GALAN, G.; SALAGEANU, N.

On the determination of the water requirement of plants with a view to establishing their watering time. In English. p. 75.

REVUE DE BIOLOGIE, JOURNAL OF BIOLOGY.   (Academia Republicii Populare Romine Bucuresti.

Vol. 1, No. 1, 1956

SOURCE: East European List (EEAL) Library of Congress, Vol. 6, No1 1, January 1957

GALAN, G.

RUMANIA / Plant Physiology. General.

I

Abs Jour   : Rof Zhur - Biol., No 1, 1959, No. 1252

Authors   : Solodzhanu, N.; Iliosou, Em.; and Galan, G.
Inst   : Rumanian Academy of Sciences
Title   : On Certain Physiological Phenomena Accompanying the Passage
              of Plants Through the Light-Stage.

Orig Pub   : Biol. zh. Akad. RPR, 1, No. 2, 67-87, 1956

Abstract   : Transpiration in short-day (millet, sorghum, maize, morning
              glory) and long-day (spring wheat, oats, spring barley)
              plants upon passage through the light-stage was more inten-
              sive on a short day. The viscosity of protoplasm in short-
              and long-day plants is greater on a long day. The intensity
              of respiration and the hydrocarbon content in both short-
              and long-day plants are higher on a long day (the latter,
              not in all cases). It is concluded that changes in the

Card 1/2

GALAN, G.

RUMANIA/Plant Physiology - Water Regime.   I-3

Abs Jour   : Ref Zhur - Biol., No 6, 1958, 24665

Author   : Salabeanu N., Galan G.
Inst   : -
Title   : Relationship Between Root Pressure and the Magnitude of
              Osmotic Pressure in Cotton Leaves.

Orig Pub   : Bul. shtint. Academy RPR. Sec. biol. shi shtiintse agric.
              1956, 8, Nor, 713-722

Abstract   : Root pressure (according to Shardakov and Ermoshenko),
              osmotic pressure of leaves (by the Krioscopic method),
              sucking force (according to Shardakov), specific gravity
              of the cell sap which was pressed out of the leaves (by
              Ostwakd's pycnometer), transpiration intensity (with the
              aid of cobalt paper) and the degree of stomata openings
              (by the method of benzene infiltration) were determined
              in plants of Odessa 1 variety of cotton during the vege-
              tation period, usually in the morning, at noon, and in

Card 1/2

- RUMANIA/Plant Physiology - Water Regime.   I-3

  Abs Jour   : Ref Zhur - Biol., No 6, 1958, 24665

        the evening. Simultaneously the soil moisture was deter-
        mined. The direct dependence of root pressure during the
        vegetation period upon soil moisture, and its indirect de-
        pendence upon the osmotic pressure of the cell sap in the
        leaves and of the sucking force was noted also. The posi-
        tive quantity of root pressure during the day indicated a
        good supply of moisture in the plants; a negative amount
        of root pressure indicated shortage of moisture. During
        the entire experimental period the specific gravity of
        the cell sap changed but little. It was deduced therefore
        that it was possible to determine the plants' need of
        moisture by the amount of root pressure.

  Card 2/2

GUR'YEVA, Ye.; GALAN, M.

Cooperative buildings. Sov. torg. 33 no.5:48-49 My '60.   (MIRA 13:11)
(Department stores)

UJVARI, Istvin; EDV, Vi... GALAN, ...

Problems of the .... indexes. ...din Univ B-B S. Geol-
Geog.8 no.2:107-.. .

Galan, P.

Galan, P.   Examining the artificial aging of soft non-alloyed steels
            by means of radioactive isotopes, mainly by carbon C $_{6}^{14}$ 1.
            p. 322.

Vol. 7, no. 5, 1956
STROJNOELEKTROTECHNICKY CASOPIS
TECHNOLOGY
Czechoslovakia

GALAN, F.

Determining the hardness of metals. p. 248. TECHNICKA PRACA.
(Statne nakladatelstvo technickej literatury) Vol. 8, no. 6, June 1956.

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

GALAN, P.

Magnetic Methods of Detecting Surface Flaws. P. Galán and I. D. Condé. (Zbírame, 1957, 8, (1), 31-38). [In Slovak]. The basic principles of magnetic flaw detection are reviewed, and a method of modifying a welding transformer to supply current for the magneto-inductive circuit of a simple testing device of this type is described. The performance of this instrument, and details relating to handling and accessories are discussed.—P. G.

GALAN, P.

Observing the progress of the smelting and tapping of pig iron in a blast
furnace by means of radioisotopes. Tr. from the German. p. 137.
(Strojnoelektrotechnicky Casopis, Vol. 8, No. 2, 1957, Bratislava,
Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 8, Aug 1957. Uncl.

GALAN,Pavol,inz.; ZITNANSKY,Marcel, inz.

A study of the ferritic layer of welded joints in resistance
butt welded low-carbon unalloyed steel. Zvar sbor 9 no.3:367-381
'60.

1. Katedra mechanickej technologie, Slovenska vysoka skola
    technicka, Bratislava.

GALAN, P., inz., C.Sc.; BLAZICEK, J., inz.

Quality control of small castings by magnetoinductive method.
Tech prace   14   no.7:529-530   Jl   '62.

GALANDA, V., MD

Czechoslovakia

Children's Ward of the Okres Institute of Public
    Health -- Martin (Detski oddelenie Okresného
    ústavu národného zdravia -- Martin); Head:
    V. GALANDA, MD

Bratislava
  Prague, Lekársky Obzor, No 11, 1962, pp 617-621

"The Clinical Picture of Some Newly Identified
    Viroses."

GALANDA, Vladimir

Kwashiorkor in a 2 1/4 year old girl. Cesk. pediat. 12 no.9:779-783
5 Sept 57.

1. Detske odd. OUNZ, Martin; prednosta Dr. V. Galanda.
       (KWASHIORKOR, case reports
              in 2-year old girl (Cz))

Galanda, V.

STEINER, P.; GALANDA, V.

Malignant hepatoma treated by right lobectomy. Cesk. pediat. 13 no.3:
246-248 5 Apr 58.

1. Chirurgicka zakladna Slovenskeho ustavu pro doskolovanie lekarov a
detske oddelenie v Martine.
        (HEPATOMA, in inf. & child
           malignant, surg., right lobectomy (Cz))

GALANDA, V.; MAYEROVA, A.

A mass outbreak of Bornholm disease with the isolation of
Coxsackie virus type B3. Cesk.pediat.15 no.11:1014-1021 N'60.

1. Okresny ustav narodneho zdravia, Martin, detske odd., prim.
MUDr. V. Galanda a Krajska hygienicko-epidemiologicka stanica,
Bratislava, riaditel MUDr. F. Schulz.
        (PLEURODYNIA EPIDEMIC in inf & child)

CZECHOSLOVAKIA

SEDLAK, J., Graduate Physician, director of the Central Laboratory, OuNZ [Okresny ustav narodneho zdravie; Okres Public Health Institute], Martin; and GALANDA, V., MD, director of the Pediatric Department (Detske oddelenie), OuNZ, Martin.

"Acquired Cystinuria."

Prague, Casopis Lekaru Ceskych, Vol CII, No 39, 27 September 63, pp 1070-1072.

Abstract [Authors' English summary]: The etiopathogenesis of cystinuria is discussed and a case of acquired cystinuria is described in a female patient with a chronic glomerulonephritis. Congenital cystinuria was excluded following a five-year laboratory examination of the patient and her family. This is the first description in medical literature of an acquired cystinuria as a complication of a chronic glomerulonephritis. Nine references, including 2 Czech.

2

1/1

SEDLAK, J.; GALANDA, V.; Technicka spolupraca: BALKOVA, M.

Acquired cystinuria. Gas. lek. cesk. 102 no.39:1070-1072
27 S '63.

1. Centralne laboratorium OUNZ v Martine, prednosta J. Sedlak,
prom. lekar Detske oddelenie OUNZ v Martine, veduci MUDr.
V. Galanda.
    (CYSTINURIA)   (GLOMERULONEPHRITIS)

GALANDERS, I.A.

Effect of growing and storing conditions on the chemical composition of the maternal root of turnips. Sbor. trud. asp. i mol. nauch. sotr. VIR no.5:137-146 '64.

(MIRA 18:3)

KOMLEV, A.I. [Komliev, O.I.]; GALANETS, Z.[Halanets', Z], student II kursu

Use of tartrates in the qualitative analysis for Cd II in the presence of Cu II. Nauk. zap. L'viv. un. 13:147-149 '49.

