yu. B.

56-7-47/66

AUTHOR
TITLE

POKROVSKIY, V.L., RUMER, Yu.B.
On the Problem of Conservation of Parity in the Theory
of Elementary Particles.

PERIODICAL

(K voprosu o sokhraneni chetnosti v teorii elementarnykh
chastits.- Russian)
Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 33, Nr 7,
pp 277-279 (USSR)

ABSTRACT

The fivedimensional optics suggested by Yu.B. RUMER
(Issledovaniya po 5-optike, GTTI, 1956, Usp. mat.nauk,
Vol 8, 6, 1953) furnishes a natural classification of the
phenomena in which parity is either conserved or not. The
fivedimensional optics is based upon the newly discovered
extensive symmetry of the equations of classical mechanics
and the quantum mechanics in space, time, and effect.
In fivedimensional optics the coordinates, time, and the
effects are comprised within a fivedimensional metric space
which is closed topologically in the coordinate of of
effect with the period h (Plank's constant). In a corresponding
manner momentum, energy, and charge are combined to a five-
dimensional vector, for which a uniform law of conservation
is formulated. Also in the fivedimensional theory the
Lagrangian of interaction must be built up from the wave

CARD 1/2

On the Problem of Conservation of Parity in the Theory
of Elementary Particles. 56-7-47/66

functions of the interacting particles. The authors here
enumerate all possible products of spin components, they
can be subdivided into irreducible groups. Also in the five-
dimensional space a spinor is a quantity with 4 components.
In conclusion the emission of a boson by a fermion and the
decay of a boson into two fermions is studied in short.
(No Illustrations)

ASSOCIATION: West-Siberian Branch of the Academy of Sciences of the USSR.
(Zapadno-Sibirskiy filial Akademii nauk SSSR.- Russian)

PRESENTED BY: -

SUBMITTED: 14.3. 1957

AVAILABLE: Library of Congress.

CARD 2/2

Rumer, Yu.B.

SOV/2660

PHASE I BOOK EXPLOITATION

16(1)

Vsesoyuzny matematicheskiy s'yezd. 3rd, Moscow, 1956

Trudy. t. 1. Knizkoje soderzhanije sekcionnykh dokladov. Doklady inostrannykh uchenykh (Transactions of the 3rd All-Union Mathematical Conference in Moscow. vol. 1: Summary of Sectional Reports. Report of Foreign Scientists) Moscow, Izd-vo AN SSSR, 1959. 247 p. 2,200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Matematicheskiy institut.

Tech. Ed.: G.N. Shevchuk; Editorial Board: A.A. Abramov, V.G. Boltynskiy, A.M. Vasiliyev, B.V. Medvedev, A.D. Murkis, S.M. Nikol'skiy (Resp. Eds.); A.G. Postnikov, Yu. V. Pochinov, K.A. Rybnikov, P. L. Gilyarov, V.A. Uspenskiy, N.G. Chetayev, G. Ye. Shilov, and A.I. Shirshov.

PURPOSE: This book is intended for mathematicians and physicists. COVERAGE: The book is Volume IV of the Transactions of the Third All-Union Mathematical Conference, held in June and July 1956. The book is divided into two main parts. The first part contains summaries of the papers presented by Soviet scientists at the conference that were not included in the first two volumes. The second part contains the text of reports submitted to the editor by non-Soviet scientists. In those cases when the non-Soviet scientist did not submit a copy of his paper to the editor, a previous volume of the paper is cited, and, if the paper was printed in a previous volume, reference is made to the appropriate volume in number theory, both Soviet and non-Soviet, cover various topics in number theory, algebra, differential and integral equations, topology, mathematical functions, analysis, probability theory, combinatorial mathematics, problems of mechanics and physics, computational mathematics, mathematical logic and the foundations of mathematics, and the history of mathematics.

- Makarov, G.I. (Leningrad). V.S. Ruzhitskiy (Leningrad). E.A. Grynina (Leningrad). I.A. Korotkiy (Leningrad). Quantitative study of the nonstationary diffraction of waves from spherical and cylindrical regions 120
- Kemerchuk, I.Za. (Moscow). The turning to zero of renormalized charges in theories with point interaction 120
- Rumer, Yu.B. (Novosibirsk). Five-dimensional optics 122
- Skuridin, G.A. (Moscow). On the theory of the reflection of elastic waves from a curvilinear boundary 122
- Stanyukovich, K.P. (Moscow). Relativistic mechanics and the electrodynamics of continuous media 124
- Khoshnazar, L.Sh. (Stalinabad). Singular functions of quantum field theory in n-dimensional pseudo-Euclidean space 124

Card 23/31

RUMER, Yu. B.

