AMARBAYEV, A.M.

Problems of chemization in animal husbandry. Izv. AN Kazakh. Ser. biol. nauk no. 3:108-109 '63. (MIRA 17:9)

AMARBAYEV, A.-Sh.M.

Types of crossing following the stimulation of polycarpy in Karakul sheep. Izv. AN Kazakh. SSR. Ser. biol. nauk 2 no.2: 81-87 Mr-Ap '64 (MIRA 18:2)

AMARITEI, Svetlana, ing.; AMARITEI, C., ing.

An opportunity to learn. Constr Buc 14 no. 674: 3 8 December 1962.

1. Din Diroctia de sistematizare, arhitectura si proiectare a constructiilor-Ploiesti (for Amaritei, Svetlana).
2. Din Trustul regional de constructii-Ploiesti (for Amaritei, C.).

AMARITEI, C., ing.

Ensuring conditions for the achievement of the 1964 plan.
Constr Buc 15 no.726:1,2 7 D '63.

AMARITEI, C., ing.

Iasi construction sites on the eve of spring. Constr Buc 15 no.688:1,4 16 Mr '63.

AMARITEI, C., ing.

Small mechanization, a large reserve. Const Buc 16 no.732:
3 18 Ja'64.

AMARITEI, G., ing.

Debating the quality of light insulating materials. Constr Buc 16 no.735:2 8 F'64.

AMARITEI, C.

The debut of the brigade. Constr Buc 14 no.672:4 24 N '62.

1. Inginer-sef al I.P.I.D., Ploiesti.

AMARITEI, C., ing., corespondent

Masters and technicians prepared in accordance with the demands of the new technology. Constr Buc 14 no.649:4 16 Je '62.

AMARITEI, C., ing.

Rumanian newspaper dorrespondents participate in the competition organized in honor of the 20th anniversary of the liberation of Rumania. Constr Buc 16 no.753:1, 2 13 Je '64.

AMARITEI, C., Ing.

Let us evaluate the experience of our collectives. Constr Buc no.756:1,2 4 July '64.

AMARITEI, Svetlana, ing.; AMARITEI, C., ing.

An opportunity to learn. Constr Buc 14 no. 674: 3 8 December 1962.

1. Din Directia de sistematizare, arhitectura si proiectare a constructiilor-Ploiesti (for Amaritei, Svetlana).
2. Din Trustul regional de constructij-Ploiesti (for Amaritei, C.).

AMARUTEL, A.

For rational use of heavy comstruction equipment. p. 2

CONSTRUCTORUL, Bucuresti, Vol 8, No. 318, Feb., 1956

SO: East European Accessions List (EEAL) Library of Congress, Vol, 5, No. 7, July 1956

AMARYAN, A.G.

Development of retail trade in the Armenian S.S.R. during the postwar five-year plans [in Armenian with summary in Russian]. Nauch.trudy Erev.un. 56:111-149 '56. (MLRA 10:7)
(Armenia--Retail trade)

Амарян, А.П

137-1958-2-2522

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 48 (USSR)

AUTHOR: Amaryan, A. P.

TITLE: A Method of Continuous Briquetting of Ferrous and Nonferrous Metal Chips (Metod nepreryvnogo briketirovaniya struzhki chernykh i tsvetnykh metallov)

PERIODICAL: V sb.: Rats. ispol'zovaniye struzhki i dr. otkhodov chernykh i tsvet. metallov, Moscow, Mashgiz, 1956, pp 263-277

ABSTRACT: A method of continuous briquetting of chips is described. A die consisting of an open conical matrix and of a punch with a corrugated end surface made it possible to briquet continuously without need of a binder. The die was prepared on special briquetting presses, also on ordinary hydraulic presses and on horizontal forging machines exerting forces $\geq$150 tons. An inclined plane was provided to break the briquet under the die. The briquets were 260 mm in diameter, 300-400 mm long, and

Card 1/2

AMARYAN, A.P.

Preparation of silver tailings. TSvet. met. 34 no. 4:45-47 Ap '61.
(MIRA 14:4)

(Tailings (Metallurgy)) (Industrial wastes)

L 3190-66 EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG

ACCESSION NR: AP5016743 UR/0286/65/000/010/0069/0069
669.231.48

AUTHOR: Amaryan, A. P.; Bazilevskiy, V. M.; Drozlovskiy, E. Ye.

TITLE: Method of extracting precious metals, such as platinum, from alumina-base materials and waste products. Class 40, No. 171116

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 10, 1965, 69

TOPIC TAGS: precious metal, platinum, platinum group metal, metal extraction

ABSTRACT: This Author Certificate introduces a method of extracting precious metals, such as platinum, from alumina-base materials and spent catalysts. To increase the yield, platinum is extracted from the melt of alumina-platinum catalyst and cryolite by molten aluminum. [ND]

ASSOCIATION: none

SUBMITTED: 17Apr64 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4038

Card 1/1

L 5316-66 EWP(e)/EWT(m)/EWP(t)/EWP(k)/EWP(z)/EWP(b) IJP(c) JD/JG

ACC NR: AP5024995 SOURCE CODE: UR/0286/65/000/016/0059/0059

INVENTOR: Avetisyan, V. Kh.; Amaryan, A. P.; Andronov, V. P.; Galankin, I. I.; Gubar', K. V.; Melashenko, I. P.

