

On the Group of Renormalization in Problems With a Fixed Source of Nuclons SOV/155-58-2-37/47

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (United Institute of Nuclear Research)

Card 2/2

16(2),21,(7)

AUTHORS: Logunov,A.A., and Tavkhelidze,A.N. SOV/155-58-3-32/37

TITLE: Generalized Dispersion Relations (Obobshchennyye dispersionnyye sootnosheniya)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskkiye nauki, 1958, Nr 3, pp 178-185 (USSR)

ABSTRACT: The present paper continues the earlier investigations of the authors [Ref 1,2,3,4]. The authors propose a method for obtaining dispersion relations for the reactions  $a+b \rightarrow a'+c+d$ . At the beginning of the reaction there is a nucleon and a boson, at the end there is a nucleon and two bosons. In contrary to [Ref 1,2,3,4] the authors do not assume that the energies of c and d are equal. The ratio of these energies is fixed as Polkinghorn has done. An explicit calculation is made for the double Compton effect ( $\gamma+p \rightarrow 2\gamma+p$ ). The paper contains three paragraphs: §1 Kinematics of the process, §2 Investigation of the anti-Hermitean part of the amplitude of the process, §3 Dispersion relations.

There are 6 references, 3 of which are Soviet, 1 American, 1 Italian, and 1 German.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: April 4, 1958

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21(7), 16(2), 16(1)

AUTHORS: Logunov, A.A., Bilen'kiy, S.M., and  
Tavkheldze, A.M.

SOV/155-58-3-33/37

TITLE: On the Theory of Dispersion Relations for Complex Processes  
(K teorii dispersionnykh sootnosheniy dlya slozhnykh protsessov)PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki,  
1958, Nr 3, pp 186-195 (USSR)

ABSTRACT: The present paper contains the proof of the dispersion relations for the process  $\chi+p \rightarrow 2\chi+p$  in the case when the non-observable domain is missing. At first with the aid of the principle of causation (in the formulation of N.N. Bogolyubov [Ref 5]) the lagging and the leading amplitudes of the process are constructed; the first one is combined with the direct process, the second one is combined with the recurrent process. These functions are defined for real values of energy lying above the threshold of the process. Then the functions  $\Phi^F(\varrho, E)$  and  $\Phi^R(\varrho, E)$  (compare [Ref 6]) are constructed, which in the upper and lower halfplane E, respectively, are analytic and which agree on an interval of the real axis. These functions define a single function being analytic in the whole complex E-plane with the exception of

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certain cuts along the real axis. At the banks of the cuts the  $\phi^r(g, E)$  and  $\phi^a(g, E)$  for  $g \rightarrow 0$  tend to the lagging and leading amplitude, respectively. The dispersion relations appear as conclusions by the application of the Cauchy theorem to these functions.

There are 6 references, 4 of which are Soviet, 1 Italian, and 1 American.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: April 25, 1958

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21(1)

AUTHORS: Logunov, A.A., Tavkhelidze, A.N., SOV/155-58-5-21/37  
Chernikov, N.A.

TITLE: On the Question of the Dispersion Relations for Reactions  
With Variable Number of Particles

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye  
nauki, 1958, Nr 5, pp 120-123 (USSR)

ABSTRACT: In [Ref 1] Logunov set up dispersion relations for processes  
with variable number of particles. In [Ref 2,3] the analytic  
properties of the amplitude were treated. The authors use the  
results from [Ref 1,2,3] in order to give in the present  
paper for reactions of the double Compton effect a further  
extension of those dispersion cases for which the dispersion  
relations do not contain the nonobservable energy range.  
§ 1 Kinematics of the process § 2 Dispersion relations.  
The authors thank N.N. Bogolyubov, Academician for discussion.  
There are 1 figure, and 3 Soviet references.

ASSOCIATION: Ob'yedinenyy institut yadernykh issledovaniy (United  
Institute for Nuclear Research) ✓

SUBMITTED: March 26, 1958

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LOGUNOV, A. A. and TA'KHELIDZE, A. N.

Joint Institute of Nuclear Research, Laboratory of Theoretical Physics, Dubna, USSR.

"Some Problems Encountered in the Theory of the Dispersion Relations."  
Nuclear Physics, v. 8, pp. 374-393. (1958) (North-Holland Publishing Co.,  
Amsterdam.)

Abstract: Dispersion relations are obtained for a reaction involving a variable number of particles (a fermion and boson prior to the reactions and a fermion and two identical bosons after the reaction). Cases are indicated for which an unobservable energy region is absent in the dispersion relations. A justification of the dispersion relations in the absence of an unobservable energy region is presented for the particular process  $\gamma + p \rightarrow \gamma + p$  .

AUTHORS: Tavkhelidze, A. N., Fedyanin, V. K. 20-119-4-17/60

TITLE: Approximated Equations for the Amplitude of the Scattering of Photons on Nucleons (Priblizhennyye uravneniya dlya amplitudy rasseyaniya fotonov na nuklonakh)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 4, pp. 690 - 693 (USSR)

ABSTRACT: The study of the scattering of photons on nucleons is able to supply important clues as to the mesonic structure of the nucleon. The present work determines approximated equations for the physical amplitudes on the basis of the dispersion relations for Compton scattering. The first chapter deals with the kinematic examination of the amplitude. First, an expression is written down for the amplitude of the process resulting from relativistic invariance. From the conditions of relativistic invariance and gradient invariance it is possible to determine the number of independent structures and to find an explicit expression hereof. In a pseudoscalar meson field the number of independent structures is 10. If the invariance of the amplitude with respect to reflection as regards time is taken into account, this number is reduced to 6. The authors here write

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Approximated Equations for the Amplitude of the  
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down explicit expressions for these 6 independent structures. Next, some symmetry properties of the invariant functions are detected. In the second chapter dispersion relations for the relativistic amplitudes  $S_i$  are derived. This is, however, only an intermediate stage, and in the next chapter the dispersion relations for the physical amplitudes are derived. In the last chapter the unitarity condition is derived. The dispersion relations derived here connect the Hermitian and the anti-Hermitian part of the amplitude of the reaction. The unitarity condition written down in single-meson approximation makes it possible to express the anti-Hermitian part of Compton scattering by the amplitudes of photoproduction. In conclusion, the authors thank N. N. Bogolyubov, Member, Academy of Sciences, USSR, and A. A. Logunov for their valuable discussions and for the constant interest they displayed in this work. There are 5 references, 3 of which are Soviet.