PHASE I BOOK EXPLOITATION

SOV/3865

Landau, Lev Davydovich, Academician, and Yuriy Borisovich Rumer, Professor

Chto takoye teoriya otноситel'nosti (What is the Theory of Relativity?)
Moscow, Izd-vo "Sovetskaya Rossiya," 1959. 61 p. 15,000 copies printed.

Ed.: Yu.E. Berenson; Tech. Ed.: N.I. Yusifina.

PURPOSE: This booklet is intended for the general reader interested in the theory of relativity.

COVERAGE: The booklet is a popular presentation of the basic concepts of the theory of relativity and their role in modern physics. Various physical phenomena are explained in terms of the theory of relativity by using examples from everyday experience. No personalities are mentioned. There are no references.

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sov/3865

What is the Theory of Relativity?

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80V/3865

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AVAILABLE: Library of Congress

Card 4/4

JA/cdw/mas
8-10-60

24(5)

SOV/56-36-6-38/66

AUTHOR:

Rumer, Yu. B.

TITLE:

Action as Space Coordinate. X (Deystviye kak koordinata prostranstva. X)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 6, pp 1894 - 1902 (USSR)

ABSTRACT:

The present paper is a further part of a series of publications begun by the author with his investigations in the field of five-dimensional optics (Ref 1). In this earlier paper (a monograph published by GTTI, 1956) conditions, definitions, and methods of this five-optics (3 space- 1 time- 1 action coordinate) are established. In the present paper the author discusses the difficulties arising in connection with the formulation of spinor equations in five-optics. It is shown that the requirement of invariance with respect to physically permissible transformations leads to correct spinor equations. The requirement of physical permissibility separates subgroups of general transformations in the four-dimensional space-time and gauge transformations from the general transformation group of five-dimensional space. Restriction of the group of permissible transformations does by no means signify in principle invalidity of the five-dimensional conception. The most

Card 1/2

Action as Space Coordinate. X

SOV/56-36-6-38/66

important feature of the five-dimensional theory is the periodic dependence of the fields on the action coordinate with a period of h . This fact and also the consequences from it cannot be reduced to a simple unification of the four-coordinate point transformation group and the gauge transformation group. An essentially five-dimensional effect is also the existence of the scalar χ -field whose appearance in the field theory of a charged material point yields formulas which differ from those of the modern theory of gravitation. There are 2 Soviet references.

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR (Institute for Radiophysics and Electronics of the Siberian Branch of the Academy of Sciences, USSR)

SUBMITTED: January 20, 1959

Card 2/2

24(8)

SOV/56-37-2-49/56

AUTHOR:

Rumer, Yu. B.

TITLE:

A Simple Model in the Theory of Superconductivity

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
Vol 37, Nr 2(8), pp 578-580 (USSR)

ABSTRACT:

In the present "Letter to the Editor" the author points out that Cooper's phenomenon is the key leading towards understanding superconductivity. This phenomenon is based upon the fact that near the Fermi boundary two electrons with opposed momenta and spins may form a bound state. Such states occur as bosons, which produce a condensate at low temperatures. It is now possible, like in the theory of superfluidity by Bogolyubov, to build up a theory of superconductivity on the basis of the boson condensate model. First, the general Hamiltonian, describing production and decay of the bosons is written down, which is simplified under the assumption that the majority of the bosons is contained in the condensate. Bogoyubov's theory is then followed. The here developed mathematical model is shown actually to describe superconductivity if $\omega(0) - 2\mu > 0$ (μ is the chemical potential).

Card 1/2

A Simple Model in the Theory of Superconductivity

SOV/56-37-2-49/56

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya
Akademii nauk SSSR (Institute of Radiophysics and Electronics
of the Siberian Branch of the Academy of Sciences, USSR)

SUBMITTED: May 16, 1959

Card 2/2

PHASE I BOOK EXPLOITATION

SOV/4770

Rumer, Yuriy Borisovich, and M.S. Ryvkin

Teoriya otноситel'nosti (The Theory of Relativity) Moscow, Uchpedgiz, 1960.
211 p. 20,000 copies printed.