(MIRA 12:10)

1.Kafedra analiticheskoy khimii L'vovskogo gosudarstvennogo universiteta imeni I. Franko.
(Cadmium--Analysis)   (Tartaric acid)

GALANETS, Z. G.

A precipitate obtained from cadmium chloride in presence of Seignette salt and alkali. O. I. Komlev and Z. G. Galanets. Nauk Zapiski, L'viv. Derzhav. Univ. im. I. Franka 34, Ser. Khim. No. 4, 134-7(1955).—The ppt. obtained from CdCl₂ soln. in the presence of an excess of KNaC₄H₄O₆ and KOH soln. was cadmium hydroxide and not a tartrate complex. Under the conditions of the expt. pptn. was quant.
I. R. H.

GALANETS', Z.G. [Halanets', Z.H.]

ta pov. L'viv. un. no.7 pt.3: 217-218   '57.   (MIRA 11:2)
(Polarography) (Salicylates) (Copper compounds)

ZOLOTUKHIN, V.K.; KOMLEV, O.I.; GALANETS, Z.G. [Halanets, Z.H.]

Investigation of the tartaric acid compounds of copper and
cadmium. Nauk.zap.L'viv.un. 46:133-140 '58.   (MIRA 12:7)
(Tartaric acid) (Copper compounds) (Cadmium compounds)

ZOLOTUKHIN, V.K.; GALANETS, Z.G.; MONCHAK, T.I.

Citrate complexes of trivalent indium. Ukr. khim. zhur. 31 no.4:
342-347 '65.   (MIRA 18:5)

1. L'vovskiy gcsudarstvennyy universitet.

ZOLOTUKHIN, V.K.; GALANETS, Z.G.

Complex formation reactions of bivalent copper ions with
citric acid ions. Ukr.khim.zhur. 31 no.5:525-529 '65.
(MIRA 18:12)

1. L'vovskiy gosudarstvennyy universitet. Submitted July 31,
1964.

SELEDZHANU, N. [Sălăgeanu, N.]; GALAN-FABIAN, D.

Studies on the nutrition of the common misteletoe. Fiziol.rast.
8 no.5:547-554 '61.   (MIRA 14:10)

1. Academy of Science of Rumanian Peoples Republic, Bucharest.
          (Misteltoe)   (Plants—Nutrition)

GALAN-FABIAN, G.

The diurnal march of photosynthesis. Rev biol 6 no.4:401-410
'61.

1. Institute of Biology "Tr. Savulescu," Laboratory of
Plant Physiology.

GALANI, V.P., inzh.; PASHENIN, L.I., inzh.

Use of clamps in the assembly of asbestos cement panels. Stroi.
truboprov. 6 no.7:20-21 Jl '61.   (MIRA 14:8)

1. Stroitel'nyy uchastok No.6 tresta Yuzhgazprovodstroy,
Novocherkassk.
      (Asbestos cement)   (Hoisting machinery)

GALANI, V.P./ inzh.

Conditions for profitable work of a building organization. Stroi.
truboprov. 7 no.12:23-24 D '62.   (MIRA 16:1)

1. Stroitel'nyy uchastok No.6 tresta Yuzhgazproybdstroy,
Novocherkassk.
      (Gas, Natural--Pipelines) (Construction industry)

ZLATKIN, V.P. (Leningrad); GALANI, V.P. (Novocherkassk); EPEL'MAN, I.B.
(Shchekino, Tul'skoy obl.)

Make gas available to the enterprises of big chemistry. Stroi.
truboprov. 9 no.1:3-15   Ja   64.   (MIRA 17:3)

GALANI, V.P.

Construction of methanol plants. Stroi. truboprov. 9 no.4:4 Ap '64.
(MIRA 17:9)
1. Stroitel'noye upravleniye No.6 tresta Yuzhgazprovodstroy, Novocherkassk.

GALANI, V.P.; CHEPURKIN, S.S.; MALEYEV, L.I.

Investigating dynamic forces in the operation of a hot-rolled strip coiler (determination of acceleration). Izv.vys.ucheb.zav.; chern. met. 8 no.8:172-177 '65.   (MIRA 18:8)

1. Zhdanovskiy metallurgicheskiy institut.

GALANIN, A.

"Automatic biasing in the receiver 'Iskra'."

So. Radio, Vol. 10, p. 55, 1952

L 45884-66

ACC NR: AT6014878   (N)   SOURCE CODE: UR/2752/65/000/077/0033/0036

AUTHOR: Galanin, A. A.

ORG: Central Scientific-Research Institute of the Merchant Marine (Tsentral'nyy nauchno-issledovatel'skiy institut morskogo flota)

TITLE: Transient processes in turbocharged diesel-generators as objects for controlling the rate of shaft rotation

SOURCE: Leningrad. Tsentral'nyy nauchno-issledovatel'skiy institut morskogo flota. Trudy, no. 77, 1965. Avtomatizatsiya i vychislitel'naya tekhnika na morskom flote (Automation and computer engineering in the Merchant Marine), 33-36

TOPIC TAGS: shipbuilding engineering, automatic pressure control, diesel engine, SHAFT, ELECTRIC GENERATOR

ABSTRACT: The article discusses control methods for improving the operation of turbocharged diesel-generator combinations in the transient state. Although simple to design and manufacture, turbocharged 4-cycle diesels cause various difficulties when operated in conjunction with electric generators in the transient state. Interest in the problem is due to the increasing numbers of such diesels being used to drive ac generators on marine transports. The author illustrates the difficulties with data from government tests on the complex DG 300/500 diesel-generator (25/34 engine 6ChN, Ms 375/500 generator), and considers various proposals by other authors to improve

UDC: 621.313.322-843

Card 1/2

L 45884-66

ACC NR: AT6014878

their operation. He considers the necessary control measures to be taken during sudden changes in load, which are signaled by changes in the velocity of shaft revolution. Orig. art. has: 2 figures, 1 table.

SUB CODE: 13/   SUBM DATE: none/   ORIG REF: 004/   OTH REF: 001

Card 2/2

LAVROV, A.D.

Possible ... radio between work and ... my interactions. In.
vz. ... ... my '66.   (MIRA 19:2)

1. Institut ... ishesiny i ... eksperimentalnoy fizika ...
... komiteta po ispolzovaniyu atomnoy energii.

GALANIN, A. D.

"Fluctuations of Density in Ideal Bose-Einstein Gas." Zhurnal Eksperimental'
F i Teoreticheskoi Fiziki, 1940, Vol 10, No. 11, pp. 1267-1282.

Moskva Gosudarstvennyi Universitet, Kafedra Teoreticheskoi Fiziki, Fizicheskogo
Fakul'teta.