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Approximated Equations for the Amplitude of the  
Scattering of Photons on Nucleons

20-119-4-17/60

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (United Institute  
of Nuclear Research)

PRESENTED: November 20, 1957, by N. N. Bogolyubov, Member, Academy of  
Sciences, USSR

SUBMITTED: November 14, 1957

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AUTHORS: Logunov, A. A., Tavkhelidze, A. N. SOV/20-120-4-14/67

TITLE: The Analytical Properties of the Amplitude of a Process Involving a Variable Number of Particles (Analiticheskiye svoystva amplitudy protsessy s peremennym chislom chastits)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol. 120, No 4, pp.739-742 (USSR)

ABSTRACT: A. A. Logunov in the course of an earlier paper investigated the dispersion relations for processes involving a variable number of particles. In the present instance the method developed by N. N. Bogolyubov (Ref 2) is used for the purpose of proving these relations for the case in which there exists no energy domain that cannot be observed. First the Fourier representations of the retarded and of the advanced matrix element of the double Compton effect are explicitly written down. The authors investigate the function  $T(E, \vec{Q}, \Delta) = T^{\text{ret}}(E, \vec{Q}, \Delta) - T^{\text{adv}}(E, \vec{Q}, \Delta)$ , the energy spectrum of which is here illustrated in form of a drawing. The S-singularity of the function  $\rho(E, \vec{Q}, \Delta)$  can be eliminated by selecting a suitable polynomial given here. The further

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contents of this purely mathematical paper is a detailed description of the various stages of the computation. The expression found is explicitly written down. In conclusion the authors thank N. N. Bogolyubov, Member, AS USSR, for his valuable discussion of this paper. There are 3 figures and 2 references, 2 of which are Soviet.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (United Institute of Nuclear Research)

PRESENTED: February 17, 1958, by N. N. Bogolyubov, Member, Academy of Sciences, USSR

SUBMITTED: February 5, 1958

1. Mathematics

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MESTVIRISHVILI, M.A.; TAVKHELIDZE, A.N.

Problem of back dispersion relations. Soob. AN Gruz. SSR 23  
no. 2: 149-156 Ag '59. (MIRA 13:2)

1. Tbilisskiy gosudarstvennyy universitet im. Stalina. Pred-  
stavleno chlenom-korrespondentom Akademii V.I. Mamasakhlisovym.  
(Particles, Elementary--Scattering)

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~~24 (7)~~  
AUTHORS:

Tavkhalidze, A. N., Todorov, I. T.,  
Chernikov, N. A.

SOV/20-129-4-15/68

TITLE:

The Spectral Properties of the Green Function in a Model of  
the Meson Field With a Fixed Source

PERIODICAL:

<sup>19</sup>  
Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 4, pp 769 - 772  
(USSR)

ABSTRACT:

First, attention is briefly directed towards various models of the quantum field theory. If in Chew's model (Ref 3) the nucleon spin is not taken into account, and if meson energy is assumed not to depend on the momentum, the investigation of this model is reduced to the solution of a system of two ordinary differential equations of second order. In the present article the properties of the Green function in such a simplified model are investigated. It is shown that, in the case of a rigorous treatment of the problem, no paradoxa of the type of "negative probabilities" occur. The Hamiltonian of the boson field with a fixed fermion source has the following form in the charge-symmetric theory:

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$$\mathcal{H} = M(\psi_p^+ \psi_p + \psi_n^+ \psi_n) + \sum_k \omega_k (A_k^+ A_k + B_k^+ B_k + C_k^+ C_k) -$$

$$- g_0 \sum_k R_k \left\{ (A_k + B_k^+) \psi_p^+ \psi_n + (A_k^+ + B_k) \psi_n^+ \psi_p + \frac{1}{\sqrt{2}} (C_k + C_k^+) (\psi_p^+ \psi_p - \psi_n^+ \psi_n) \right\}.$$

Here  $A_k, B_k,$  and  $C_k$  ( $A_k^+, B_k^+,$  and  $C_k^+$ ) denote the annihilation operators (production operators) of the positive, negative, and neutral mesons;  $\psi_p$  and  $\psi_n$  ( $\psi_p^+$  and  $\psi_n^+$ ) - the annihilation operators (production operators) of the nucleons;

$\sqrt{2} \omega_k R_k$  - the form factor of the nucleons. The proton propagator may be written down in the form  $G(t-t') =$

$$- i \langle 0 | T(\psi_{Hp}(t) \psi_{Hp}^+(t')) | 0 \rangle, \text{ where } \psi_{Hp}(t) \text{ is an operator in}$$

Heisenberg representation:  $i \frac{d\psi_{Hp}(t)}{dt} = \psi_{Hp}(t) \mathcal{H} - \mathcal{H} \psi_{Hp}(t), \psi_{Hp}(0) = \psi_p.$  The proton propagator may be written down in form of a scalar product. The operator of the nucleon number  $\psi_p^+ \psi_p + \psi_n^+ \psi_n$

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has four linearly independent eigenfunctions; two vacuum functions, one one-nucleon function and one two-nucleon function. Green's function of the proton satisfies the equation

$(E - \mathcal{H})g(E) = \bar{\Phi}_0$ , where  $\bar{\Phi}_0 = \psi_p^+ | 0 \rangle$  is the amplitude of state with a mathematical proton.  $\bar{\Phi}(t)$  is a solution of the modified

Schroedinger equation  $i \frac{\partial \bar{\Phi}}{\partial t} = \mathcal{H}\bar{\Phi} + \bar{\Phi}_0 \delta(t)$  with the condition

$\bar{\Phi}(t) = 0$ , where  $t < 0$ . The authors then go over by means of an orthogonal transformation to a new basis. The same transformation also occurs in the space spanned by the operators  $B_k$  and  $C_k$ .

The Hamiltonian just mentioned is then written down also in the new basis. In this case  $(E - H)G(E) = \bar{\Phi}_0 \begin{pmatrix} 1 \\ 0 \end{pmatrix}$  is obtained, where  $\bar{\Phi}_0$  denotes the vacuum Hamiltonian  $a+a + b+b + c+c$ . The authors then go over in this equation to the Schroedinger variables. The homogeneous equation corresponding to the equation thus resulting is the equation of motion of a particle with spin  $1/2$  in a spherically-symmetric potential field and in a spherically-

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symmetric magnetic field. The eigenvalue spectrum  $\lambda_n$  of the corresponding operator  $L$  is discrete. The amount of the eigenvalues  $E_n$  is limited towards lower values. Also if the neutral mesons are not considered the same result is obtained. It is further said that the authors thank Academician N. N. Bogolyubov for his interest in the present investigation and for his useful advice, and A. A. Logunov and D. V. Shirkov for useful discussions. There are 7 references, 2 of which are Soviet.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) 4

PRESENTED: June 29, 1959, by N. N. Bogolyubov, Academician

SUBMITTED: June 6, 1959

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89016

S/020/60/135/004/009/037  
B019/B077

24.4500 (1160, 1395, 1534)

AUTHOR: Logunov, A. A., Tavkhelidze, A. N., Torodov, I. T., and Chernikov, N. A.