Eds.: A.A. Gobanov, and Yu. N. Drozhzhin; Tech. Ed.: V.I. Korneyeva.

PURPOSE: This book is intended for students of pedagogical institutes, teachers of physics in secondary schools, and for general readers interested in modern physics.

COVERAGE: The authors discuss the fundamentals of the theory of relativity, and of its most important applications (quantum theory of light, some problems of the theory of accelerators, energetics of nuclear reactions, etc.) The contents of the book correspond basically to the program of the course of theoretical physics at pedagogical institutes, except for the problems discussed in Ch. IV (The Theory of the Field) which transcend the requirements of that course. No personalities are mentioned. There are no references.

Card ~~1/3~~

LANDAU, Lev Davidovich, akademik; RUMER, Yuriy Borisovich, prof.

Figures which seem to be reassuring. Izobr.1 rats. no.1:
17-18 Ja '60. (MIRA 13:4)
(Space flight)

81676

S/056/60/038/06/12/012
B006/B056

24.5100

AUTHOR:

Rumer, Yu. B.

TITLE:

Negative and Limiting TemperaturesPERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
Vol. 38, No. 6, pp. 1899 - 1902TEXT: On the basis of a study of the state function $Z(\lambda) = \int_0^{\infty} \varphi(E) e^{-\lambda E} dE$

defined on the entire complex plane (where $\varphi(E)$ is the spectral density of the energy of the system), it is shown in the present paper that the possibility of the existence of negative and limiting positive temperatures in a thermodynamic system is interrelated with the analyticity of the statistical sum as a function of the reciprocal temperature in the mathematical apparatus of statistical physics. This result is demonstrated by two examples: 1) by the example of the Ising model of a linear chain consisting of n nodes, where $Z(\lambda) = (2 \operatorname{ch} J\lambda)^n$ holds for a large n ; J is the interaction energy of two neighboring unidirected spins.

Card 1/2

Negative and Limiting Temperatures

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B006/B056

It is shown that the existence of positive and negative Curie points (corresponding to transitions into the ferromagnetic and antiferromagnetic states) is characteristic also of the Heisenberg model. 2) by the example of a gas of non-interacting particles in an external field with a logarithmic asymptotic behavior of the potential. For this system the existence of a limiting temperature is proved, beyond which it cannot be heated. The physical reason for this is the fact that, because of the slow growth of the potential with an energy increase, the particles part from one another widely, and their kinematic energy is low compared to their potential energy. There are 2 references: 1 Soviet and 1 American.

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Radiophysics and Electronics of the Siberian Branch of the Academy of Sciences, USSR)

SUBMITTED: February 16, 1960

Card 2/2

DYKHNE, A.M.; RUMER, Yu.B.

Thermodynamics of the Ising-Onsager two-dimensional dipole lattice.
Usp. fiz. nauk 75 no.1:101-115 S '61. (MIRA 14:9)
(Lattice theory)

34650

S/056/62/042/002/039/055
B108/B104

9.9867

AUTHOR: Rumer, Yu. B.

TITLE: Invariant formulation of the gravitational wave field theory

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42,
no. 2, 1962, 577 - 583

TEXT: Einstein's theory of gravitation is re-formulated on the basis of the gravitation field strength tensor F_{iklm} , which vanishes in Euclidean space. The Riemann curvature tensor R_{iklm} is split up in two ten-component tensors such that $R_{iklm} = M_{iklm} + F_{iklm}$. The tensor M_{iklm} of matter can be expressed by the field source and metric tensors. It vanishes when there are no sources. The field equations have the form of Bianchi identities. When the sources are given, F_{iklm} as well as the metric tensor can be calculated from the field equations. With the help of this formulation with F_{iklm} it is possible to establish a theory of weak gravitational waves in which a gravitational wave is described by two five-component tensors $H_{\alpha\beta}$.
Card 1/2

Invariant formulation ...

S/056/62/042/002/039/055
B108/B104

and $E_{\omega\beta}$ similarly as an electromagnetic wave is described by two three-component vectors \vec{H} and \vec{E} . There is 1 Soviet reference.