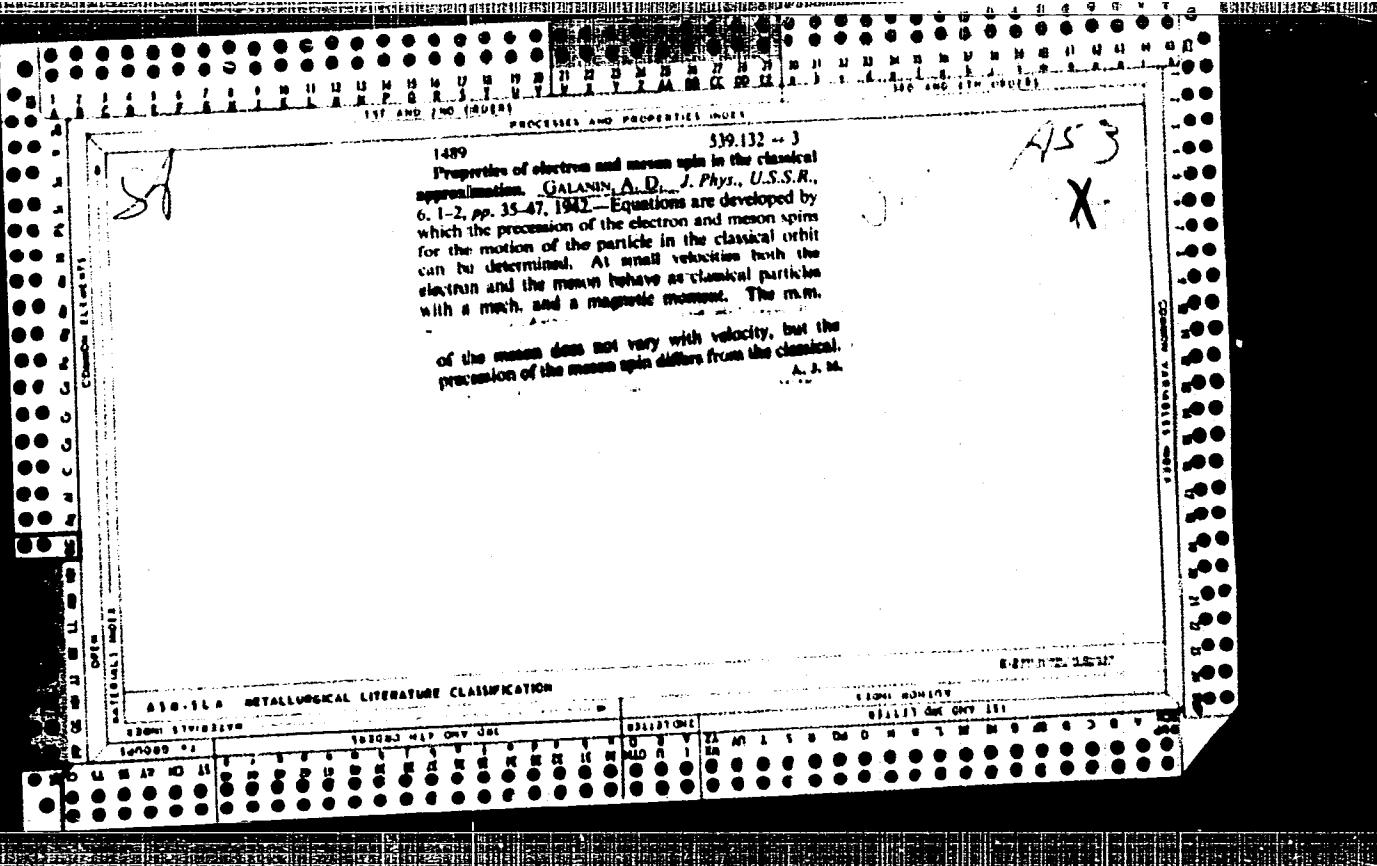XXXXXXXXX

FURSOV, V., HELENSKIY, S. and GALININ, A. D.

"Density Fluctuations and Light Scattering in Bose-Einstein and Fermi-Dirace Gas." Journal of Physics. (U.S.S.R.), 1941, Vol 4, pp. 349-355.

Abstract: The intensity of light scattered in a gas because of d. fluctuations is calcd. by means of quantum statistics. It is shown, in particular, that a Bose-lEinstein gas shows very strong scattering near the condensation point. It is suggested that scattering measurements should be carried out in liquids He in order to test the analogy with a degenerate Bose-Einstein Gas.

A 53
ℓ

1461   537.122 ; 538.691

Movement of the meson in a homogeneous magnetic field. GALANIN, A. D. *J. Phys., U.S.S.R.*, 6, 1-2, pp. 27-34, 1942. The equations of motion of a meson in a homogeneous magnetic field are given. The expression for the energy of the meson indicates that the particle has a magnetic moment independent of velocity.
          N. J. M.

Zhur. Fiz.

1489   539.132 -- 3

Properties of electron and meson spin in the classical approximation. GALANIN, A. D. *J. Phys., U.S.S.R.*, 6, 1-2, pp. 35-47, 1942.—Equations are developed by which the precession of the electron and meson spins for the motion of the particle in the classical orbit can be determined. At small velocities both the electron and the meson behave as classical particles with a mass, and a magnetic moment. The m.m. of the meson does not vary with velocity, but the precession of the meson spin differs from the classical.

A. J. M.

METALLURGICAL LITERATURE CLASSIFICATION

FURSOV, B., BELENSKIY, S., and GALANIN, A. D.

"Density Fluctuations and Light Scattering in Bose-Einstein and in Fermi-Dirac Gases" Uchenye $\overset{\text{A}}{\text{ }}$ zapiski, Moskovskiy Ordena Lenina Gosudarstvennyi Universitet imeni M. V. Lomonosova, Fizika,   1944, Vol 74, pp. 59-66.

Moskov Ordena Lenina Gosudartvennyi Universitet imeni M. V. Lomonosov.

Abstract: Math.   In a Bose-Einstein gas the light scattering strongly increases when the temp. is lowered to near the condensation point. This criterion may be applied to He II.

Galanin, A.D.

Reverse Oppenheimer-Phillips process. A. D. Galanin. *Zhur. Eksptl. i Teoret. Fiz.* 18, 559-611 (1948).—Mathematical. G. considers the reaction $A^n(He^3, He^4)A^{n-1}$ for a heavy nucleus as the reverse of the Oppenheimer-Phillips process, and shows that the probability of a similar reaction for He^3 at an energy of several m.e.v. is exceedingly small.

Trans. H. Rabinoff.

GALANIN, A.

USSR/Physics   Feb 49
    Light - Dispersion
    Quantum Theory

"Diffusion of Light by an Almost Ideal Bose-
Einstein Gas," A. Galanin, Acad Sci USSR, 3 pp

"Zhur Eksper i Teoret Fiz" Vol XIX, No 2

Examines dispersion of light by almost ideal
Bose-Einstein gas, theory of which was developed
by Bugolyubov. Dispersion of visible light by
gas of this type is several orders higher than
by classical gas. Submitted 11 Jul 48.

                                32/49T85

GALANIN, A. D.

Galanin, A. D. The radiation correction to Dirac's equation. Akad. Nauk SSSR. Zhurnal Eksper. Teoret. Fiz. 19, 521-534 (1949). (Russian)

The author uses non-covariant perturbation theory for a calculation of the second-order radiative corrections to the equation of motion of an electron in external electric and magnetic fields. The starting-point is standard quantum electrodynamics, with electrons treated according to the Dirac hole theory. The method is essentially the same as that used by French and Weisskopf [Physical Rev. (2) 75, 1240-1248 (1949)]. The infinite self-energy of the electron appears in the course of the calculation, and the separation of this unobservable self-energy from finite observable effects is not unambiguous in a non-covariant treatment. The discussion and justification of the procedure followed in making the separation is not so complete as that given by French and Weisskopf, although the final results are identical. A treatment of the same problem by Luttinger [Physical Rev. (2) 74, 893-898 (1948)] is criticised, in the reviewer's opinion wrongly.

F. J. Dyson (Birmingham)

Source: Mathematical Reviews,   Vol. 11   No.4

GALANIN, A. D.

Galanin, A. D. Radiative corrections in quantum electrodynamics. Doklady Akad. Nauk SSSR (N.S.) 79, 229–232 (1951). (Russian)

A method is developed which does not require use of the interaction representation, and makes it possible to solve the wave equations for electron and photon field in interaction: $L\Psi = A\Psi$ and $p^2 A = 4\pi e^2 I$, by the method of successive approximation. Ψ and A are the quantum operators of the electron and of the photon field; and I is the current-density operator. First Ψ is eliminated from the equation for the photon field; this leads to a power series expansion for A. The wave equation for the electron field is then replaced by the integral equation $\Psi = \Psi_0 + L^{-1}A\Psi$ ($L\Psi_0 = 0$) which can be solved by iteration. Feynman's rules for writing down matrix elements in quantum electrodynamics [Physical Rev. (2) 76, 749–759, 769–789 (1949); these Rev. 11, 765] are then derived by considering instead of the typical diagrams the corresponding terms in the series expansions.   E. Gora (Providence, R. I.)

Source: Mathematical Reviews,

Vol 13 No. 4

GALININ, A. D.

"Radiation Corrections in Quantum Electrodynamics. I."   Zhurnal
Eksperimental'noi i Teoreticheskoi Fiziki, 1952, Vol 22, No. 4, pp. 448-461.

Abstract: It is shown that, taking Heisenberg's equations as point of de-
parture, operators can be obtained for radiative corrections in a desired
approximation expressed in a series of powers of e^2/hc. Rules for derivation
of matrix elements agree with those obtained in previous work by the author.
The method is generalized for cases where real protons are present and for
problems of multipele electrons."

GALANIN, A. D.

"Radiatiaon Corrections in Quantum Electrodynamics." Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki, 1952, Vol 22, No. 4, pp. 462-470.

Abstract: Important is the construction of a Green's function for interacting fields, modified by the interaction of particle and vacuum. Application to the many-electron problem, and to the case when real photons are presente.

GALANIN, A. D.   IA 236T69

USSR/Nuclear Physics - Relativistic   Nov 52
                          Equations

"Relativistic Equations of Interacting Particles,"
A. D. Galanin

"Zhur Eksper i Teoret Fiz" Vol 23, No 5, pp 488-492

Generalizes his previous methods (cf. "Zhur Eksper i
Teoret Fiz," 22, 448 and 462 (1952)) on problems in-
volving bound states, attempting to simplify operators
of Heisenberg equation. Indebted to B. L. Ioffe and
A. P. Rudnik. Received 15 Jul 52.