TITLE: Majorization of Feynman Graphs

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 4, pp. 801 - 804

TEXT: The authors present the results of a further development of the idea of the majorization of Feynman graphs as suggested by Nambu and Symanzik (Refs. 1, 2). Every Feynman graph  $D$  represents a quadratic form  $Q_D$  of the external momenta  $p_a$ . On the condition that the law of conservation holds for the four-momenta  $k$  in the inner lines of the graph  $k$ , are linear functions of  $p_a$  and of the independent inner momenta  $t_1$ . If the following relation is valid for  $K_D(x, p, t)$ :

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$$K_D(\alpha, p, t) = \sum_{\nu=1}^l \alpha_{\nu} (k_{\nu}^2 - m_{\nu}^2) = \sum_{i,j} a_{ij} t_i t_j - 2 \sum_i b_i t_i + c \quad (1),$$

where  $l$  is the number of inner lines of the graph, then the quadratic form can be determined from:

$$Q_D(\alpha, p) = \begin{array}{|c|} \hline \begin{array}{cc} a_{ij} & b_i \\ b_j & c \end{array} \\ \hline a_{ij} \\ \hline \end{array} \quad (2)$$

On the basis of known results, the following lemma and two more theorems are proved: lemma: the quadratic form  $Q_D$  is equal to the least value of the quadratic form  $K_D$  if the vectors  $k_{\nu}$  fulfill the law of conservation of momentum in every unit of the graph, and if they assume a value from

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the quantity  $P$  of all vectors of the type  $p = \sum_a \lambda_a p_a$  ( $\lambda_a$  are real numbers).  
Theorem 1 reads as follows: Any graph can be majorized by any of its sub-graphs. Theorem 2 reads as follows: If a graph  $D$  contains a polygon of  $(n+1)$  sides which has the mass  $M$  on  $n$  sides and the mass  $m \leq M$  on one side, a new graph  $D'$  will be obtained if the change of mass is of the forms  $M \rightarrow m$  and  $m \rightarrow M$  with

$$G(D') \subseteq G(D).$$

As an example the authors investigated the amount  $R$  of all graphs with a strong coupling in the pion-nucleon part. In every intersection of this graph only three lines do combine: 2 or 0 baryon lines, and 1 or 3 meson lines. It is shown that any graph of the sub-part  $R^{**}$  can be majorized by one of the two diagrams shown in Fig. 2.  $R^{**}$  is that sub-part of  $R$  where a nucleon polygon and pion lines appear in its graphs, and where the external points  $a$  and  $b$  are characteristic points. N. N. Bogolyubov is thanked for a valuable discussion. There are 2 figures and 5 references: 1 Soviet, 3 US, and 1 Italian. X

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ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint  
Institute of Nuclear Research)

PRESENTED: June 21, 1960, by N. N. Bogolyubov, Academician

SUBMITTED: June 7, 1960

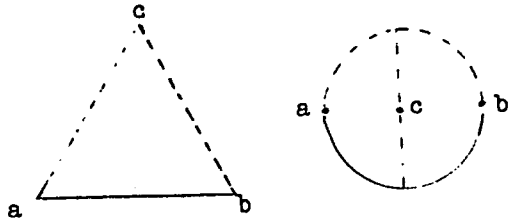


Fig. 2

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B104/B205

24.4400

AUTHORS: Arbuzov, B. A., Tavkhelidze, A. N., and Faustov, R. N.

TITLE: The problem of the fermion mass in a  $\gamma^5$ -invariant model of the quantum-field theory

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 2, 1961, 345-347

TEXT: A model has been studied, in which a divergence is absent and the system of fermion fields interacts with the real field vector in the two-dimensional space-time continuum. The model of interaction of a massless fermion with vectorial mesons having a mass has been discussed in several articles (V. Glaser, B. Jakšić, Nuovo Cim., 11, 877 (1959); I. Soln, Nuovo Cim., 18, 914 (1960)). It could be shown that, by using a canonical transformation, this model can be transformed into a problem without interaction. Therefore, the Green function has no poles other than  $p^2 = 0$ . This method is applied here since the results obtained can be compared with exact calculations. The Lagrangian of the system under consideration reads

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$$\mathcal{L}(x) = \mathcal{L}_0(x) + \mathcal{L}_1(x),$$

$$\mathcal{L}_0(x) = \frac{i}{2} \sum_n \left\{ \bar{\psi}(x) \gamma^n \frac{\partial \psi}{\partial x^n} - \frac{\partial \bar{\psi}}{\partial x^n} \gamma^n \psi(x) \right\} - \quad (2)$$

$$- \frac{i}{2} \sum_{k,n} g^{kn} \frac{\partial A_k}{\partial x^n} + \frac{1}{2} \sum_n g^{nn} A_n(x) A_n(x),$$

$$\mathcal{L}_1(x) = g \sum_n \bar{\psi}(x) \gamma^n \psi(x) A_n(x), \quad n, k = 0, 1.$$

where  $\psi$  is the operator of the fermion field, and  $A_n$  are the operators of the real field vector. The infinitely small term  $-\lambda : \bar{\psi}(x) \psi(x) :$  is now introduced, and the Lagrangian is written in the form

$$\mathcal{L}(x) = \mathcal{L}'_0(x) + \mathcal{L}'_1(x), \quad (3)$$

$$\mathcal{L}'_0(x) = \mathcal{L}_0(x) - m : \bar{\psi}(x) \psi(x) :,$$

$$\mathcal{L}'_1(x) = \mathcal{L}_1(x) + (m - \lambda) : \bar{\psi}(x) \psi(x) :.$$

The requirement that the total of mass corrections be zero leads to the

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equation  $\Sigma(p) \Big|_{p^2 = m^2} = \lambda - m + \Sigma^*(p) \Big|_{p^2 = m^2} = 0$ , where  $\Sigma(p)$  is the total mass operator obtained from the interaction Lagrangian  $\mathcal{L}_I$ . This equation is called the compensation equation. Using,  $\psi \rightarrow e^{\alpha \gamma^5} \psi$ ,  $\bar{\psi} \rightarrow \bar{\psi} e^{\alpha \gamma^5}$ , and (3), it can be shown that the compensation equation is invariant with respect to the group of  $\gamma^5$ -invariant transformations. For the compensation equation one obtains:

$m \exp \left\{ - \frac{g^2}{2\pi\mu^2} \ln(\mu^2/m^2) \right\} = 0$ . This relation has only zero solutions, as follows from the exact solution of the model. The method described here is applied to a two-fermion model with vectorial coupling and with the interaction Lagrangian

$$\mathcal{L}_I = \sum_n \left\{ g_1 \bar{\psi} \gamma^n \psi + g_2 \bar{\chi} \gamma^n \chi + \frac{g}{\sqrt{2}} (\bar{\chi} \gamma^n \psi + \bar{\psi} \gamma^n \chi) \right\} A_n; \quad (7)$$