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Radiophysics and Electronics of the Siberian Department of the Academy of Sciences USSR)

SUBMITTED: September 1, 1961

Card 2/2

RUMER, Yuriy Borisovich

[Lectures on thermodynamics and statistical physics;
special course for the students of the Novosibirsk
State University] Lektsii po termodinamike i stati-
sticheskoi fizike; spetskurs dlia studentov NGU. No-
vosibirsk, Vol.1. 1963. (MIRA 17:10)

LANDAU, Lev Davydovich, akademik; RUMER, Yuriy Borisovich, prof.;
CHERNIKOVA, M.S., red.; MARAKASOVA, L.P., tekhn. red.

[What is the theory of relativity] Chto takoe teoriia otno-
sitel'nosti. 2. izd. Moskva, Sovetskaia Rossiia, 1963. 73 p.
(MIRA 17:3)

L 6928-65 EWT(1)/EEC(t)/T Pg-1/P1-1/Po-1/Pq-1 LJP(c)/AS(mp)-2/SSD/AFWL/
ASD(a)-5/AFMD(t)/ESD(gs)/ESD(t)/RAEM(t)
ACCESSION NR: AR4039897 s/0058/64/000/004/B013/B013

SOURCE: Ref. zh. Fiz., Abs 4B131

69

AUTHORS: Rumer, Yu. B.

TITLE: Invariant formulation of the gravitational wave field theory

CITED SOURCE: Uch. zap. Novosib. gos. ped. in-t, vy*p. 18, 1963,
3-8

TOPIC TAGS: gravitational wave, radiation, wave theory, relativity

TRANSLATION: The special case of gravitational radiation is singled out with the aid of the requirement that no field sources exist inside the space-time region in question. The role of field equations is played by the Bianchi identities, which assume in the weak-field approximation a form analogous to the Maxwell equations for the electromagnetic field in vacuum. The author proposes to regard this analogy as the starting point when studying the nature of gravitational radiation. B. Vavilov

Card 1/2

L 6928-65

ACCESSION NR: AR4039897

SUB CODE: GP

ENCL: 00

Card 2/2

SOKOLOVSKIY, Yefim Iosifovich; RUMER, Ya. B., retsenzent;
MULTASHOVSKIY, V.V., retsenzent; MIKHALKEVICH, T.V., red.

[Elements of the theory of relativity with graphic proofs]
Nachala teorii otноситel'nosti s graficheskimi dokazatel'stvami. Moskva, Prosveshchenie, 1964. 146 p.
(MIRA 18:3)

ACCESSION NR: AP4042400

S/0056/64/047/001/0278/0293

AUTHOR: Rumer, Yu. B.

TITLE: Thermodynamic averages for an infinite plane Ising lattice

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 1, 1964, 278-293

TOPIC TAGS: statistical function, crystal lattice, magnetic moment, thermodynamic function, spin, correlation technique

ABSTRACT: The investigation is an extension of the work of Kaufman and Onsager (Phys. Rev. v. 76, 1244, 1949) devoted to the calculation of thermodynamic averages for an infinite two-dimensional Ising lattice. It is shown in the present paper that an alternate variant of calculation which uses a different matrix for the evaluation of the partition function, yields the same result. The variant proposed in the present article is shown to be more convenient for the derivation of the Onsager formula for the spontaneous magnetic

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ACCESSION NR: AP4042400

moment of an infinite Ising lattice. Orig. art. has: 110 formulas.

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdel-
eniya Akademii nauk SSSR (Institute of Radiophysics and Electrons,
Siberian Department, Academy of Sciences, SSSR)

SUBMITTED: 24Jan64

ENCL: 00

SUB CODE: TD, SS

NR REF SOV: 001

OTHER: 006

2/2

ACHASOV, N.N.; RUMER, Yu.B.; CHERNYAK, V.L.; SHIRKOV, D.V.