       (PA 6 no.668: 198 $\sqrt{3}$)

                                   236T69

GALANIN, A. D.

235T83

USSR/Nuclear Physics - Meson   11 Sep 52

"Spectrum of mu-Meson Hydrogen," A. D. Galanin,
I. Ya. Pomeranchuk

"Dok Ak Nauk SSSR" Vol 86, No 2, pp 251-253

Consider neg mu-meson captured by a proton in
one of its orbits. The lifetime of such a sys-
tem is sufficiently long so that its spectrum
may be observed, since it is detd by the lifetime
of a free mu-meson (i.e. $2/10-6$ sec). The
radius of the normal orbit of such an "atom" will
be less than the Compton wave length of an elec-
tron. The Coulomb field of a proton at distances

235T83

of the order of the Compton wave length of an elec-
tron is distorted by the so-called polarization of
the electron-positron vacuum (Serber, Phys Rev,
48, 49, 1935; Uehling, Phys Rev, 48, 55, 1935). There-
fore, "fine structure" can be expected in the spec-
trum of meson-hydrogen. Submitted by Acad L. D.
Landau 14 Jul 52.

Nuclear Sci. Abst. V-8, Jan 15, 1954.

(CA 47 no.22: 11969 '53)

235T83

Galanin, A.D.

USSR.   1 - F/W

Galanin, A. D. On the expansion parameter in the pseudo-
scalar meson theory with pseudoscalar coupling. Akad.
Nauk SSSR. Zurnal Eksper. Teoret. Fiz. 26, 417-422
(1954). (Russian)

The renormalized contribution to the nucleonic Green's
function and to Γ_i in neutral pseudoscalar meson theory is
calculated (in the limit of meson mass approaching zero
and for large momentum) for the five graphs of lowest
order. For one type of repeated graph the results are summed
giving a result analogous to one of Edwards [Physical Rev.
(2) 90, 284-291 (1953); these Rev. 15, 83] for charge-
symmetric theory.   A. J. *Coleman* (Toronto, Ont.)

GALANIN, A. D,

USSR.

54. Some remarks on the infinities in the theory of the pseudoscalar meson with pseudovector coupling. A. D. GALANIN. Zh. eksper. teor. Fiz., 26, No. 4, 423-6 (1954) in Russian.

The propagators S' and D' are employed in approximate form, taking into account self-energy parts in which one meson, and one nucleon bubble, occurs respectively, instead of S and D. The propagators S' and D' are not, however, expanded in a power series in the coupling constant f. Calculation results in D being represented as $-(3\pi\mu^2/f^2)(k^2-\mu^2)^{-1}(k^2-\mu'^2)^{-1}$ where μ', the factor multiplying the term which is essentially D, is f-dependent. Employing this D' in the nucleon self-energy graph yields renormalizable results to order f^2. The vertex graph is also calculated to lowest order. A perturbation expansion, however, indicates that graphs with two mesons in the air simultaneously are as important as those considered above and that the ratio of "2-meson" to "1-meson" terms is not dependent on f. Consequently, either the above procedure is not consistent, or perturbation theory in this latter estimate is not reliable.

G. E. BROWN

GALANIN, A.D.
USSR/Nuclear Physics - Pions

FD-745

Card 1/1   : Pub 146-15/22

Author   : Galanin, A. D., and Solov'yev, V. G.

Title   : Radiative correction to the life time of π^0-meson

Periodical   : Zhur. eksp. i teor. fiz., 27, 112-114, Jul 1954

Abstract   : Letter to the editor. Analyze works by J. Steinberger (Phys.
                 Rev. 76 [1949] and J. Schwinger (ibid. 82 [1951]) by applying
                 the method of R. P. Feynman (ibid. 84 [1951]) for the computa-
                 tion of an additive term in the Lagrangian. 1 Soviet and 4
                 foreign references.

Institution   : Acad Sci USSR

Submitted   : Februrary 22, 1954

GALANIN, A. D.

USSR, Physics

Card   :   1/1   Pub. 22 - 10/48

Authors   :   Abrikosov, A. A., Galanin, A. D. and Khalatnikov, I. M.

Title   :   Green's functions in the theory of mesons with weak pseudo-scalar bond

Periodical   :   Dok. AN SSSR 97/5, 793 - 796, August 11, 1954

Abstract   :   A method, successfully used in the theory of quantum electrodynamics, is
                  described in connection with its application to the theory of mesons with
                  weak pseudo-scalar bonds. The method is intended to show that, by appli-
                  cation of Green's function $G(p)$, the effective constant of weak bond (g^2)
                  becomes a strong bond, provided the p^2 is sufficiently large. Two refer-
                  ences (1951).

Institution   :   Institute of Physical Problems im. S. I. Vavilov of the Acad. of Scs. of
                  the USSR

Presented by :   Academician L. D. Landau, June 15, 1954

GALANIN, A. D.

USSR/Physics - Quantum theory

Card 1/1   Pub. 22 - 10/48

Authors   : Galanin, A. D.; Ioffe, B. L.; and Pomeranchuk, I. Ya., Memb. Corresp. of AN.

Title   : Re-standardization of mass and charge in covariant equations of quantum
              field theory

Periodical : Dok. AN SSSR 98/3, 361-364, Sep 21, 1954

Abstract   : The purely physical arguments regarding the necessity of substituting ficti-
              tious mass and charge by experimental ones in the restandardization of mass
              and charge in covariant equations of quantum field theory, are analyzed.
              Such substitution was recommended regardless of the fact whether the mass and
              polarization operators are finite or infinite. An example of actual work on
              the restandardization of mass and charge in covariant equations is presented.
              Four references: 3-USA and 1-USSR (1949-1954).

Institution : ...

Submitted   : February 22, 1954

GALANIN,A.D.

[Calculation of the coefficient of heat utilization in a hetero-
geneous reactor] Vychislenie koeffitsienta teplovogo ispol'zovaniia
v geterogennom reaktore; doklady, predstavlennye SSSR na Mezhduna-
rodnuiu konferentsiiu po mirnomu ispol'zovaniiu atomnoi energii. Mo-
skva, 1955. 17 p. [Microfilm]   (MLRA 9:3)
                          (Nuclear reactors)

MALININ, A. J.,   DAVYDOV, S. A.,   GRAV, ..., ALIKAEV, A. I.,
VLADIMIRSKIY, V. V., and MALININ, S. Y.

"A Heavy-Water Research-Reactor," a paper presented at the Atoms for
Peace Conference, Gevena, Switzerland, 1955

GALANIN, A. D.

"The Thermal Coefficient in a Heterogeneous Reactor," a paper presented at the Atoms for Peace Conference, Geneva, Switzerland, 1955

"The Thermal Reactor Regulators' Efficiency," ibid.

"Absorption and Multiplication of the Moderating Neutrons in the Two-Group Theory," ibid.

"Critical Size of Heterogeneous Reactor with Small Number of Rods," ibid.

"Application of the Method of Effective Boundary Conditions for Calculating the Critical Dimensions of Reactors," ibid.

GALANIN, A.D.

[Using the method of effective boundary conditions for calculating
the critical size of a reactor] Ispol'zovanie metoda effektivnykh
granichnykh uslovii dlia rascheta kriticheskikh razmerov reaktora.
Moskva, 1955. 8 p.   (MIRA 14:7)
            (Nuclear reactors)

GALANIN, A.D.

[Critical size of a heterogeneous reactor with a small number of
moderator blocks] Kriticheskii razmer geterogennogo reaktora
s malym chislom blokov. Moskva, 1955. 10 p.

(MIRA 14:7)

(Nuclear reactors)   (Neutrons—Capture)

ALIKHANOV, A.I.; VLADIMIRSKIY, V.V.; NIKITIN, S.Ya.; GALANIN, A.D.;
    GAVRILOV, S.A.; BURGOV, N.A.

[Heavy water experimental reactor for physical research] Opytnyi
fizicheskii reaktor s tiazheloi vodoi. Moskva, 1955. 15 p.
                                    (MIRA 14:7)

(Deuterium oxide)   (Nuclear reactors)

GALANIN, A. D.

530.145

1070.   ASYMPTOTIC GREEN'S FUNCTION OF THE NUCLEON AND MESON IN PSEUDOSCALAR THEORY WITH WEAK INTERACTION. A.D.Galanin, B.L.Ioffe and I.Ya.Pomeranchuk.

Zh. eksper. teor. Fiz. Vol. 29, No. 1 (7), 51-63 (1955). In Russian.