ORG: none

TITLE: Method of preparing mixtures for powdered metal contacts. Class 21, No. 173856

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 59

TOPIC TAGS: metal powder, metal oxide, powder metal contact

ABSTRACT: A method is presented for preparing material for powdered metal contacts in the form of powder mixtures such as those of silver-copper or silver-cadmium oxide. The powders are obtained by simultaneous alkaline deposition of a mixture of hydroxides of the metals from a common aqueous solution of silver and copper or silver and cadmium nitrates with subsequent heat treatment and elimination of nitrate ions. In order to increase the degree of dispersion and homogeneity of the structure and to improve the technical properties, the deposit obtained is annealed at 700 ± 25K for one hour and then subjected to granulation by introducing a 3—10% solution of polyvinyl alcohol in amounts of up to 10% of the calculated weight of the mixture. The mixture is then annealed once more for one hour. [JR]

UDC: 621.316.027.2.066.6: 621.762.044

Card 1/1

L 5316-66

ACC NR: AP5024995

SUB CODE: MM/ SUBM DATE: 21Sep63/ ATD PRESS: 4135

0

OC

Card 2/2

AMARYAN, L. S.

Cand Tekh Sci - (diss) "Study of the principles of the process of concentrating and continuous briquetting of peat flooring." Moscow, 1961. 25 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Kalinin Peat Inst, Chair of the Mechanical Processing of Peat); 200 copies; price not given; (KL, 7-61 sup, 231)

AMARYAN, L.S., inzh.

Tractor-drawn drum-type peat spreader. Torf. prom. 35 no.6:15-17 '58.
(MIRA 11:10)

1.Orekhovskiy zavod torfyanogo mashinostroyeniya.
(Peat machinery)

AMARYAN, L.S., insh.

Safety jaw clutch. Mashinostroitel' no.11:27-29 N '59.
(MIRA 13:3)

(Clutches (Machinery))

85315

S/182/60/000/006/007/009
A161/A029

11200

AUTHORS: Amaryan, L.S.; Muravich, B.L.

TITLE: Stamping Elliptical Bottoms of Large Size

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960, No. 6, p. 40

TEXT: The authors experimented at Podol'skiy mashinostroitel'nyy zavod im. Ordzhonikidze (Podol'sk Machine Building Works im. Ordzhonikidze) using a hydraulic 750-ton simple-action press and a die design and stamping method as shown schematically (Fig. 1). Blanks were heated to 800 - 900°C (furnace temperature 1,050 - 1,100°C). Heating improved greatly when gas was used instead of liquid fuel, but it was too difficult to keep a high forging temperature, because the bottoms cooled by 40 - 50°C per minute, and one full stamping cycle lasted 3 - 5 min. Due to the different temperature of the blanks deformation resistance varied in a wide range. The effect of the fundamental die parameters has not been studied separately. The space z_0 (see Fig. 1) and radius r accepted in plant practice after years of practical experience were $z_0 = 1.05\delta$ and $r = (2 \div 3)\delta$ (where δ is the blank thickness), whilst $r = 5\delta$ is recommended in literature. It was observed that

Card 1/3

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S/182/60/000/006/007/009
A161/A029

Stamping Elliptical Bottoms of Large Size

larger z_o and r had a detrimental effect, i.e., caused creases on the cylindrical portion and bulges at the small radius (at diameter/thickness ratio higher than 80). Radius r reduced to (2 : 3)δ improved the quality due to a longer blank portion under the clamping ring, and a smaller radius improved the strength of the drawing ring. At diameter/thickness ratios below 80 the effect of increased z_o and r was not considerable. There are 2 figures.

Card 2/3

AKAKYAN, L.S., inzh.

Physical and mechanical properties of peat litter during its compression into slabs. Torf.prom. 38 no.1:32-35 '61. (MIRA 14:2)

1. Kaliningskiy torfyanoy institut.
(Peat)

AMARYAN, L.S., kand.tekhn.nauk; BULYNKO, M.G., dotsent

Rotary briquetting press. Izv. vys. uch. zav.; gor. zhur. 5 no.6:13-15 '62. (MIRA 15:9)