A formal dynamic model of unitary symmetry. Dokl. AN SSSR 162
no.1:43-45 My '65. (MIRA 18:5)

1. Institut matematiki Sibirskogo otdeleniya AN SSSR. 2. Chlen-
korrespondent AN SSSR (for Shirkov).

L 27602-66 EWT(1) IJP(c) GG

ACC NR: AP6018401

SOURCE CODE: UR/0020/65/162/001/0043/0045

AUTHOR: Achasov, N. N.; Rumer, Yu. B.; Chernyak, V. L.; Shirkov, D. V. (Corresponding member AN SSSR)ORG: Institute of Mathematics, Siberian Section, AN SSSR (Institut matematiki Sibirskogo otdeleniya AN SSSR)

TITLE: Formal dynamic model of unitary symmetry

SOURCE: AN SSSR. Doklady, v. 162, no. 1, 1965, 43-45

TOPIC TAGS: mathematic model; quantum mechanics

ABSTRACT: The purpose of the article is to construct a quantum-mechanical model, the degeneracy of whose levels will have a one-to-one correspondence with all representations of group $SU(3)$, each representation occurring only once. The model should possess not less than five degrees of freedom in accordance with the number of quantum numbers effecting the classification of states in group $SU(3)$ (p, q, Q, Y, T). The authors outline the method by which they obtained a spectrum with terms having a one-to-one correspondence with representations of group $SU(3)$: that is to say, corresponding to each representation $D(p, q)$ of group $SU(3)$ there is a term ω_{pq} with degeneracy the multiplicity of which equals $M(p, q) = (p + 1)(q + 1)(p + q + 2)/2$. The authors conclude that the adduced construction should be regarded as a certain formal model of unitary symmetry. The authors thank V. V. Serebryakov for the useful discussions. Orig. art. has: 6 formulas. [JPRS]

SUB CODE: 20, 12 / SUBM DATE: 15Jan65 / ORIG REF: 002

Card 1/1

LANDAU, L.D., akademik; RUMER, Yu.V., prof.

Relativity of time, Znan.sila 33 no.11:4-6 N '58. (MIRA 11:12)
(Relativity (Physics))

EVIN, V.A.

Process of the formation of generative cells in culture. *Tr. Vsesoyuzn. nauch. tsentra mol. biolog. zhur.* 8 no.1:78-82 1964. (MIRA 17:10)

1. Institut genetik i fiziologii rasteniy AN UzSSR.

KANASH, S.S., akademik; MAL'TSEV, A.M.; VLASOVA, N.A.; PASHCHENKO, Z.M.; ROZHANOVSKIY, S.Yu.; MAUYER, F.M.; MOKEYEVA, Ye.A.; KLYUYEV, G.A.; BURYGIN, V.A.; SHLEYKHER, A.I.; RUMI, V.A.; ROMANOV, I.D.; AVTONOMOV, A.I., otv.red.; MUKHAMEDZHANOV, M.V., akademik, glavnyy red.; RYZHOV, S.N., akademik, zamestitel' glavnogo red.; ALIMOV, R.A., red.; DABADAYEV, A.D., akademik, red.; DZHALILOV, Kh.M., kand. ekon.nauk, red.; YEREMENKO, V.Ye., akademik, red.; ZAKIROV, K.Z., akademik, red.; MANMANOV, N.M., akademik, red.; NABIYEV, M.N., akademik, red.; SADYKOV, S.S., red.; TOGOYEV, I.N., kand.ekon.nauk, red.; YAKHONTOV, V.V., red.; KURANOVA, L.I., red.izd-va; RAKHMANOVA, M.D., red.izd-va; BARTSEVA, V.P., tekhn.red.

[Cotton] Khlopchatnik. Tashkent. Vol.3. [Structure and development of cotton] Stroenie i razvitiye khlopchatnika. 1960. 402 p. (MIRA 13:10)

1. Akademiya nauk Uzbekskoy SSR, Tashkent. 2. Akademiki UzSSR (for Kanash, Mukhamedzhanov, Zakirov, NabiyeV). 3. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk imeni V.I.Lenina (for Kanash). 4. Tsentral'naya selektsionnaya stantsiya Vsesoyuznogo nauchno-issledovatel'skogo instituta khlopkovodstva Uzbekskoy akademii sel'skokhozyaystvennykh nauk (for Kanash). 5. Tashkentskiy sel'skokhozyaystvennyy institut (for Mal'tsev, Shleykher). 6. Institut genetiki i fiziologii rasteniy AN UzSSR (for Vlasova, Mauyer, Klyuyev, Rumi, Romanov).

(Continued on next card)

KANASH, S.S. --- (continued) Card 2.

7. Sredneaziatskiy gosudarstvennyy universitet (for Pashchenko).
8. Institut botaniki AN UzSSR (for Rozhanovskiy, Mokeyeva, Burygin).
9. Chleny-korrespondenty AN UzSSR (for Avtonomov, Alimov, Yermenko, Sadykov, Yakhontov).
10. Uzbekskaya Akademiya sel'skokhozyaystvennykh nauk (for Mukhamedzhanov, Ryzhov, Dadabayev, Yermenko, Zakirov, Mannanov).