The coupled integral-differential equations in the vertex part and Green's functions, which were renormalized by the authors previously (Dokl. Akad. Nauk SSSR, Vol. 98, No. 3, 361-4, 1954), are solved in the asymptotic range without perturbation theory. All infinities are seen to have been separated. The selection of graphs which are summed is such that the analysis is valid only for $\ln(-p^2/m^2) < 4\pi/3g^2$. At the point where these two quantities are equal a false pole occurs, which, it is surmised, might be removed by inclusion of neglected graphs. It is in the sense of the above condition that the theory is one of weak interaction.   G.E.Brown

GALANIN, A-D.

SUBJECT	USSR / PHYSICS	CARD 1 / 2	PA - 1449
AUTHOR	GALANIN,A.D., LAPIDUS,L.I.		
TITLE	Remarks on the Mixed Meson Theory.		
PERIODICAL	Zurn.eksp.i teor.fis,31,fasc.2, 359-359 (1956)		
	Issued: 10 / 1956 · reviewed: 10 / 1956		

R.P.FEYNMAN, Phys.Rev.,76, 769 (1949) declared that in the mixed theory of scalar and vectorial mesons with vectorial coupling the nonrenormalizable infinities are removed if the coupling constants are equal. The work by D.B.BEAR-BEARS and H.A.BETHE, Phys.Rev.83, 1106 (1951) deals with the employment of this theory for the study of nuclear forces. The same is said in the book by S.S. SCHWOBER, H.A.BETHE and F.de HOFFMANN, Mesons and Fields, vol.1, New York (1955). Actually, however, the removal of nonrenormalizable infinities in this case is equivalent to the fact that the equation for the vectorial meson

$(p^2\delta_{\gamma\mu} - p_{\gamma} p_{\mu})\varphi_{\mu} = - s_{\gamma}$ is transformed into $p^2\varphi_{\gamma} = - s_{\gamma}$. In this case the field φ_{γ} describes the particles with spin 1 and zero, on which occasion a negative energy corresponds to the components with spin zero. (See G.WENTZAL, Einfuehrung in die Quantentheorie der Wellenfelder). If, however, we proceed from the Hermitic LAGRANGIAN of two fields with spin zero and 1 which are in interaction with a nucleon field, we find that nonrenormalizable divergences are not removed but that they are superimposed. For each line of a vectorial meson (including the summit) the following is written down:

$f_1^2(\gamma_{\gamma} \cdots \gamma_{\mu}) (\delta_{\mu\gamma} - k_{\gamma}k_{\mu} \mu_1^{-2})/(k^2 - \mu_1^2)$. Here the series of points denotes

GALANIN, A.D.

[Effectiveness of power regulators in thermal neutron reactors]
Effektivnost' reguliatorov v reaktore na teplovykh neitronakh.
Moskva, 1955. 11 p.   (MIRA 14:7)
                        (Nuclear reactors)

Name: GALANIN, Aleksey Dmitriyevich

Dissertation: Research on the quantum field theory

Degree: Doc Phys-Math Sci

Affiliation: /Not indicated_7

Defense Date, Place: 15 Jun 56, Council of Heat Engineering
Laboratory, Acad Sci USSR

Certification Date: 9 Mar 57

Source: BMVO 13/57

tekhnicheskiy redaktor

[Theory of nuclear thermal reactors] Teoriia iadernykh reaktorov na
teplovykh neitronakh. Moskva, Atomizdat, 1957. 358 p. (MLRA 10:7)
(Nuclear reactors)

GALANIN, A.D.

3-pink

5700

19

A NOTE ON MIXED MESON THEORY. A. D. Galanin and
L. I. Lapidus. Soviet Phys. JETP 4, 280-1(1957) March.

pink

BALANIN, A. D.

4560
ON THE POSSIBILITY OF FORMULATING A MESON
THEORY WITH SEVERAL FIELDS. A. D. Galanin. Soviet
Phys. JETP 5, 460 (1957) Oct.

The following cases of interaction of several fields are
considered: (1) N fermion and n boson fields with the same
coupling constant, (2) two fermion and two boson fields, in-
teracting with different constants, (3) fermion and meson
fields with different isotopic properties. In all cases con-
sidered the physical charge tends to zero as the undimned
interaction approaches a point one. (auth)

Distr: 4E4c/4E2d

PA - 2970

AUTHOR   GALANIN A.D.
TITLE   On the Possibility of constructing a Meson Theory with several
             fields. (O vozmozhnosti postroyeniya mezonnoy teorii s neskol'-
             kimi polyami.- Russian)
PERIODICAL   Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 32, Nr 3,
             pp 552 - 558 (USSR).
             Received: 6/1957   Reviewed: 7/1957

ABSTRACT   As a first example the author studies N Fermion fields (all
             with the isotopic spin 1/2) and n Boson fields (all scalar or
             pseudoscalar and with the isotopic spin 1), which are in
             interaction with one and the same coupling constant g). The
             author here introduces no forbidding rules whatever, so that
             all sorts of fermions are able to change into one another
             and also all sorts of bosons. This problem is raised here
             in a purely methodical, manner, and connection between the
             fields introduced here and the real particles is not taken
             into account. Green's function of the bosons will here be a
             matrix with diagonal terms that are equivalent with respect
             to one another. All conclusions applying in the theory with
             one boson and one nucleon are automatically transferred to
             the here investigated case of interaction of several fields.

CARD 1/3

PA - 2970

On the Possibility of constructing a Meson Theory with several
fields.

Next, the case of charges differing with respect to amount and
sign is investigated. The Lagrangian of the interaction then has
the following general form:

$$\mathcal{L} = \sum_{i,k,\ell} \alpha d_{ik,\ell} \,\bar{\Psi}_i \Psi_k \Psi_\ell$$

By a linear transformation of the field Ψ_i it is then possible
to reduce the quadratic form

$$\sum_{ik} d_{ik,\ell} \bar{\Psi}_i \Psi_k$$

to the diagonal form

$$\mathcal{L} = \sum_{i\ell} a_{i\ell} \bar{\Psi}_i \Psi_i \Psi_\ell$$

The author then investigates the following LAGRANGIAN:

$$\mathcal{L} = G_{11}\,\bar{\Psi}_1 \Psi_1 \Psi_1 + G_{22}\,\bar{\Psi}_2 \Psi_2 \Psi_2 + G_{12}\,\bar{\Psi}_1 \Psi_1 \Psi_2 + G_{21}\,\bar{\Psi}_2 \Psi_2 \Psi_1$$

CARD 2/3

PA - 2970

On the Possibility of constructing a Meson Theory with several fields.

The introduction of two summit parts suffices. Also in the case investigated here the physical charge is equal to zero.
The next paragraph deals with a mixture of fields with different isotopic spins. There is qualitatively no difference from the theory with a pseudoscalar field.
In the case of all the examples investigated the physical charge is equal to zero as soon as the limiting momentum tends towards infinity. The construction of a meson theory with several nucleon- and meson fields is apparently just as impossible as the construction (within the framework of the present quantum theory of a field) of an indisputable theory with a single meson field.
(With 1 illustration)

ASSOCIATION: not given.
PRESENTED BY: -
SUBMITTED: 7. Februar 1956.
AVAILABLE: Library of Congress.

CARD 3/3

GALANIN, A. D.

AUTHOR	GALANIN, A.D., LOKHOV, Yu. N. 56-7-52/66
TITLE	On the Divergence of the Series of the Perturbation Theory in the Theory with a Nonrelativistic Nucleon. (O skhodimosti ryada teorii vozmushcheniy v teorii s nerelyativistkim nuklonom.- Russian)
PERIODICAL	Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 33, Nr 7, pp 285-286 (USSR)

ABSTRACT

First reference is made in short to two papers dealing with this subject. The problem of the nonrelativistical nucleon which interacts with a pseudoscalar symmetrical meson field has hitherto not been analytically and rigorously solved. Nevertheless it is possible also in this case to carry out the convergence of the series of the perturbation theory to the end. To the interaction

$$(g_0/2\mu)\Psi^{\ast}\left[(\sigma \nabla)(\tau_i \varphi_i)\right]\Psi$$

there corresponds a certain rule for the writting down of Feynman's diagrams. It is characterized sufficiently well by writing down one of the matrix elements which corresponds to the diagram of the proper energy. Also the rules for the circling round the poles in connection with integration in the complex plane are mentioned in short.

CARD 1/3

56-7-52/66

On the Divergence of the Series of the Perturbation Theory
in the Theory with a Nonrelativistic Nucleon.