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accuracy:

$$m_1^2 - m_2^2 \sim m^2 = \mu^2 \exp \left\{ -\frac{\pi\mu^2}{g_1^2 g_2^2 - g^4} (g_1^2 + g_2^2 - \sqrt{(g_1^2 - g_2^2)^2 + 4g^4}) \right\}, \quad (10).$$

$$\frac{m_1^2}{m_2^2} = \frac{g_1^2 - g_2^2 + \sqrt{(g_1^2 - g_2^2)^2 + 4g^4}}{g_2^2 - g_1^2 + \sqrt{(g_1^2 - g_2^2)^2 + 4g^4}}$$

Here,  $m^2$  is much greater than  $\mu^2$ , and the solution has a "superconductive" character. Within the framework of the theory of superconductivity, N. N. Bogolyubov (O model'nom gamiltoniane v teorii sverkhprovodimosti (On a Hamilton model in the theory of superconductivity)), preprint of the Joint Institute of Nuclear Research, P-511), has shown that for a Bardeen Hamilton model, the solution to the compensation equation agrees asymptotically with the exact solution. This supports the authors' opinion that the solution of the compensation equation reflects the exact solution. Academician N. N. Bogolyubov and A. A. Logunov are thanked for discussions and also for their interest in the work. There are 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc.

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ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint  
Institute of Nuclear Research)

PRESENTED: February 21, 1961, by N. N. Bogolyubov, Academician

SUBMITTED: February 8, 1961

Card 6/6.

ARBUZOV, B.A.; LOGUNOV, A.A.; TAVKHELIDZE, A.N.; FAUSTOV, R.N.;  
FILIPOV, A.T.; ZARUBINA, I.S. [translator]; SARANTSEVA, V.R.,  
tekh.ned.

Regge poles and perturbation theory. Dubna, Ob"edinenmyi  
in-t iadernykh issledovani, 1962. 4 p.  
(No subject heading)

ARBUZOV, B.A.; LOGUNOV, A.A.; TAVKHELIDZE, A.N.; FAUSTOV, R.N.

The asymptotic behaviour of the scattering amplitudes and  
the renormalization group method. Dubna, Ob"edinennyi in-t  
iadernykh issledovani, 1962. 7 p.  
(No subject heading)

LOGUNOV, A. A., MESHCHERYAKOV, V. A., and TAVKHELIDZE, A. N. ②

"On the approximate  $\chi$ -invariance in strong interaction theory"

report presented at the Intl. Conference on High Energy Physics, Geneva,  
4-11 July 1962

Joint Inst. for Nuclear Research  
Lab. of Theoretical Physics, Dubna, 1962

S/020/62/142/002/012/029  
B104/B138

AUTHORS: Logunov, A. A., Meshcheryakov, V. A., and Tavkhelidze, A. N.

TITLE: Approximate  $\gamma_5$  invariance of the theory of strong interaction

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 2, 1962, 317-318

TEXT: The hypothesis is verified, that the matrix elements of all physical processes are invariant with respect to  $\gamma_5$  transformation of spinor particles at high energies and great momentum transfers. For scattering processes of the type  $0 + 1/2 \rightarrow 0 + 1/2$ , the requirement of  $\gamma_5$  invariance has the consequence that a Fermi ion polarized longitudinally before the scattering process is also longitudinally polarized after it. The same is true for a nonpolarized Fermi ion. In particular, a similar result is obtained for nucleon-nucleon scattering. From an examination of the terms of lowest order in the perturbation theory it is shown that the mass terms are of no significance at high energies and considerable momentum transfers. Thus a  $\gamma_5$  invariant interaction leads to  $\gamma_5$  invariant matrix elements. N. N. Bogolyubov, S. M. Bilen'kiy, S. S. Gershteyn,  
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B104/B138

M. M. Meshcheryakov, A. M. Baldin, R. M. Ryndin, and Ya. S. Smorodinskiy are thanked for advice and discussions. There are 4 references: 1 Soviet and 3 non-Soviet. The four references to English-language publications read as follows: M. Gell-Mann, Preprint, 1961; Y. Fujui, Progr. Theor. Phys., 21, 232 (1959); I. I. Sakurai, Ann. of Phys., 11, 1 (1960); Y. Nambu, J. Ionn - Lasinio, Phys. Rev. 122, no. 1, 345 (1961). ✓

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

PRESENTED: August 14, 1961, by N. N. Bogolyubov, Academician

SUBMITTED: July 20, 1961

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S/056/63/044/004/039/044  
B102/B186

**AUTHORS:** Arbutov, B. A., Logunov, A. A., Tavkhelidze, A. N.,  
Faustov, R. N., Filippov, A. T.

**TITLE:** A quasioptical model and the asymptotic behavior of the  
scattering amplitude

**PERIODICAL:** Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44,  
no. 4, 1963, 1409 - 1411

**TEXT:** As shown in Ref. 1 (Preprint OIYaI, E-1145, 1962), a two-particle system may be described in quantum field theory by a Schrödinger-type equation with generalized complex potential, which in the case of scalar particles reads

$$V^{\pm}(q, q', E) = \frac{1}{\pi} \int_{-\infty}^{\infty} \frac{U^{\pm}(E, v)}{v + (q - q')^2} dv, \quad (2).$$

This quasioptical treatment yields the scattering matrix and also the structure of bound and resonance states. The wave function is only a function of transferred three-momenta  $(q, q')$ , and the energy

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A quasioptical model and the...

S/056/63/044/004/039/044  
B102/B186

$$(E^2 - q^2 - m^2) \psi_{\pm}(q) = \frac{1}{V} \int V^{\pm}(q, q'; E) \psi_{\pm}(q') d^3q'. \quad (1)$$

$V^{\pm}(-)$  is the potential for even (odd) states with respect to  $\cos \theta$ ;  $U(E, \nu)$  is the spectral function which is complex in the region  $E^2 > m_1^2$ . The amplitude  $M(E, t)$  of the process is assumed to satisfy the dispersion relation and its projection onto even and odd states is given by

$$M^{\pm}(E, t) = \int_{\mu^2}^{\infty} \frac{\sigma^{\pm}(E, \nu)}{\nu + (q - q')^2} d\nu. \quad \text{The imaginary part of } V \text{ characterizes inelastic}$$

scattering. Regge has shown that when the potential is a superposition of Yukawa potentials, the scattering amplitude with  $t \rightarrow \infty$  may be given by

$$M(E, t) = g(E) t^{\alpha(E)}, \quad t = -(q - q')^2, \quad (4)$$

where  $q$  and  $q'$  are initial and final momenta. It is now shown that a  
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B102/B186

A quasioptical model and the...

potential of type (2) leads to Regge asymptotic behavior (4). The solution of the amplitude equation

$$T^{\pm}(q, q') = V^{\pm}((q - q')^2, E) + \int \frac{V^{\pm}((q - \rho)^2, E) T^{\pm}(\rho, q')}{[(E + ic)^2 - m^2 - \rho^2] \sqrt{\rho^2 + m^2}} d^3\rho. \quad (5)$$

is sought as a function like

$$T^{\pm}(q, q') = \frac{1}{\pi} \int_0^{\infty} \frac{\tau^{\pm}(q^2, q^2, \nu)}{\nu - s} d\nu. \quad (6)$$