1. Kalininskiy torfyanoy institut. Rekomendovana kafedroy mekhanicheskoy pererabotki torfa.
(Peat machinery)

AMARYAN, L.S., kand. tekhn. nauk

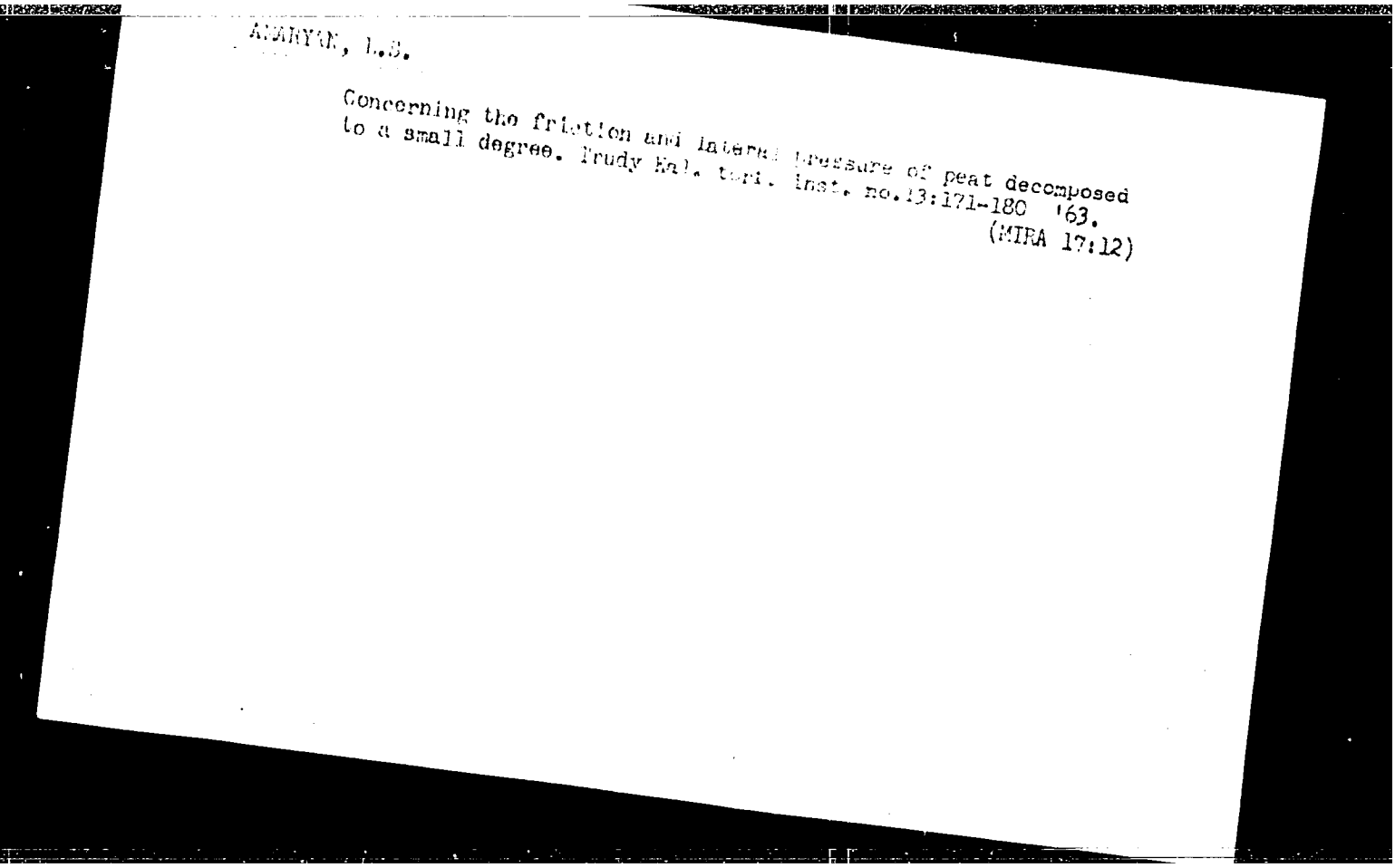
Methods for calculating the processes of peat litter pressing into piles and blocks. Torf. prom. 39 no.6:13-16 '62. (MIRA 16:7)

1. Kalininskiy torfyanoy institut.
(Peat industry)

ANDRZHEYEVSKIY, A.N., inzh.; AMARYAN, L.S., kand. tekhn. nauk;
APENCHENKO, L.S., inzh.; BULYNKO, M.G., kand. tekhn. nauk

Experiment in the manufacture of peat litter in the form of slabs. Torf. prom. 39 no.7:27-28 '62. (MIRA 16:8)

1. Gusevskoye torfopredpriyatiye Vladimirskogo soveta narodnogo khozyaystva (for Andrzheyevskiy). 2. Kalininskiy torfyanoy institut (for Amaryan, Apenchenko, Bulynko).
(Peat industry--Equipment and supplies)



AVARYAN, L.S.

Concerning the friction and lateral pressure of peat decomposed to a small degree. Trudy Kal. tor. inst. no.13:171-180 '63.
(MIRA 17:12)

AMARYAN, L.S.; BAZIN, Ye.T.

Concerning moisture transfer in a deformed [illegible] bog. Trudy Kal. torf. inst. no.13:181-189 '63. (MIRA 17:12)

AMARYAN, L.S., kand.tekhn.nauk

Compression and filtration consolidation and the dynamics of the stressed state of a peat massif. Izv.vys.ucheb.zav.:gor.zhur. 7 no. 1:53-59 '64. (MIRA 17:5)

1. Kalininskiy torfyanoy institut. Rekomendovana kafedroy mekhanicheskoy pererabotki torfa.

AHARYAN, L.[illegible]; BENKOVICH, I.[illegible]; [illegible]

Mechanical stamping [illegible] of bending [illegible]
plates. Biul. tekh.-ekon. [illegible]. [illegible].-isel. [illegible].
nauch. i tekh. inform. [illegible]

([illegible])

AMARYAN, L.S., kand.tekhn.nauk

Investigating the vibration and compression properties of peat. Izv.vys.ucheb.zav.; gor.zhur. 7 no.12:12-15 '64. (MIRA 18:2)

1. Kalininskiy torfyanoy institut. Rekomendovana kafedroy mekhanicheskoy pererabotki torfa.

L 57482-65 EWT(1) GW
ACCESSION NR: AP5017856

UR/0[illegible]/65/000/011/0089/0089

AUTHOR: Amaryan, L. S.; Bazin, Ye. T.; Strekalkir, Ye. A.