After integration with respect to the angle one obtains

$$M(E) = \frac{1}{6}\left(\frac{g_0}{2\mu}\right)^2 \sigma_i \, T_j \, \sigma_i \, T_j \int_0^{\Lambda} k^4 \, d\,k/(E+\sqrt{k^2+\mu^2})\sqrt{k^2+\mu^2}.$$

where Λ denotes the boundary momentum. If, further, the
mass of the meson is disregarded and if one goes over to
dimensionless integration variables,

$$M(z) = \frac{1}{6}\left(\frac{g_0\Lambda}{2\mu}\right)^2 \Lambda\sigma_i \, T_j \, \sigma_i \, T_j \int_0^1 \frac{x^3\,dx}{z+x}$$

$(z = E/\Lambda)$
is obtained. The rules for the construction of the compli-
cated diagrams are easily obtained by means of a generaliza-
tion of this example. In the case under investigation the
theory is renormalizable and Λ can tend towards in-
finity after renormalization. However, by the introduction
of a finite boundary momentum the amount of the integral
CARD 2/3   is reduced and the convergence of the series according

56-7-52/66

On the Divergence of the Series of the Perturbation
Theory in the Theory with a Nonrelativistic Nucleon.

to powers of g_1^2 is reduced. The series according to
powers of g_1^2 is, in the theory of the interaction of a
nonrelativistical nucleon with a neutral scalar meson
field, a majorant for the theory with pseudoscalar
symmetric meson field. In this theory the series of the
perturbation theory has an infinitely great convergence
radius.

(No Illustrations)

ASSOCIATION: not given.
PRESENTED BY: -
SUBMITTED: 4.4. 1957
AVAILABLE: Library of Congress.

CARD 3/3

GALANIN, Aleksey Dmitriyevich

The Theory of Thermal-Neutron Nuclear Reactors. New York, Consultants'
Bureau, Inc., 1958.
    v. Tables (Supplement of the Soviet Journal of Atomic Energy, 1957, Nos. 2-3)
    Translated from the original Russian: Teoriya Yadernykh Reaktorov Na
Teplovykh Neytronakh, Moscow, 1957,

21(4)

Galanin, Aleksey Dmitriyevich

Teoriya yadernykh reaktorov na teplovykh neytronakh (Theory of
    Thermal Reactors) Moscow, Atomizdat, 1959. 382 p. Errata
    slip inserted. 6,000 copies printed.

Ed.: Z.D. Andreyenko'; Tech. Ed.: Ye.I. Mazel'.

PURPOSE: This book is intended for engineers and physisists·
    engaged in the design of nuclear reactors, for operating
    personnel of nuclear power plants and experimental reactors,
    and for students specializing in atomic power and reactor
    design.

COVERAGE: This is a revised and enlarged edition of a book published
    under the same title in 1957. The present edition is primarily de-
    voted to the theory of thermal neutron nuclear reactors of all
    types, and also covers many minor but important practical
    problems. Much attention is given to the range of applicability

Card 1/15

Theory (Cont.)   SOV/2345

and error of some of the theoretical methods, and many of the
formulas are developed in a form that can be directly employed
in practical calculation. The additional data incorporated in
this edition are distributed throughout the book. A.S.
Kronrod and G.M. Adel'son-Vel'skiy wrote section 20. The
author thanks I.Ya. Pomeranchuk, B.L. Ioffe, A.P. Rudik,
G.M. Adel'son-Vel'skiy, B.I. Il'ichev, I.I. Gurevich, G.I.
Marchuk, L.N. Usachev, and G.A. Bat'. References are given at
the end of each chapter.

TABLE OF CONTENTS:

Card 2/15

GALANIN, A.D.

21(4)   PHASE I BOOK EXPLOITATION   SOV/2583

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958.

Doklady sovetskikh uchenykh; yadernyye reaktory i yadernaya energiya. (Reports of Soviet Scientists; Nuclear Reactors and Nuclear Power) Moscow, Atomizdat, 1959. 707 p. (Series: Its: Trudy, vol. 2) Errata slip inserted. 8,000 copies printed.

General Eds.: M.A. Dollezhal, Corresponding Member, USSR Academy of Sciences, A.K. Krasin, Doctor of Physical and Mathematical Sciences, A.I. Leypunskiy, Member, Ukrainian SSR Academy of Sciences, I.I. Novikov, Corresponding Member, USSR Academy of Sciences, and V.S. Fursov, Doctor of Physical and Mathematical Sciences; Ed.: A.P. Alyab'yev; Tech. Ed.: Ye. I. Mazel'.

PURPOSE: This book is intended for scientists and engineers engaged in reactor designing, as well as for professors and students of higher technical schools where reactor design is taught.

COVERAGE: This is the second volume of a six-volume collection on the peaceful uses of atomic energy. The six volumes contain the reports presented by Soviet scientists at the Second International Conference on Peaceful Uses of Atomic Energy, held from September 1 to 13, 1958 in Geneva. Volume 2 consists of three parts. The first is devoted to atomic power plants under construction in the Soviet Union; the second to experimental and research reactors, the experiments carried out on them, and the work to improve them; and the third, which is predominantly theoretical, to problems of nuclear reactor physics and construction engineering. Yu. I. Koryakin is the science editor of this volume. See SOV/2081 for titles of all volumes of the set. References appear at the end of the articles.

24.6600, 16.8100, 16.7500

76982
SOV/56-37-6-22/55

AUTHORS: Galanin, A. D., Grashin, A. F., Ioffe, B. L., Pomeranchuk, I. Ya.

TITLE: Collision of Nucleons with Large Orbital Momenta

ABSTRACT: A method of calculation was developed for that part of the nucleon-nucleon scattering amplitude for large orbital momenta $l \gg 1$ which is due to the exchange between two mesons. The connection between this amplitude and the scattering of real mesons by nucleons was established with the aid of the dispersion equations. The method is valid when, besides the condition $l \gg 1$, the inequality $l\mu /p \gg 1$ is also satisfied (here, μ is mass of π-meson; p is momentum of nucleon in the center mass system). The second assumption has a physical meaning: the quasi-classical parameter

Card 1/3

Collision of Nucleons with Large Orbital
Momenta

76982
SOV/56-37-6-22/55

$r_0 = \ell \xi / \mu \gg 1/\mu$, i.e., it is the condition of the collision periphery. In words, the classification of interactions according to their "degree of periphery" with a small expansion parameter has meaning only when the above condition is satisfied. The main part of the asymptotic expansion parameter for the two-meson phases can be obtained by this method from the small parameter $1/L(\ell \xi)$, which at low energies ($\xi^2 \gg 1$) is $1/\ell$, and with an increase in the energy increases up to $1/\ell \xi$ (when $\xi^2 \ll 1$). The principle of the derivation was that under the above assumption of the virtual meson exchange between nucleons, the main role is played by mesons with physical relation between the energy and the momentum $(\omega^2 - k^2 = \mu^2)$, but with nonphysical relation between energy $\omega = 0$ transferred by the momentum $q^2 = 4\mu^2$. Concrete examples of the calculation of two-meson phases and their comparison with the one-meson phases will be reported

Card 2/3

Collision of Nucleons with Large Orbital
Momenta

76982

SOV/56-37-6-22/55

by the authors in their forthcoming paper in this periodical. There are 4 graphs; and 23 references, 11 Soviet, 4 Italian, 1 British, 7 U.S. The 5 most recent U.S. and U.K. references are: S. Mandelstam, Phys. R_ev., 112, 1344; 1958; R. Karplus, C. M. Sommerfield, E. H. Wichman, Phys. Rev., 114, 376, 1959; H. J. Bremermann, R. Oehme, J. G. Taylor, Phys. Rev., 109, 2178, 1958; K. Symanzik, Progr. Theor. Phys., 20; 690, 1958; M. L. Goldberger, Proc. of the Sixth. Ann. Rochester Conf., N. Y., 1956.

SUBMITTED: June 12, 1959

Card 3/3

GALANIN, A. D.

~~GALANIN~~, Aleksey Dmitriyevich

    Thermal reactor theory. 2d. rev. and auth. ed.
New York, London, Pergamon Press, 1960.
    xiv, 412 p. tables. (International Series of
Monographs on Nuclear Energy, Div. 10, Vol 3)
    Translated from the original Russian 2d. ed.: Teo-
riya yadernykh reaktorov na teplovykh neytronakh,
Moscow, 1959.
    Includes references.

GALANIN, A.D.

[Thermalization of neutrons in a heterogeneous reactor]
O termalizatsii neitronov v geterogennom reaktore. Mo-
skva, Glav. upr. po ispol'zovaniiu atomnoi energii,
1960. 17 p.   (MIRA 17:2)

GALANIN, A.D.

[Calculation of the thermal utilization coefficient; a
review] O vychislenii koeffitsienta teplovogo ispol'zo-
vaniia; obzor. Moskva, Glav. upr. po ispol'zovaniiu atom-
noi energii, 1960. 29 p.   (MIRA 17:2)

82730
S/089/60/009/002/001/015
B006/B056

21.1200

AUTHOR: Galanin, A. D.