The equation of the spectral function  $\tau$  for the asymptotic region ( $s \rightarrow \infty$ ) has a solution of the form

$$\tau^{\pm}(q^2, q^2, \nu, E) = \tau_a^{\pm}(q^2, q^2, E) \nu^{\alpha(E)}. \quad (9),$$

where  $\tau_a$  will satisfy

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$$\tau_{\alpha}^{\pm}(u, s, E) = \int R_{\alpha}^{\pm}(u, u', s, E) \frac{\tau_{\alpha}^{\pm}(u', s, E)}{(E^2 - m^2 - u') \sqrt{u' + m^2}} du'.$$

$$R_{\alpha}^{\pm}(u, u', s, E) = \int U^{\pm}(E, v) dv \int_0^1 \frac{dx \cdot x^{\alpha}}{(1-x)^{1/2}} \frac{\theta(u' - ux - vx/(1-x))}{[u' - ux - vx/(1-x)]^{1/2}}. \quad (10).$$

From the latter relation the eigenfunction  $\tau_{\alpha}$  and the eigenvalue  $\alpha$ , which is a function of  $E$ , can be determined. For  $E^2 < m_1^2$ ,  $U(E, v)$  is real and therefore also  $\alpha$ . Eq. (6) together with (9) yields

$$T(q^2, q^2, s, E) = s^{\alpha(E)} \tau_{\alpha}(q^2, q^2, E) \frac{[1 + e^{-i\pi\alpha(E)}]}{\sin \pi\alpha(E)}. \quad (11)$$

for large  $s$ . A similar result is obtained from (1) in partial-wave representation.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: January 3, 1963

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L 12408-63

EW(1)/FCC(w)/BDS AFFTC/ASD/ESD-3 IJP(c)

ACCESSION NR: AP3001394

S/0020/63/150/004/0764/0766 59

AUTHOR: Arbuzov, B. A.; Logunov, A. A.; Tavkhelidze, A. N.; Faustov, R. N.

TITLE: Regge poles<sup>λ</sup> and the Bethe-Salpeter equation

SOURCE: AN SSSR. Doklady, v. 150, no. 4, 1963, 764-766

TOPIC TAGS: Regge poles, Bethe-Salpeter equation

ABSTRACT: The properties of Regge poles were investigated by these authors on the basis of the perturbation theory. It was also shown by them that this analysis is connected with certain difficulties. The purpose of the present work is the study of the structure of Regge singularities on the basis of an equation of the Bethe-Salpeter type. Orig. art. has: 19 equations.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute for Nuclear Research)

SUBMITTED: 15Nov62

DATE ACQ: 01Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 000

OTHER: 006

Card 1/1

L 11822-65 EWT(1) IJF(c)/ASB(a)-5/ESD(t) e/0020/64/158/006/1302/1305

NUMBERS: 1987AK112, 1. S. V. Mordukhai, 1987AK112, A. B.

SOURCE: AN SSSR. OK ad, V. 108, No. 11, 1987, p. 11.

INDEX TAGS: analysis, meromorphic function, Regge pole, scattering amplitude, angular momentum

ABSTRACT: The results indicate that earlier attempts to determine

series may have a cut, whereas the series  $\dots$  is a function. A detailed exposition of the result is contained in Preprint R-1662 of the Joint Institute of Nuclear Research. In con-

N. N. Bogolyubov, *Phys. Rev. Lett.* **19**, 104 (1957).

Card 2/3

L 11822-65

ACCESSION NO: AP4048034

ASSOCIATION: On "medicines" by ...

DATE: MAY, 1965

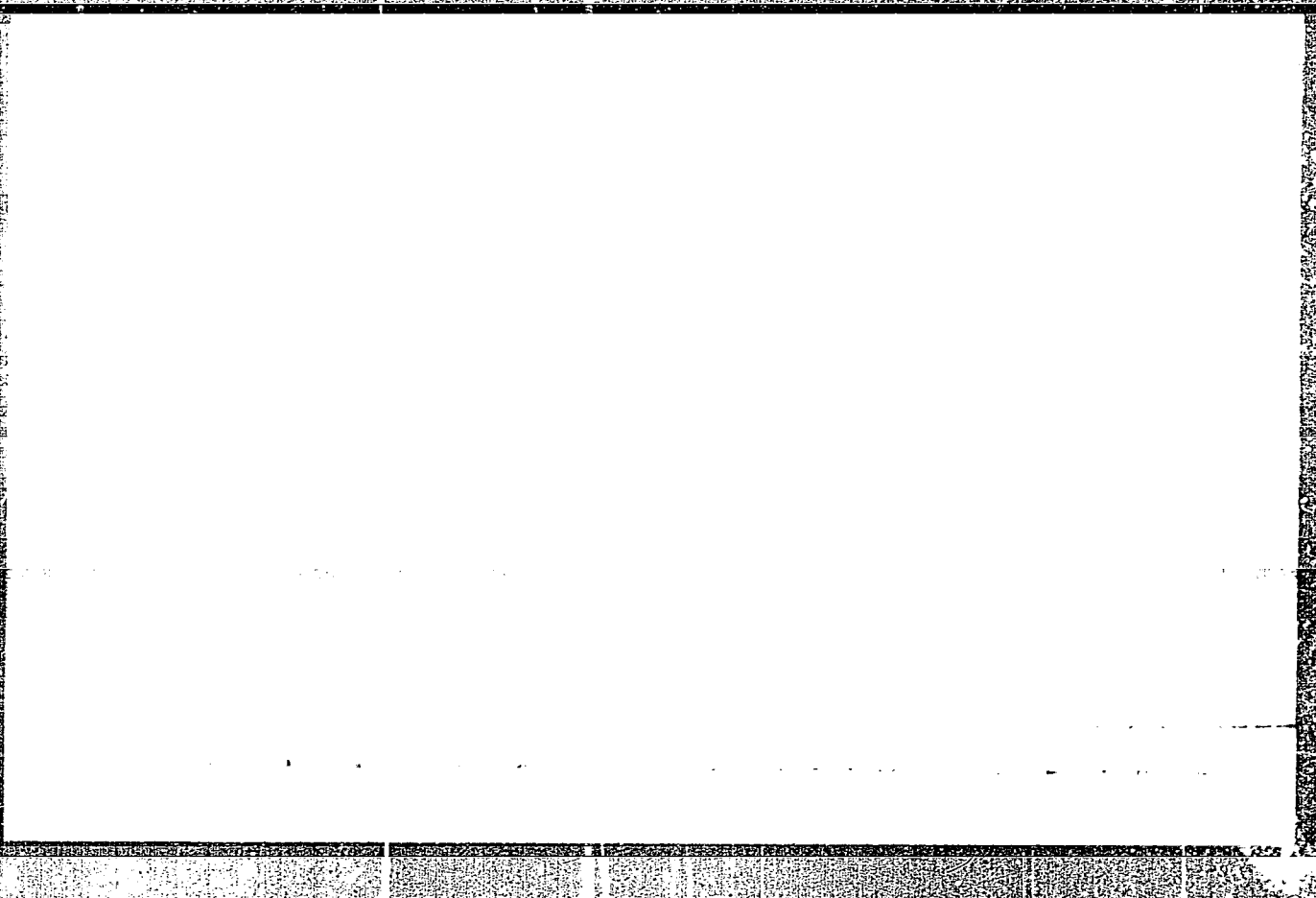
NAME: ...