TITLE: An induction dynamometer for measuring soil stresses. Class 42, No. 171610

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 11, 1965, 89

TOPIC TAGS: electronic measurement, soil [illegible] measurement

ABSTRACT: This Author's certificate introduces: 1. An induction dynamometer for measuring soil stresses. The instrument contains a source of current and a meter. The measurement accuracy is improved and the [illegible] is made in the form of flat cylindrical coils wound on a common metal core. 2. A modification of this dynamometer in which provision is made for transmitting plane-parallel deformation. The end surfaces [illegible]

Card 1/3

L 57482-65
ACCESSION NR: AF[illegible]

SUBMITTED: 03Sep62 ENCL: 0 SUB CODE: EC, ES

NO REF SOV: 000 OTHER: 000

Card 2/3

AMARYAN, P.S. (Orekhovo-Zuyevo)

Prevention and treatment of microtraumas of the fingers and wrist at the Orekhovo-Zuyevo Cotton Combine. Sov.zdrav. 22 no.2:26-30 '63. (MIRA 16:2)

1. Iz mediko-sanitarnoy chesti Orekhovo-Zuyevskogo khlopchatobumazhnogo kombinata i TSentral'nogo instituta travmatologii i ortopedii.
(OREKHOVO-ZUYEVO—COTTON MANUFACTURE—HYGIENIC ASPECTS)

AMARYAN, V.M.

New data on the stratigraphy of ignimbrites in the Aragats volcanic area. Izv.AN Arm.SSR. Geol.i geog. nauki 15 no.3:3-9 '62. (MIRA 15:7)

1. Upravleniye geologii i okhrany nedr pri Sovete Ministrov Armyanskoy SSR.

(Aragats Mountain region--Ignimbrites)
(Aragats Mountain region--Geology, Stratigraphic)

AMARYAN, V.M.

Stratigraphic scale of Neogene and Quaternary volcanic formations in the area of Mount Aragats. Dokl. AN Arm. SSR 36 no.5:293-297 '63 (MIRA 17:7)

1. Upravleniye geologii i okhrany nedr pri Sovete Ministrov Armyanskoy SSR. Predstavlena chlenom-korrespondentom AN Armyanskoy SSR A.A. Gabriyelyanom.

BELOSTOTSKIY, Ye.M.; VILENKINA, A.Ya.; FRADKINA, M.Ya., professor, redaktor; AMASHUKELI, M.Ye., redaktor

[The fundus of the eye in hypertonia] Glaznoe dno pri gipertonicheskoi bolezni. Moskva, Trest "Meduchposobie," 1956. 175 p. (MLRA 9:12)
(HYPERTENSION) (EYE)

AMASHUKELI, S.A.

Potentialities for lowering production costs. Tekst. prom. 16 no.8:57-59 Ag '56. (MLRA 9:10)

1. Glavnyy inzhener Tbilisskogo kamvol'no-sukonnogo kombinata "Sovetskaya Gruziya."
(Tiflis--Textile industry)

ANASHUKELI, V. I.

"The Composition of Gastric Secretion From Patients Suffering From Pulmonary Tuberculosis." Cand Med Sci, Acad Med Sci USSR, Moscow, 1955. (KL, No 18, Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

QUERCI, Mario, Dr.; VISCA, Aldo, Dr.; HARKANYI, Istvan, Dr.; AMASIO, Claudio, Dr.

General anesthesia in pediatric surgery. Magy. sebeszet 12 no.1: 69-74 Mar 59.

1. A torinoi Tudomanyegyetem Altalanos Sebeszeti Klinikajanak (Igazgato: Dogliotti Achille Mario dr. egyetemi tanar) es Anaesthesiologus Szakorvoskepzo Iskolajanak (Iskolavezeto: Ciocatto Enrico dr. egyet. m. tanar) kozlemenye.

(PEDIATRICS, surg.
anesth., general (Hun))
(ANESTHESIA
in pediatric surg. (Hun))

VISCA, Aldo, dr.; QUERCI, Mario, dr.; HARKANYI, Istvan, dr.; AMASIO, Claudio, dr.

Certain problems of anesthesia in neurosurgery. Magy.sebeszet 13 no.5:332-340 O '59.

1. A Torino-i Tudomanyegyetem Altalanos Sebeszeti Klinikajanak (Igazgato: Achille Mario Dogliotti dr. egyet. tanar) es Anaesthesiologus Szakorvoskepesito Iskolajanak Iskolavezeto: Enrico Ciocatto dr. egyet. m. tanar) kozlemenye.