(Cotton)

RUMI, V.A.

Development of the vegetative and generative shoots of black and white saksaul in the Kyzyl-Kum desert. Trudy Inst.bot.AN Uz.SSR no.3:113-127 '55. (MIRA 10:1)

(Kyzyl-Kum--Saksaul) (Growth(Plants))

USSR/Cultivated Plants - Technical, Oilaginous, Sacchariferous. 1-7

Abs Jour : Russ Jour - Biol., No 9, 1958, 39392

Author : Rud, V.A., Vlasova, H.A.

List : 13 USSR

Title : The Influence of the Quantity and Quality of Pollen on Fertilization and Shedding of Ovaries.

Orig Pub : V sb.: Vopr. fiziol. K. l'opel'atnika i trav. vyp. 1, Moshkov, AN UzSSR, 1957, 123-141

Abstract : Studies made in 1951-1953 showed that more pollen tubes are grown after abundant pollination of flowers by a mixture of pollens of different plants than by limited and natural pollination. An abundant pollination with mixed pollen has a favorable influence on the fruit formation; however, a limited one causes large scale shedding of ovaries. The smallest quantity of seeds (33.8%) was formed by a limited

Card 1/2

RUMI, V.A.

Rumi, V.A. "The cause of sterility in intergenal hybrids of the cotton plant", Izvestiya Akad. nauk UzSSR, 1948, No. 3, p. 96-102, (Resume in Uzbek), -Bibliog: 10 items.

SO: U-3042, 11 March 53, (Letopis 'nykh Statey, No. 9, 1949)

RUMI, V.A.

Development rate of pollen and male gametophyte in cotton species.
Uzb. biol. zhur. 7 no.1240--70 '63 (MGRA 17:7)

1. Institut genetiki i fiziologii rasteniy AN Uzbekskoy SSR.

RUMI, V.A.

Rate of pollen development in two cotton varieties. Nauch. dokl.
vys. shkoly; biol. nauki no.4:167-170 '61. (MIRA 14:11)

1. Rekomendovana Institutom genetiki i fiziologii rasteniy AN
UzSSR.

(COTTON)

(POLLEN)

RUMI, V.A.

Rate of pollen development of the 1306-DV and 108-F cotton
varieties. Uzb. biol. zhur. no.3:42-49 '61. (MIRA 14:6)

1. Institut genetiki i fiziologii rasteniy AN UzSSR.
(COTTON) (POLLEN)

RUMI, V.A.

Spermatogenesis in cotton. Uzb. biol. zhur. 8 no.4:71-76 '64.
(MIRA 18:7)

1. Institut genetiki i fiziologii rasteniy AN UzSSR.

RUMIANCEW, A.

RUMIANCEW, A. Constructional problems in Soviet residential building. p. 371

Vol. 13, no. 10, Oct. 1956
INGYNIERIA I BUDOWNICTWO
POLITICAL SCIENCE
Warszawa, Poland

So: East European Accession Vol. 4, No. 3, March 1957

RUMINSKI, Boleslaw, mgr inz.

On the scientific-technological chair in technical colleges in the Resolutions of the 11th Plenum of the Central Council of the Polish United Workers Party. Przegl techn 84 no.2:1, 3 13 Ja '63.

1. Prezes Kancelnie Organizacji Technicznej Warszawa.

RUMINSKI, Ecleslaw, mgr. inz.

The new Polish statute on inventions, rationalizations and patents introduces a number of changes and closes gap: in provisions hitherto in force. Przegł techn no.23/24:1, 2 17 Ja '62.

1. Member of the Polish parliament, Warsaw.

RUMINSKI, B., mgr inż.

For closer and more intimate cooperation of the Chief
Technical Organization with science and scientists.
Przeł techn 84 no.13:1 31 Mr '63.

1. Prezes Naczelnej Organizacji Technicznej, Warszawa.

RUMINSKI, Boleslaw, mgr. inz.

Textile workers have been occupying a decisive position in the development of technology and management in the territory of the city of Lodz. Przegl techn nc.22:1 Je '62

1. Prezes Zarzadu Naczelnej Organizacje Technicznej, Warszawa.

RUMINSKI, Boleslaw, mgr inz.