OTHER: ...

Card 3/3

**"APPROVED FOR RELEASE: 07/16/2001**

**CIA-RDP86-00513R001755120017-2**



**APPROVED FOR RELEASE: 07/16/2001**

**CIA-RDP86-00513R001755120017-2"**

TAVKHELIDZE, D.S.

Mechanism with links of variable size. Trudy Sem.teor.mash. 12 no.47:63-  
88 '52. (MLRA 6:6)  
(Links and link motion)



TAVKHELIDZE, D. S.

Tavkheldze, D. S. - "The kinematic and dynamic investigation of a spherical mechanisms by the graphic analysis method." A commemorative collection of transactions dedicated to the 25th anniversary of the Institute, (Gruz. politekhn. in-t im. Kirova, No 17), Tbilisi, 1948, P. 179-89, (Resume in Georgian)

SO: U-5240, 17, Dec. 53, (Istopsis 'Zhurnal 'nykh Statey, No, 25, 1949).

TAVKHELIDZE, D.S., prof., doktor tekhn. nauk.

Activity of the Tiflis branch of the Seminar on the Theory of  
Machines and Mechanisms. Trudy Inst. mash. S'm. po teor. mash. 17  
no.65:25-26 '57. (MIRA 10:12)

1. Nauchnyy rukovoditel' Tbilisskogo filiala seminaro po teorii  
mashin i mekhanizmov Instituta mashinovedeniya AN SSSR.  
(Tiflis--Mechanical engineering)

TAVKHELIDZE, D.Z.

Finding the position of links in a five-link chain with a slide  
block. Soob. AN Gruz. SSR 20 no. 3:321-328 Mr '58. (MIRA 11:7)

1. Gruzinskiy politekhnicheskiy institut im. S.M.Kirova.  
Predstavleno akademikom V.V.Makhaldiani.  
(Chains)

TAVKHELIDZE, David Sergayavich; OSIPOVA, A.I., dotsent, kand.tekhn.  
nauk, red.; ABRAMISHVILI, T.A., red.izd-vs; KIKNADZE, I.V.,  
tekhn.red.

[Synthesis and kinematics of four-bar linkages] K voprosu  
sintesa i kinematiki prostranstvennykh chetyrekhzvennykh  
mekhanizmov. Tbilisi, Gos.izd-vo uchebno-pedagog.lit-ry  
"Tsodna," 1960. 121 p. (MIRA 13:11)  
(Links and link motion)

TAVKHELIDZE, D.S.

Some problems in the kinematic analysis of three-dimensional  
four-bar linkages. Soob. AN Gruz. SSR 33 no. 2:397-404 F '64.  
(MIRA 17:9)

1. Gruzinskiy politekhnicheskiiy institut imeni Lenina, Tbilisi.  
Predstavleno akademikom R.R.Dvali.

5A  
Sub. B

*Supports Connections*

621.315.668.3

3166. Prefabricated reinforced concrete foundations for transmission lines. N. N. TAVENKELIDSE. *Elektr. St., No. 1, 24-5 (1952) in Russian.*

To a vertical support for a tower leg two horizontal slabs are bolted on site. The total weight is approx. 600 lb. These factory-made foundations were found to have adequate shearing strength and resistance against uplift. A high speed of erection of lines, at any season and in mountainous country, is claimed.  
J. LUKASZEWICZ

BURDZHANADZE, T.V.; PRIVALOV, P.L.; TAVKHELIDZE, N.N.

Thermal properties of gelatin solutions. Vysokom.soed.  
4 no.9:1419-1424 S '62. (MIRA 15:11)

1. Institut fiziki AN Gruzinskoy SSR.  
(Gelatin--Thermal properties)

BURDZHANADZE, T.V.; PRIVALOV, P.M.; TAVKHELIDZE, N.N.

Vacuum adiabatic calorimeter with automatically regulated heat screens for studying the thermal properties of macromolecular solutions. Soob. AN Gruz. SSR 31 no. 2: 277-281 Ag '63. (MIRA 17:7)

1. Institut fiziki AN GruzSSR, Tbilisi. Predstavleno akademikom E.L.Andronikashvili.



TAVKHELIDZE, N.N., inzh.

New deep-set foundation for power transmission line towers in a  
floodplain. Elek. sta. 34 no.8:75-76 Ag '63. (MIRA 16:11)

TAVILDAROVA, T.F., prof.; GORDIYENKO, M.F., kand.sel'skokhozyaystvennykh nauk

Using standard measurements for judging the conformation of cattle.  
Trudy AZVI 9:24-35 '56. (MIRA 15:4)

1. Iz kafedry krupnogo rogatogo skota (zav. kafedroy - doktor  
prof. T.F.Tavildarova) Alma-Atinskogo zooveterinarnogo instituta  
i Instituta zhivotnovodstva Kazakhskogo filiala Vsesoyuznoy  
akademii sel'skokhozyaystvennykh nauk imeni Lenina.  
(Cattle--Grading)

GORINOV, Aleksandr Vasil'yevich, nauchnyy sotrudnik; BUTLER, Serafim Aleksandrovich, nauchnyy sotrudnik; MALYAVSKIY, Boris Kirillovich, nauchnyy sotrudnik; NORMAN, Edgar Arturovich, nauchnyy sotrudnik; TAVLINOV, Viktor Konstantinovich, kand. tekhn.nauk, nauchnyy sotrudnik; VASIL'YEV, Yu.F., red.izd-va; ASTAF'YEVA, G.A., tekhn.red.

[Air levelling in surveying railroad lines; explorations of mountainous areas] Aeronivelirovanie na izyskaniyakh putei soobshcheniia; materialy issledovaniia v gornoi mestnosti. Moskva, Izd-vo Akad.nauk SSSR, 1959. 272 p. (MIRA 13:3)

1. Chlen-korrespondent AN SSSR (for Gorinov). 2. Rukovoditel' laboratorii zheleznodorozhnykh izyskaniy Vsesoyuznogo nauchno-issledovatel'skogo instituta transportnogo stroitel'stva (TsNIIS) Mintransstroya SSSR (for Butler). 3. Laboratoriya zheleznodorozhnykh izyskaniy Vsesoyuznogo nauchno-issledovatel'skogo instituta transportnogo stroitel'stva (TsNIIS) Mintransstroya SSSR (for all except Vasil'yev, Astaf'yeva).