(NEUROSURGERY anesth & analg)

AMATI, D.

56-2-47/47

AUTHORS Amati, D., Vitale, B.

TITLE On Processes with the Participation of Antihyperons. (O protsessakh s uchastiyem antigiperonov.)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 2(8), pp. 556-558 (USSR)

ABSTRACT The proton accelerator for 10 NeV, which will be put into operation in the Soviet Union within short, enables the experimental study of processes connected with the antihyperons ($\bar{H}$). The author here investigates several processes with antihyperons.

General remarks: The analysis of the processes of the production and interaction of antihyperons furnishes useful information concerning the quantum numbers (isotopic spin, its third component, "strangeness"). The principal aim of this paper is the determination of the consequences of the system of quantum numbers selected in each case and of their conservation in the various "fast" processes with the participation of antihyperons. The authors here base upon the following assumptions:

1) The total isotopic spin and its third component are conserved in all "fast" processes containing antihyperons $\bar{H}$, nucleons N, heavy mesons K, and pions. Also strangeness

CARD 1/3

On Processes with the Participation of Antihyperons. 56-2-47/47

detail. There are no figures.

ASSOCIATION: Institute of Theoretical Physics of the University of Naples, Italy. Institute for Physics of the University of Catania, Italy.
(Institut teoreticheskoy fiziki, universitet, Neapol', Italiya, Institut fiziki, universitet, Kataniya, Italiya).

SUBMITTED: April 23, 1957.
AVAILABLE: Library of Congress.

CARD 3/3

AMATOV, N.N.

AMATOV, N.N., kand.tekhn.nauk; TOKAREV, M.V., inzh.

The unloading and transportation of cement at the Stalingrad Hydroelectric Power Station. Mekh.trud.rab. 11 no.7:6-11 Jl '57. (MIRA 10:11)

(Stalingrad hydroelectric power station) (Cement)

AMATOV, N.N., kand.tekhn.nauk; TOKAREV, M.V., inzh.

New design of buckets for transporting concrete mixtures. Energ. stroi. no.16:50-54 '60. (MIRA 16:12)

1. Moskovskiy filial Vsesoyuznogo instituta po proyektirovaniyu organizatsiy energeticheskogo stroitel'stva.

TRIFONOV-YAKOVLEV, D. A., inzh.; AMATOV, N. N., kand. tekhn. nauk;
TOKAREV, M. V., inzh.

Testing of an experimental soil packing machine with pneumatic-impulse action. Energ. stroi. no. 16:27-32 '60. (MIRA 16:12)

1. Moskovskiy filial Vsesoyuznogo instituta po proyektirovaniyu organizatsiy energeticheskogo stroitel'stva.

AMATUNI, A.S.

Influence of the lateral hypothalamic nucleus on the reflex activity of the spinal cord. Dokl. AN Arm. SSR 39 no. 2: 123-128 '64. (MIRA 17:9)

1. Institut fiziologii im. akademika L.A.Orbeli AN ArmSSR. Predstavleno chlenom-korrespondentom AN ArmSSR A.I.Karamyanom.

FANARDZHYAN, V.V.; AMATUNI, A.S.; KHANBABYAN, M.V.