Fifth Congress of the Trade Unions, a common manifestation of united thoughts and convictions of the laboring class and the technical intelligentsia. Przegl techn no.47:1, 3 25 N '62.

1. Prezes Naczelnej Organizacji Technicznej, Warszawa.

RUMINSKI, Boleslaw, mgr inz.

We are entering a new stage of cooperation between the Chief
Technical Organization and the Central Council of Trade Unions.
Przeegl techn 84 no.21:1 26 My '63.

1. Przewodniczący Zarządu Naczelnej Organizacji Technicznej,
Warszawa.

RUMINSKI, Boleslaw, mgr inz.

For technical progress a decisive point has been the cooperative work of the engineer and workman. Przegl techn 84 no.25:7 23¹ Je '63.

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Tasks of the Central Technical Organization before the Fifth Congress of Polish Technicians. Przegl techn 86 no.16:1,4 18 Ap '65.

1. President, Central Technical Organization, Warsaw.

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S/057/62/032/008/007/012
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AUTHORS: Fedorchenko, V. D., Rumkevich, B. N., Muratov, V. I., and Chernyy, B. M. (Deceased)

TITLE: Low-frequency plasma oscillations in a magnetic field

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 8, 1962, 958 - 966

TEXT: The experiments were made in a longitudinal magnetic field of 200 - 300 oersteds (Fig. 1). The diameter of the electron beam was 2 cm, its length 65 cm, the energy 2 kev, the pressure $5 \cdot 10^{-7}$ - $5 \cdot 10^{-5}$ mm Hg. The relation $\omega \sim \sqrt{n/M}$ exists between the circular frequency ω , the oscillations occurring in the collector circuit (100 kc/sec), of the particle density n and the ion mass M . The oscillations mainly occur at 10^{-6} mm Hg. The oscillation stability is increased by reducing the pressure to 10^{-7} - 10^{-7} mm Hg, and at $2 \cdot 10^{-5}$ mm Hg these oscillations vanish. They are due to a high-frequency noise caused by the electron beam. If the noise is suppressed at the end of the electron beam the oscillation in the collector circuit vanishes. The same oscillations are produced by a weak

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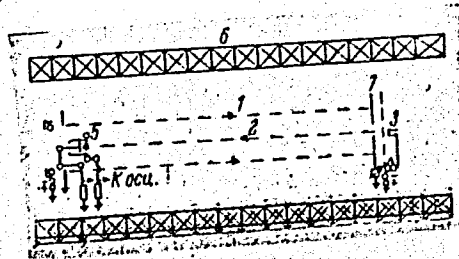
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Low-frequency plasma oscillations...

external high-frequency signal of 28 - 29 Mc/sec. The plasma produced by the electron beam ionizing the gas in the chamber is very important in causing the low-frequency oscillations. They may be excited by the irregular action of the fields, produced by the noise in the beam - plasma system. Attempts to verify this supposition are discussed. There are 7 figures.

SUBMITTED: June 17, 1961

Fig. 1



Card 2/2

Ruml, M.

SOLICH, J.; DUSKOVA, M.; RUML, M.; VONASKOVA, E.

CSSR

Dept. of Pharmaceutical Operations, Pharmaceutical faculty (Katedra
lekarenskeho provozu Farmaceuticke fakulty) Bratislava -- Faculty Pharmacy
(Fakularni lekarna), Brno

Bratislava, Farmaceuticky Obzor, No 3, 1963, pp 120-128

"Thematics of the Work of Teaching Health by the Pharmacist, I. The Problem of
Propagation of Pharmacy"

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CZECHOSLOVAKIA

A. RUMLER, Ordinarius, Department for Correction of Defects of Speech, Voice and Hearing; Kraj Hospital with Polyclinic, Otolaryngology Section, Head (vedouci) V. RAJNER, MD (Krajska nemocnice s poliklinikou, otolaryngologicke oddeleni, Oddeleni pro napravu vad reci, hlasu a sluchu), Ostrava.

"Re-Education of Hearing in Children."

Prague, Casopis Lekarů Českyh, Vol 102, No 19, 10 May 63; pp 531-532.