(Aerial photogrammetry)

(Railroads--Surveying)

TAVLINOV, V.K., kand.tekhn.nauk

Location survey on the stereo model of a broken terrain with  
the use of differential type instruments. Trudy TSNIIS no.49:  
79-103 '63. (MIRA 16:9)

PETROV, M.A.; NORMAN, E.A.; VOLODIN, A.P.; DENISOV, V.A.;  
KOCHKONOGOV, V.P.; BEGAM, L.G.; BARANOV, M.A.; TAVLINOV,  
V.K.; YENIKEYEV, G.Sh.; BARANOVA, A.I.; KUDRYAVTSEV,  
G.P.; MALYAVSKIY, B.K.; CHEGODAYEV, N.N.; SURIN, V.S.;  
GONIKBERG, I.V., retsenzent; ENGEL'KE, V.A., retsenzent;  
KHRAPKOV, V.A., retsenzent; AL'PERT, G.A., retsenzent;  
ALEKSEYEV, B.N., retsenzent; SKLYAROV, A.A., retsenzent  
ALEKSEYEV, Ye.P., retsenzent

[Railroad surveying; reference and methodological hand-  
book] Izyskaniia zheleznnykh dorog; spravochnoe i metodi-  
cheskoe rukovodstvo. Moskva, Transport, 1964. 495 p.  
(MIRA 18:1)

1. Babushkin. Vsesoyuznyy nauchno-issledovatel'skiy in-  
stitut transportnogo stroitel'stva. 2. Leningradskiy go-  
sudarstvennyy projektno-izyskatel'skiy institut Gosudar-  
stvennogo proizvodstvennogo komiteta po transportnomu  
stroitel'stvu SSSR (for Gonikberg, Engel'ke, Khrapkov).
3. Sibirskiy gosudarstvennyy projektno-izyskatel'skiy in-  
stitut Gosudarstvennogo proizvodstvennogo komiteta po  
transportnomu stroitel'stvu SSSR (for Alekseyev, YeP.).
4. Moskovskiy gosudarstvennyy projektno-izyskatel'skiy  
institut Gosudarstvennogo proizvodstvennogo komiteta po  
transportnomu stroitel'stvu SSSR (for Al'pert).

TAVLINOVA, G.G. (g.Mal'chik)

Acquainting students with principles of chemical production during  
excursions. Khim.v shkole 11 no.5:64-69 S-O '56. (MLRA 9:11)  
(Chemistry--Study and teaching)

TAVLINOVA, G. K.

37431. Tsvetochnyye Rasteniya, redko primenyaemye V oformlenii sadov i parkov.  
V sb: Zelenoye stroit-vo. L., 1949, s. 83-88.--Biologr: 14 nazv.

SO: Letopis' Zhurnal'nykh Statey, Vol. 7, 1949

1. TAVLINOVA, G. E.
2. USSR (600)
4. Dahlias
7. Storing dahlia bulbs in trenches.  
Sad i og. no. 9, 1952

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.



TAVLINGOVA, G. K.

"Influence of the Light Factor on the Process of Root Formation  
of Leafy, Herbaceous Cuttings of Some Decorative Plants." Cand  
Agr Sci, Leningrad Forestry Engineering Acad, Leningrad, 1953.  
(RZhBiol, No 1, Sep 54)

SO: Sum 432, 29 Mar 55

SMRPUKHOVA, Vera Ivanovna; TAVLINOVA, Galina Konstantinovna; GLADKIY, N.P.,  
redaktor

[Plants for house and balcony] Komnatnye i balkonnnye rasteniia.  
[Leningrad] Leningradskoe gazetno-shurnal'noe i kn-vo, 1955. 142 p.  
(Home plants)

TAVLINOVA, Galina Konstantinovna

~~\_\_\_\_\_~~ [Fig] Pisma. Leningrad, 1956. 29 p.  
(Fig)

(MIRA 11:6)

15(6), 30(1)

SOV/101-59-4-6/10

AUTHORS: Rozenfel'd, M.Ya., and Tavlinova, G.K.

TITLE: Verdure Around Cement Plants

PERIODICAL: Tsement, 1959, Nr 4, pp 19-25 (USSR)

ABSTRACT: The authors point out that cement plants, by their nature, **are** dust-spreading centers. In spite of filters provided for catching dust, part of the dust escapes into the open air, obscuring and polluting the air. The authors say that plants are one means of protection against dust. The dust particles, conveyed by air, will settle on the trunks, branches and leaves and subsequently will be washed down by the rain. Giprotsement has studied methods of sanitation of the air surrounding cement plants by technical means and plantations. Diagram 1 (Figure 1) shows a plantation scheme between the cement plant and a settlement. Diagram 2 (Figure 2) represents a planted strip 12 m wide. Diagram 3 (Figure 3) shows a recreation park at the

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SOV/101-59-4-6/10

Verdure Around Cement Plants

Kuybyshevskiy kombinat stroitel'nykh materialov (Kuybyshev Combine of Building Materials). Diagrams 4a and 4b show plantations at the Chernorechenskiy tsementnyy zavod (Chernorechenskiy Cement Plant). Concluding, the authors quote a list of trees and shrubs suitable for various regions of the USSR. For one cement plant the average requirement will be: 500 to 600 trees, 2,500 to 3,000 shrubs, 4,000 perennial flowers, and 5,000 annual flowers. There are 5 diagrams.

Card 2/2

USSR / Soil Science Tilling. Melioration. Erosion. J

Abs Jour : Ref Zhur - Biologiya, No 11, 1958, No. 48681

Author : Tavlinskaya, V. K.

Inst : Penza Agricultural Institute

Title : Study of the Methods of Soil Cultivation for  
Corn

Orig Pub : Sb. stud. nauchn. rabot. Penzensk. s.-kh. in-t,  
1956, vyp 1, 16-23

Abstract : The feasibility of replacing the fall plowing  
of the soil with fall and spring disking, and  
deep moldboard-less loosening was studied on  
the slightly saline sandy-clayey chernozem of  
the Penza district on plots of 100 m. The  
procedure was repeated three times. The yields  
of cobs and of the leafy stem mass of the corn  
were the same as after the usual fall plowing.  
-- F. N. Sofiyeva

Card 1/1

PAIKINA, N.A.; TAVLUY, N.M.

Effect of citric, benzoic, and acetic acids on the solubility  
of gelatin in water - alcohol solutions. Trudy VGU 57:93-100  
'59. (MIRA 13:5)

(Gelatin)

TAVODA, Jozef, inz.

Segment cutting of round beech timber. Drevo 17 no.7:212-213 JI '62.