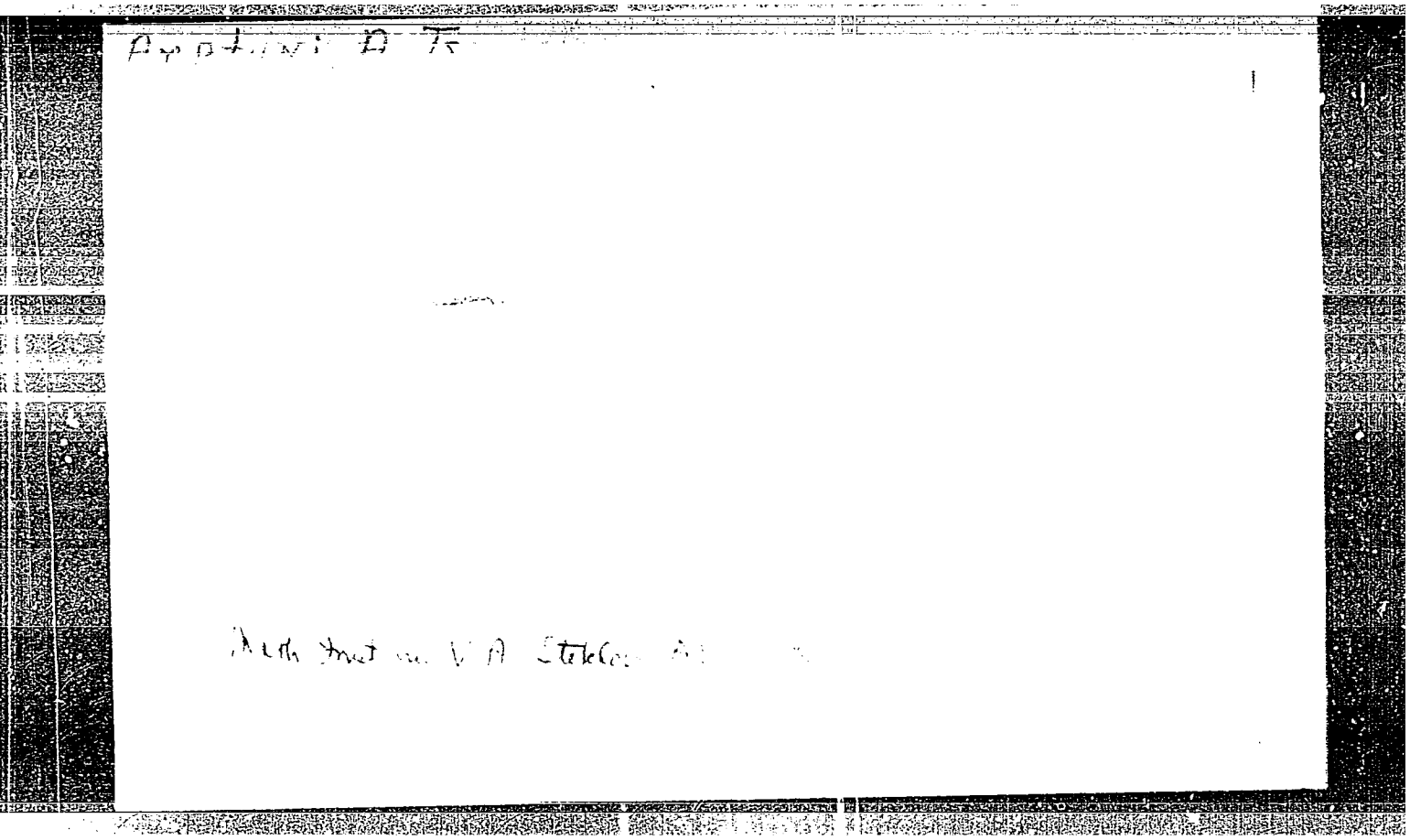
Electrophysiological analysis of the ascending and descending influences of the cerebellum. Zhur. vys. nerv. deiat. 15 no.6: 1078-1087 N-D '65. (MIRA 19:1)

1. Institut fiziologii im. L.A. Orbeli AN ArmSSR, Yerevan.
Submitted July 10, 1965.

AMATUNI, A. Ts.
Moscow State U imeni M. V. Lomonosov

AMATUNI, A. Ts.-"On the Theory of Antiferromagnetism."
Moscow State U imeni M. V. Lomonosov. Physics Faculty. Moscow, 1956.
(Dissertation for the Degree of Candidate of Physicomathematical Science)

SO: Knizhnaya Letopis', No. 13, 1956



AMATUNI, A.Ts.

2.

On the Theory of Antiferromagnetism. I
Parts [illegible]
[In Russian]. The method of [illegible] is applied to the calculation of the [illegible]

Yerevan Pedagog. Inst. im. A.A. Zhdanov

AUTHOR: Amatuni, A. Ts. 103

TITLE: On the theory of antiferromagnetism. Part II. (K teorii antiferromagnetizma. II.)

PERIODICAL: 'Fizika Metallov i Metallovedenie,"(Physics of Metals and Metallurgy), 1957, Vol.IV, No. 1 (10), pp. 17 - 27, (U.S.S.R.)

ABSTRACT: On the basis of the method of elementary excitations, developed by Bogulyubov and Tyablikov, formulae were derived for the magnetisation and the magnetic susceptibility of an anisotropic antiferromagnetic which are valid for temperatures below the Neel temperature T_N, and give in a number of cases results which are in satisfactory agreement with results measured on a monocrystal of $CuCl_2 2H_2O$. It is stated that a good quantitative agreement of experimental data with the calculated data here given cannot be anticipated since the calculations encompass only some fundamental characteristic features of the real picture. 3 graphs, 11 references, 3 of which are Russian.

Physics-Mathematics Faculty,
Erevan Pedagogic Institute, "A.A. Zhdanov". Recd. April, 2, 1956.

AUTHOR: Amatuni, A. Ts. SOV/126-6-3-2/32

TITLE: Calculations on the Ground State of an Anti-Ferromagnetic with Uni-Axial Anisotropy (K raschetu osnovnogo sostoyaniya antiferromagnetika s odnoosnoy anizotropiyey)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol. 6, Nr 3, pp 395-399 (USSR)

ABSTRACT: On the basis of the method of elementary excitations, a discussion is given of the ground state of an anti-ferromagnetic with an anisotropic exchange interaction. It is shown that with a certain threshold value of the internal magnetic field directed parallel to the axis of anisotropy and with a certain ratio of the constants of anisotropy, there is a discontinuity in the parallel magnetisation which suddenly rises from zero to a finite value, i.e. a phase transition of the first kind occurs. The problem was considered before by the present author (Refs.1, 2 and 3) and the purpose of the present paper is to increase the accuracy of the results obtained previously. The anti-ferromagnetic discussed is such that it involves anisotropy

Card 1/2

Calculations on the Ground State of an Anti-Ferromagnetic with Uni-Axial Anisotropy

of the g-factor as well as anisotropy of the exchange interaction. The latter is taken into account explicitly without the introduction of any kind of internal anisotropy field. The method of elementary excitations which is used in the present paper was described by Tyablikov (Ref.6). S. V. Tyablikov is thanked for stimulating discussions and interest in this work. There are no figures, and 7 references, of which 5 are Soviet, 1 English and 1 Swiss.