Abstract : Brief historical review of the 20th Century development of the concept of deafness; peripheral sound analyzers and corticalceptive mechanisms. Author advocates preventive efforts by increasing screening among infants; a nursery has been established for hard-of-hearing children; transistorized hearing aids are used at 1 year of age and earlier. Six Czech and 1 Western reference.

1/1

RUMMEL, Aleksander, Doc.

Fields of application of automatic and semi-automatic shifts in modern automobiles. Techn motor ll no.8:279-280 Ag '61.

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Quality control of metals through the use of gamma rays. Moskva, Gos. nauchno-tekhn. izdvo lit-ry po chernoi i tsvetnoi metallurgii, 1954. 248 p. (54-42743)

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RUMIANTSEV, S.V., inzhener; GRIGOROVICH, M.A., inzhener.

Determining the depth of non-fused seams with the aid of X-ray and gamma
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1ST AND 2ND GROUPS 3RD AND 4TH GROUPS

PROCESSES AND PROPERTIES INDEX

BC AJ

Common Element

Common Variable

Materials Index

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

GROUPS

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1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX

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B

602. Catalytic Hydrogenation of Cyclopentane Hydrocarbons Accompanied by Ring Cleavage. VII. Hydrogenation of Methylcyclopentane in the Presence of Platinized Charcoal or Nickel on Alumina. (In Russian.) B. A. Kazanskii and Z. A. Rumiantseva. *Bulletin of the Academy of Sciences of U.S.S.R., Section of Chemical Sciences*, no. 2, 1947, p. 183-190.

ASB.SLA METALLURGICAL LITERATURE CLASSIFICATION

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RUMIEWICZ, Z.

3803

674.047 : 614.873

Rumiewicz Z. Protection from the Effects of High Temperature on
Workers in Wood Drying Plants. MT

„Ochrona przed wysoką temperaturą przy pracy w suszarniach
drewna”. Ochrona Pracy. No. 9, 1954, pp. 312—314. 3 figs.

When wood is being dried in drying establishments, the staff are
exposed to the harmful effects of high temperature, which endanger

their health by causing, among other things, accelerated heart action
and excessive loss of salt through perspiration. In one Polish establish-
ment, a prototype of a climatizing device has been constructed and
tested. It is intended to protect workers from the deleterious action of
high temperature. This article contains a description of the parts com-
posing the device, together with its uses. Other prophylactic measures
which should be adopted for the benefit of workers in drying establish-
ments, are also listed.

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"The significance of temperature in the ontogeny and phylogeny of animals" (p. 504)
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SO: Advances in Modern Biology (Uspekhi Sovremennoi Biologii) Vol. XII, No. 3, 1940

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Effect of potassium ferrocyanide on *Datura stramonium* L. leaves and on alkaloids and other compounds. *Acta biochim. polon.* 3 no. 2:209-224 1956.

1. Z Zakładu Biochemii SGGW Kierownik: prof. dr. I. Reifer i z Zakładu Dziczegolowej Uprawy Roslin SGGW Kierownik: prof. dr. A. Listowski.

(FERROCYANIDES, effects,
potassium ferrocyanide on *Datura stramonium* (Pol))
(DATURA, effect of drugs on,
potassium ferrocyanide (Pol))

RUMINSKA, A.

Influence of ferricyanide on the yield and tropine alkaloid content of leaves of *Datura stramonium*, L. I. Reiser, A. Ruminska and J. Kaczkowski (*Acta biochim. polon.*, 1955, 8, 315-320).—Seeds of *D. stramonium* were soaked in aq. 1% K₃Fe(CN)₆ and after germination the seedlings were watered with more of the solution. Treated plants produced 25% more leaves having, on average, 13% more alkaloid and yielding 36% more alkaloid per plant than did control plants.

A. G. POLLARD

ACK (2)

4272. Influence of potassium ferricyanide on *Detaria stremanium*
L., abundance of leaves and amount of alkaloids and some other
compounds. 1. Reiter A Ruminska, and Y Kaczkowski *Acta*
Phytochem 1956 8: 209-224 Inst Biochem S.G.G.W.
1956 8: 209-224 2 g KCN per 100 g of soln over used
seeds were treated with such soln developed con-
siderable amount of alkaloids and some other
compounds. KCN applied 1 g per 100 g
of soln. KCN applied 2 g per 100 g
of soln. KCN applied 3 g per 100 g
of soln. KCN applied 4 g per 100 g
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