1. Bucina, narodny podnik, Zvolen.



TAVODA, Jozef, inz.

Particle automatic weighing machine. Drevo 18 no.10:380 G '63.

1. Vyrojovo-konstrukcne stredisko, Bucina, n.p., Zvolen.

TAVODA, Jozef, inn.

Prospects of effective beechwood processing. Brevo 19 no.8:  
281-287 1R '64

1. Budina National Enterprise, 'volen.

TAVODAN, R.; TAVODAN, R.; KECHELIN, I.

Measurement of tension under a rigid body by means of a two-dimensional rubber model. p. 146. VODNI HOSPODARSTVI. (Ustredni sprava vojniho gospodarstva.) Praha. no. 6, June 1956.

SOURCE: East European Accessions List, Vol. 5, no. 9, September 1956

TAVODA, O.

Relationship between the upward hydrostatic pressure and the dimensions of a dam.  
p. 77.

(Stavebnicky Casopis. Vol. 5, no. 2, 1957. Bratislava, Czechoslovakia)

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

TAVCDA, O.

Filtration and counterpressure of water under hydraulic constructions with anisotropic subsoil. p.127.  
(Vodohospodarsky Casopis, Vol. 5, No. 2, 1957, Bratislava, Czechoslovakia)

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

TAVCDA, O.

Model measurements of dams.

p. 470 (Inzenyrske Stavby) Vol. 5, no. 9, Sept. 1957, Praha, Czechoslovakia

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

TAVODA, O., inz., ScC.

Possibility of saving steel in laying foundations of buildings.  
Tech praca 15 no.5:385-387 My '63.

1. Vyskumny ustav stavebnictva, Bratislava.

MARUF, M.A.; TAVONIUS, K.E.(Moskva)

Clinical aspects of syphilitic pericarditis. Klin med., 33 no.10:  
57-63 O '55. (MLRA 9:2)

1. Iz Moskovskogo oblastnogo nauchno-issledovatel'skogo  
klinicheskogo instituta imeni Vladimirovskogo (dir. P.M. Leonenko)  
(PERICARDITIS,  
syphilitic, clin. aspects)  
(SYPHILIS, CARDIOVASCULAR  
pericarditis, clin. aspects)



**TAVONIUS, K.H.** (Moskva, ul. Kirova, d.22, komn. 52)

~~XXXXXXXXXXXX~~  
Esophageal and gastric varices [with summary in English, p.156]  
Vest.khkr. 78 no.2:19-25 F '57. (MLRA 10;3)

1. Iz 2-y kafedry rentgenologii i meditsinskoy radiologii (zaveduyushchiy kafedroy - professor Yu.N.Sokolov) Tsentral'nogo instituta usovershenstvovaniya vrachey (direktor - V.P.Lebedeva) i rentgenovskogo otdela (zaveduyushchiy - kandidat meditsinskikh nauk V.I.Petrov) Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta im. Vladimirovskogo (direktor - kandidat meditsinskikh nauk P.M.Leonenko)

(ESOPHAGUS, varix  
in portal hypertension, with gastric varices (Rus))

(STOMACH, varix  
in portal hypertension, with esophageal varices (Rus))

(HYPERTENSION, PORTAL, compl.  
esophageal & gastric varices (Rus))

DODASHVILI, M.I.; TAVONIUS, K.E. (Moskva)

Roentgenokymographic data on myocardial contractivity in aneurysm.  
Klin.med. 35 no.3:99-109 Mr '57. (MIRA 10:7)

1. Iz pervoy kafedry terapii (sav. - deystvitel'nyy chlen AMN SSSR, sasluzhennyy deyatel' nauki prof. M.S.Vovsi) i pervoy kafedry rentgenologii i radiologii (sav. - sasluzhennyy deyatel' nauki prof. S.A.Lebedeva) na baze ordena Lenina bol'nitsy imeni S.P. Botkina (glavnyy vrach - prof. A.N.Shabanov).

(ANEURYSM, physiol.

myocardial contractivity, roentgenokymography (Rus))

(MYOCARDIUM, physiol.

contractivity in aneurysm, roentgenokymography (Rus))

NEGOVSKIY, N.P., [deceased] prof.; TAVONIUS, K.E.; VINNER, M.G.

X-ray diagnosis of cancerous pleurisy. Sov. med. 25 no.8:9-15  
Ag '61. (MIRA 15:1)

1. Iz 2-y kafedry rentgenologii i meditsinskoy radiologii (zav. -  
prof. Yu.N.Sokolov) Tsentral'nogo instituta usovershenstvovaniya  
vrachey (dir. M.D.Kovrigina).  
(LUNGS-CANCER) (PLEURISY)

TAVONIUS, K.E.; SHNIGER, N.U.

Significance of roentgenokymography in cancer and some other  
diseases of the esophagus. Vest. rent. 40 no.4:18-24  
Jl-Ag '65. (MIRA 18:9)

1. 2-ya kafedra rentgenologii (zav.- prof. Yu.N. Sokolov) Tsen-  
tral'nogo instituta usovershenstvovaniya vrachey i Gosudarstvennyy  
nauchno-issledovatel'skiy rentgeno-radiologicheskiy institut  
Ministerstva zdravookhraneniya RSFSR, Moskva.

PETROV, B.A., professor, predsedatel'; DUBEYKOVSKAYA, E.G. sekretar'; EGAN-TSEV, N.I., kandidat meditsinskikh nauk; TERNOVSKIY, S.D., professor; MELIK-ARUTYUNOV, A.I. kandidat meditsinskikh nauk; PATSIORA, M.D., kandidat meditsinskikh nauk; YELANSKIY, N.N., professor; DAM'YE, N.G.; TAVONIUS, K.N.; GULYAYEV, A.V., professor; KAZANSKIY, V.I., professor; GROZDOV, D.Ye., professor; DOROFEYEV, V.I.; LINDEMAN, V.I.; MAKHOV, N.I., dotsent.

Minutes of the session of the Surgical Society of Moscow and Moscow Province of September 12, 1952. Khirurgia no.3:88-92 Mr '53. (MLRA 6:6)

1. Khirurgicheskoye obshchestvo Moskvy i Moskovskoy oblasti.  
(Spleen--Surgery)

VACEK, J.; DITTRICH, J.; LEHOVSKY, M.; TAVORIKOVA, H.

On problems of height and etiological diagnosis of paresis  
of the fibular nerve. *Cesk. neurol.* 28 no.5:374-380 S '65.

1. Neurologická klinika fakulty všeobecného lékařství Karlovy  
University v Praze (prednosta akademik K. Henner).

KONCHAYEV, B., uchastnik oborony Leningrada, KULAKOV, G., uchastnik oborony Leningrada, TAVRID, G., uchastnik oborony Leningrada, GOGIN, N., uchastnik oborony Leningrada, AVRAMKOV, N., uchastnik oborony Leningrada.

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