ASSOCIATION: Fizicheskiy institut AN Armyanskoy SSR (Physics Institute of the Academy of Sciences, Armenian SSR)

SUBMITTED: December 26, 1956, and after revision, February 26, 1957.

1. Physics 2. Antiferromagnetism--Theory

S/022/60/013/01/06/010
C 111/ C 333

AUTHOR: Amatuni, A. Ts.

TITLE: Transition Radiation of Dipole Moments

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-matematicheskikh nauk, 1960, Vol. 13, No. 1, pp. 111-120

TEXT: At first the author investigates the transition radiation of two charges e and $\pm$ e which uniformly move with the velocity v from a medium with the constants ε_1, μ_1 into a medium with ε_2, μ_2. According to the method of G. M. Garibyan the author determines the Fourier components of the radiation fields, the energy flow through the separating plane etc. He distinguishes several cases. Then he says that magnetic dipoles can be analogously investigated, where the previous results relative to charges can at once be formally transferred by the substitution

(8) $E \rightarrow H;\ H \rightarrow -E;\ \rho_e \rightarrow \rho_m;\ \mu \rightarrow \varepsilon;\ \varepsilon \rightarrow \mu$

to the case of two magnetic charges (see (Ref. 3,4)). Then the author calls attention to the reference of V. L. Ginzburg and V. Ya. Eydman (Ref. 5) according to which such a method is not admissible, since

Card 1/2

S/022/60/013/01/06/010
C 111/ C 333

Transition Radiation of Dipole Moments

magnetic charges do not exist in reality and since the magnetic moments possess a flow nature, so that a movable magnetic dipole induces an electric dipole which has to be considered in the calculation of the transition radiation. The author then uses the Maxwell equations for fields which are formed by a magnetic moment of density m and by an electric moment of density p and calculates the transition radiation anew, where in numerous special cases a coincidence with the first results is obtained.

The author thanks G. M. Garibyan for assistance, B. M. Bolotovskiy and K. M. Barsukov for discussion.

There are 7 references: 6 Soviet and 1 American.

ASSOCIATION: Fizicheskiy institut AN Armyanskoy SSR (Physical Institute AS Armyanskaya SSR)

SUBMITTED: June 29, 1959

Card 2/2

9,3100(1003,1031,1159)
24.4500(1160,2106,1395)

S/022/60/013/005/006/008
C111/C222

AUTHORS: Amatuni, A.Ts., and Korkhmazyan, N.A.

TITLE: Radiation of a Charged Particle in a Medium With a Periodically Variable Density

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya fiziko-matematicheskikh nauk, 1960, Vol. 13, No. 5, pp. 55 - 64

TEXT: The authors consider a medium in which the density of the electrons is periodically variable in the direction of the z-axis :

(1) $$N = N_0 \left(1 + k\cos\frac{2\pi z}{e}\right), \quad 0 \leq k \leq 1 .$$

The dielectric constant then is $\varepsilon = \varepsilon_0 \left(1 + \Delta \cos\frac{2\pi z}{e}\right)$, where

$$\Delta = \frac{k\alpha}{\varepsilon_0} .$$

For the determination of the fields of the charged particle in the considered medium the authors use the equation (6) of (Ref. 5) :

Card 1/11

Radiation of a Charged Particle in a Medium With a Periodically Variable Density

$$(2)\quad u'' + \left[\frac{1}{2}\frac{\varepsilon''}{\varepsilon} - \frac{3}{4}\left(\frac{\varepsilon'}{\varepsilon}\right)^2 + \frac{\omega^2}{c^2}\varepsilon - x^2\right] u = \frac{ie}{2\tilde{\kappa}^2 c\sqrt{\varepsilon}}\, e^{i\frac{\omega}{v}z}$$

where u is defined by the relation

$$(3)\quad \vec{H}(\vec{\rho},z,\omega) = \sqrt{\varepsilon}\,[\vec{n}\vec{\rho}]\, u(\vec{\rho},z,\omega)\ ,$$

which connects the Fourier component of the magnetic field $\vec{H}(\vec{r}, t)$ and u. After $\vec{H}(\vec{\rho},z,\omega)$ is known, the Fourier component of the electrical field $\vec{E}$ is obtained from

$$(4)\quad E_z(\vec{\rho},z,\omega) = -\frac{c\rho^2}{\omega\sqrt{\varepsilon}}\, u(\vec{\rho},z,\omega) - \frac{ie}{2\tilde{\kappa}^2\omega\varepsilon}\, e^{i\frac{\omega}{v}z}$$

Introducing $x = \frac{\tilde{\kappa} z}{e}$ in (2) and developing the bracket into a Fourier series then (2) gets the form