TITLE: The Theory of a <u>Heterogeneous Reactor</u> /9 With Cylindrical
               Blocks of Finite Radius

PERIODICAL: Atomnaya energiya, 1960, Vol. 9. No. 2, pp. 89-97

TEXT: In the present paper, the author develops the theory of a hetero-
geneous reactor which is composed of a finite but sufficiently large number
of cylindrical blocks of a finite but small radius. The blocks form a
quadratic grating in which diffusion is anisotropic. In consideration of
this anisotropy, the neutron-density distribution is investigated on the
following assumptions: 1) All calculations are made in diffusion approxima-
tion, i.e., the absorption within the blocks is low and the distances among
the blocks are large as compared to the scattering length in the moderator,
and the dimensions of the blocks are either large as compared to the scat-
tering lengths in them, or the difference of the scattering lengths of
block and moderator is not too large. 2) The absorption occurring in the
slowing down of neutrons is neglected. 3) It is assumed that within the

Card 1/3

82730

The Theory of a Heterogeneous Reactor With
Cylindrical Blocks of Finite Radius

S/089/60/009/002/001/015
B006/B056

blocks there exist no sources of thermal neutrons, and that the distribu-
tion of the sources within the block is the same as in a homogeneous reac-
tor of the same size. First, a general theory is developed on the simpli-
fying assumptions that the reactor is bounded only in the x- and z-direc-
tions (z = cylinder axis), and that the z-direction is not reflected. The
"theory of small blocks" is then developed in first approximation, and the
formulas obtained are discussed. Finally, a simple method is given for
determining the diffusion tensor for the case in which the block effect is
negligible and the block volume is small as compared to the volume of the
cell. If absorption may be neglected, the neutron density obeys the same
equation as the electric potential in a dielectric; the dielectric constant
corresponds to the diffusion coefficient. The determination of the diffusion
anisotropy in an inhomogeneous medium is thus equivalent to a determination
of the ε-tensor in a medium of the same geometry, in which the dielectric
constant is proportional to the diffusion coefficient. A dielectric is
studied, which contains "impurities" of another dielectric, whose volumes
are assumed to be small and the mutual distances large, so that interaction
effects may be neglected. Each of the impurity elements is then in a homo-
geneous external field. The formulas obtained may be used to determine the

Card 2/3

82730

The Theory of a Heterogeneous Reactor With   S/089/60/009/002/001/015
Cylindrical Blocks of Finite Radius   B006/B056

moderation length anisotropy. The author finally thanks B. I. Il'ichev,
N. I. Laletin, and Ya. V. Shevelev for discussions. There are 1 figure
and 13 references: 9 Soviet, 1 British, 2 US, and 1 French.

SUBMITTED: December 21, 1959

Card 3/3

GALANIN, A.D.

Meson - nucleon scattering with large orbital moments. Zhur. eksp.
i teor. fiz. 38 no.1:243-247 Jan '60. (MIRA 14:9)
(Mesons--Scattering) (Nucleons)

GALANIN, A.D.; GRASHIN, A.F.; IOFFE, B.L.; POMERANCHUK, I.Ya.

Nucleon-nucleon scattering in two-meson approximation with large
orbital moments. Zhur.eksp.i teor.fiz. 38 no.2:475-488 F '60.
(MIRA 14:5)

(Nucleons—Scattering)

32977
S/641/61/000/000/004/033
B112/B138

26.2341

AUTHOR: Galanin, A. D.

TITLE: Thermalization of neutrons in a heterogeneous reactor

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey.
            Moscow, 1961, 46-55

TEXT: The author calculates the difference between the value of the block-
effect due to the diffusion equation

$$E\Psi'' + (2 - E)\Psi' = \gamma(\Psi - L^2 \Delta\Psi)$$

and the value due to the one-group theory. This difference is found to be

$$\delta q_1/q_0 = -\sum_{n=1}^{\infty} \alpha_n a_n (1 - l_0^2/R^2 Z_n n), \text{ where}$$

$\alpha_n = (2/\sqrt{\pi}) \int_0^\infty \sqrt{E} e^{-E} L_n^{(1)}(E) dE$ and $Z_n = (l_0/2\varrho\sqrt{n}) K_0(\sqrt{n}\varrho/l_0)/K_1(\sqrt{n}\varrho/l_c)$.

K_0 and K_1 are functions which are given on the boundary between block and
moderator, $L_n^{(1)}$ are the Laguerre polynomials, ϱ, R, and l_0 are constants.
Card 1/2

Thermalization of neutrons ...

32977
S/641/61/000/000/004/033
B112/B138

The coefficients a_n are determined by solving an infinite system of algebraic equations. V. V. Smelov (cf. the given volume, p. 43) is referred to and thanked for assistance. P. P. Blagovolin, V. A. Belyakov, L. A. Myrtsymova, and T. S. Zaritskaya are thanked for assistance, too. There are 2 tables and 7 references: 5 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: Amouyal A., Benoist P., Horowitz J. J. Nucl. Energy, 6, 79 (1957); Hurwitz H., Nelkin M. S., Habatler G. I. Nuclei Sci. and Engng, 1, 280 (1956).

Card 2/2

26 2220

S/058/62/000/004/025/160 .
A058/A101

AUTHOR: Galanin, A. D.

TITLE: On the calculation of the thermal utilization factor (survey)

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 59, abstract 4B443
             (V sb. "Neytron. fizika", Moscow, Gosatomizdat, 1961, 125 - 142)

TEXT: The author expounds the principal ideas and results of the work of
A. Amuayal' et al. (RZhFiz, 1958, no. 12, 27105). He gives tables enabling one
to calculate the thermal utilization factor for "classic" cylindrical-block cells
(including those with a gas gap between the block and moderator, and those with
a block in the form of a hollow cylinder). The theoretical results obtained by
different methods are compared with experimental data. This comparison shows
that the adduced formulae yield a high accuracy that, owing to accidental cir-
cumstances, is apparently even higher than the accuracy of the results obtained
by means of numerical solution of a single-velocity kinetic equation.

[Abstracter's note: Complete translation]

Card 1/1

GALANIN, A. D., GRASHIN, A. F., MELNIKOV, V. N. and NIKITIN, Yu. P.

"The Effects of $\pi - \pi$ interaction in $\pi + \pi \to \pi + \pi$, $\gamma \to \pi + \pi$, $N + N \to \gamma$ and $N + N \to NN$ Amplitudes"

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

Inst. of Theoretical and Experimental Physics, Moscow, USSR

S/056/62/043/006/047/067
B111/B102

AUTHORS: Galanin, A. D., Grashin, A. F., Mel'nikov, V. N.,
             Nikitin, Yu. P.

TITLE: Nucleon-nucleon scattering in two-meson approximation with
             consideration of the πn-interaction

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,
             no. 6 (12), 1962, 2245 - 2254

TEXT: The explicit calculation of the two-meson contribution to the
nucleon-nucleon scattering amplitude has been possible so far only for
large values of the orbital angular momentum $1 \gg 1$. The accuracy obtained
was $(\sqrt{1 + p^2/\mu^2})/(1 + 1)$, where μ is the pion-mass and p is the nucleon
momentum in the c. m. s. In order to achieve more accurate results, the
absorptive part of the NN-amplitude must be calculated by using the
πN-amplitude in the nonphysical domain. In the present work this calcula-
tion given by

$$\lambda_l(x) = e^{i\delta_l(x)} \sin \delta_l(x) = Q^{(l)}(x) \sqrt{x}/[X^{(l)}(x) - iQ^{(l)}(x)\sqrt{x}];$$

$$\sqrt{x} \, \text{ctg} \, \delta_l(x) = X^{(l)}(x)/Q^{(l)}(x); \quad l = 0(S), \ 1(P), \ 2(D),$$ (3)

Card 1/3

Nucleon-nucleon scattering in ...

S/056/62/043/006/047/067
B111/B102

was performed for $4\mu^2 < t < 4m\mu$ (t is the momentum transferred and m is the nucleon mass) using the πN-amplitude obtained by A. D. Galanin and A. F. Grashin (ZhETF, 41, 633, 1961). The $\pi\pi$-scattering having the isotopic spins I = 0 for even l and I = 1 for odd l was taken into account. $\chi^{(1)}(x)$, $Q^{(1)}(x)$ are arbitrary polynomials in x, x being the square of the three-dimensional meson momentum. The accuracy achieved is found to be $\sim t/4m$ and $\sim p^2/m^2$ in nonrelativistic approximation. The calculations showed that the NN-amplitude depends only weakly on a $\pi\pi$-amplitude which is free from resonance. In practice, it is the S-amplitude of the $\pi\pi$-scattering only (isotopic spin I=0) that affects the central forces between the nucleons, but also in this case the NN-scattering experiments fail to give any insight into the parameters of the $\pi\pi$-amplitude. It is only the $\pi\pi$-amplitudes with kinematic resonances vanishing near the point of resonance that make significant contributions to the NN-amplitude, in particular to the spin angular momentum forces and tensor forces. In the simplest case of a kinematic P-resonance at 750 Mev (π-meson) it is impossible to make the results from the two-meson approximation of the electromagnetic nucleon form factors and from the elastic

.Card 2/3

Nucleon-nucleon scattering in ...

S/056/62/043/006/047/067
B111/B102

NN-scattering amplitude consistent with the experiment. Finally, the present results are compared with previous data. There are 1 figure and 2 tables.

SUBMITTED: July 5, 1962

Card 3/3

L 17588-63   EPF(n)-2/EWT(m)/BDS   AFFTC/ASD/SSD   Pu-4   DM
ACCESSION NR: AP3005217   8/0089/63/015/002/0107/0115

AUTHORS: Galanin, A. D.; Kochurov, B. P.   61

TITLE: Theory of homogeneous reactors with blocks of finite radius   60

SOURCE: Atomnaya energiya, v. 15, no. 2, 1963, 107-115

TOPIC TAGS: reactor, homogeneous reactor, thermal neutron

ABSTRACT: The paper deals with the theory of large homogeneous reactors working
with thermal neutrons and cylindrical blocks. The dimensions of the square cells
are much larger than the scattering path of neutrons in the moderator. Each
block represents neutron sinks, and has a dipole moment in addition. Therefore,
in order to determine the diffusion length in the lattice in directions parallel
and normal to the block axis, it is necessary to know two polarisation constants,
in addition to the thermal constant. The characteristic equation of the lattice
and the formula for the diffusion length have been derived for a rather weak
absorption in the moderator and a sufficiently large number of reactor cells.
As an example, the polarization coefficients were calculated in the P_2 approxi-
mation. In the P_1 approximation, the results essentially agree with those pub-
lished by the first author earlier (Atomnaya energiya 9, 1960, 89). "The authors

Card 1/2

L 17588-63
ACCESSION NR: AP3005217

express their gratitude to B. I. Il'ichev for a discussion of results." Orig.
art. has: 31 equations.

ASSOCIATION: none

SUBMITTED: 13Oct62   DATE ACQ: 06Sep63   ENCL: 00

SUB CODE: PH   NO REF SOV: 009   OTHER: 004

Card 2/2

L 2747-66   EWT(m)   DIAAP
ACCESSION NR: AP5024350   UR/0367/65/002/002/0342/0351

AUTHOR: Galanin, A. D.

TITLE: A possible relationship between weak and strong interactions

SOURCE: Yadernaya fizika, v. 2, no. 2, 1965, 342-351

TOPIC TAGS: particle physics, fermion, particle interaction, weak nuclear inter-
action, strong nuclear interaction, parity principle

ABSTRACT: The author studies the possibility of intensifying the four-fermion in-
teraction by replacing each vertex of the diagram with the sum of simple chains
consisting of closed loops. In the case of scalar (pseudoscalar) coupling, this
theory is fully equivalent to the Yukawa meson theory, while for vector coupling a
"meson" appears with a negative norm, and therefore the theory is true only for
small momenta far from the pole. A weak interaction with parity nonconservation is
then considered, and the solution to a nonlinear equation for the vertex part is
studied. It is shown that when the vertices are independent of the momenta this
equation has, in addition to the ordinary solution with parity nonconservation,
another nontrivial solution with conservation of parity and constant coupling de-

Card 1/2

L 2747-56
ACCESSION NR: AP5024350

termined solely by the cutoff parameter and independent of the primary constant of the weak interaction. The arguments lean heavily on the possibility of introducing a cutoff factor into quadratically diverging integrals, which is an unjustified procedure. However, if it is assumed that a dynamic mechanism can be found which will finalize all the expressions in the theory while not altering the current theory to any great extent even if only for low energies, then the arguments developed in this paper should be of interest. The equation considered for the vertex part is only approximate, and it is not clear which of the qualitative properties of this equation will be preserved in the exact version. "The author is grateful to B. L. Ioffe for discussion of several problems." Orig. art. has: 3 figures, 58 formulas.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki GKIAE (Institute of Theoretical and Experimental Physics, GKIAE)

SUBMITTED: 26Feb65   ENCL: 00   SUB CODE: NP, MA

NO REF SOV: 001   OTHER: 007

Card 2/2

ACC NR: AT6031150   SOURCE CODE: UR/3138/65/000/406/0002/0020

AUTHOR: Galanin, A. D.

ORG: none

TITLE: On the theory of a control system for a heterogeneous reactor

SOURCE: USSR. Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii. Institut teoreticheskoy i eksperimental'noy fiziki. Doklady, no. 406, 1965. K teorii regulyatora v geterogennom reaktore, 2-20

TOPIC TAGS: heterogeneous reactor, reactor control, heterogeneous reactor control system, reactor grid, blocking effect

ABSTRACT: A computation is made of the effectiveness of the control system of a heterogeneous reactor. The reactor lattice consists of cylindrical fuel rods whose radius is relatively small in relation to the lattice pitch. A complete theoretical analysis is made for the case of a relatively weak blocking effect. The work contains a supplement with an alternative computation of an integral. The author thanks B. Z. Torlin for his verification of some of the computations, and B. P. Kochurov for indicating the summation method used in the supplement. Orig. art. has: 84 formulas. [Based on author's abstract]   [SP]

Card 1/1 SUB CODE: 12, 20/ SUBM DATE: 27Dec65/ORIG REF: 003/

L 05035-67   EWT(1)   IJP(c)   GG

ACC NR: AT6031147   SOURCE CODE: UR/3138/65/000/395/0003/0024

AUTHOR: Galanin, A. D.

ORG: none

TITLE: Quantum theory of a field with indefinite metrics in a Hilbert space

SOURCE: USSR. Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii.
Institut teoreticheskoy i eksperimental'noy fiziki.   Doklady, no. 395, 1965.
Kvantovaya teoriya polya s indefinitnoy metrikoy v gil'bertovom prostranstve,
3-24

TOPIC TAGS: quantum theory, fermion, Hilbert space, functional derivative,
four fermion interaction, anticommutator

ABSTRACT: A system of equations expressed in functional derivatives is plotted
for a four-fermion interaction, qualified by the condition that the anticommutator
at the vertex of the cone is a C-number and that the anticommutator's dependence
on the coordinates is not definitely specified.   On the basis of a formal solution
of these equations,which are in the form of a continuous integral, the author shows
that the exclusion of ξ -functions from the commutation relationship, possible

Card 1/2

L 05035-67

ACC NR: AT6031147   0

under indefinite metric", must not necessarily exclude all singularities of the
anticommutator at the vertex of the cone; otherwise it becomes equally mullified
for the whole space. It is pointed out that a generalization of the usual interpreta-
tion of a continuous integral derived from a mechanical system in the field, leads
to limitations in commutation relationships. Specifically, it precludes canonic
quantization of a four-fermion interaction. In order to describe the singularity
of an anticommutator at the vertex of a cone, a new generalized function should
be introduced. This function is determined by integration, using functions which
are singular solutions of a classic field equation. The proposed scheme is not a
Hamiltonian, since it is not possible to plot a complete system of commutator
operations on a spatially similar surface. Orig. art. has: 43 formulas. [Author's
abstract]

SUB CODE: 12, 20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 008/

Card 2/2

ACCESSION NR: AP4041052   S/0120/64/000/003/0195/0199

AUTHOR: Vasil'yev, L. A.; Galanin, A. G.; Yershov, I. V.; Suntsov, G. N.

TITLE: Photoelectric shadow method for investigating transient processes

SOURCE: Pribory* i tekhnika eksperimenta, no. 3, 1964, 195-199

TOPIC TAGS: transient process, aerodynamic test, shock tube, shock tunnel instrumentation

ABSTRACT: As spark shadow photography yields only one picture and as superhigh-speed cinema is technically very difficult, a new shadow method is suggested which permits obtaining a time picture on an oscillograph screen. The method, intended for aerodynamic shock-tube studies, involves an optical scheme shown in Enclosure 1. A small-size diaphragm D is placed after the Foucault knife edge H. The light passed through the diaphragm falls on a multiplier photo-tube M whose signal is applied to a pulsed electron oscillograph. An

Card 1/3