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Radiation of a Charged Particle in a Medium With a Periodically Variable Density

$$(5) \qquad u'' + J(x)u = \frac{il^2 e}{2\pi^4 c\sqrt{\varepsilon}} e^{i\frac{\omega l}{\pi v}x}$$

$$(5^1) \qquad J(x) = \vartheta_0 + \sum_{n=1}^{\infty} 2\vartheta_{2n} \cos 2nx \ ,$$

where ϑ_0 and ϑ_{2n} have the values

$$\vartheta_0 = \left(\frac{\omega l}{\pi c}\right)^2 \varepsilon_0 - \left(\frac{\varkappa l}{\pi}\right)^2 - \frac{\Delta^2}{4} + O(\Delta^4) = \nu^2 - \frac{\Delta^2}{4} + O(\Delta^4) \ ,$$

$$(6) \quad \vartheta_2 = \left[\frac{1}{2}\left(\frac{\omega l}{\pi c}\right)^2 \varepsilon_0 - 1\right] \Delta + O(\Delta^5)$$

$$\vartheta_{2n} = (-1)^n \Delta^n \left(\frac{3}{2}n - \frac{1}{2}\right) + O(\Delta^{n+2}), \quad n > 1$$

for $|\Delta| \ll 1$.

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Radiation of a Charged Particle in a Medium With a Periodically Variable Density

The homogeneous part of (5) has the solutions

$$u_1 = e^{\mu x} \sum_{n=-\infty}^{\infty} c_{2n} e^{2nix},$$

(7)

$$u_2 = e^{-\mu x} \sum_{n=-\infty}^{\infty} c_{2n} e^{-2nix}$$

where for $|\Delta| << 1$ it holds approximately

$$(10)\ \mu = \mu_0 + \mu_1 = \pm i\vartheta_0^{1/2} \pm \frac{i\vartheta_2^2}{4\vartheta_0^{1/2}(1 - \vartheta_0)}$$

where $|\mu_0| >> |\mu_1|$, + for $\omega > 0$ and - for $\omega < 0$. The c_{2n} are approximately given by

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$$(11) \qquad c_{\pm 2} = -\frac{\theta_2}{\phi_{\pm 2}} \; ; \quad c_{\pm 4} = -\frac{\theta_4}{\phi_{\pm 4}} + \frac{\theta_2^2}{\phi_{\pm 4}\phi_{\pm 2}}$$

$$\phi_{\pm 2} = 4(1 \mp i\mu_0) \; ; \quad \phi_{\pm 4} = -8(2 \mp i\mu_0)$$

(all approximations up to terms of the order of Δ^2). The particular solution of the inhomogeneous equation (5) is

$$(12) \qquad u = \frac{b}{w}\left[u_1 \int \frac{u_2}{\sqrt{\varepsilon}} e^{i\sigma x} dx - u_2 \int \frac{u_1}{\sqrt{\varepsilon}} e^{i\sigma x} dx\right] ,$$

where

$$\sigma = \frac{\omega l}{\tilde{n} v} \; , \quad b = -\frac{iel^2}{2\tilde{n}^4 c} \; , \quad w \text{ is the Wronski - determinant}$$

$$(13) \qquad w = w(0) = u_1 u_2' - u_1' u_2 = -2\mu\left[1 - \frac{\theta^2(3 + \mu^2)}{8(1 + \mu^2)}\right] .$$

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Radiation of a Charged Particle in a Medium With a Periodically Variable Density

Developing in (12) $\epsilon^{-1/2}$ into a series in terms of Δ, integrating with respect to $\varkappa$, substituting in (4) developing ϵ^{-1} and $\epsilon^{-1/2}$ again in terms of Δ then one obtains $E_z(\vec{\varkappa}, z, \omega)$.

Then for the force which acts upon the particle it holds

$$(14) \qquad dF = -ed\omega \sum \int E_z(\vec{\varkappa}, vt, \omega) e^{-i\omega t} d\vec{\varkappa} \quad ,$$

where the sum relates to both signs of the frequency ω. The magnitude dF contains summands not depending on z and summands depending on $e^{\frac{2\pi iz}{l}}$, $e^{\frac{4\pi iz}{l}}$ etc. Let dF^o be the constant part of dF, where only the losses caused by Cherenkov-radiation are considered. It holds

$$(15) \qquad dF^o = dF_o^o + dF_1^o \quad ,$$

where it holds approximately :

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$$dF_0^0 = \frac{e^2}{c^2}\omega d\omega\left\{1 - \frac{1}{\beta^2\varepsilon}\left[1 + \frac{\Delta^2}{4\sigma^2}\left(1 - \frac{2\left(\frac{1}{2}\beta^2\sigma^2\varepsilon_0 - 1\right)^2}{1-\sigma^2}\right)\right]\right\} \times$$

(16)

$$\times\left\{1 + \frac{3\Delta^2}{8}\left[1 + \frac{\left(\frac{1}{2}\beta^2\sigma^2\varepsilon_0 - 1\right)\left[\frac{1}{2}\beta^2\sigma^2\varepsilon_0\left(3-\sigma^2\right) + 3\sigma^2 - 5\right]}{3(1-\sigma^2)^2}\right]\right\}. \quad (16)$$

and for the radiation angle it holds

$$(17)\quad 0 \leq \cos\theta = \frac{1}{\beta\sqrt{\varepsilon_0}}\left[1 + \frac{\Delta^2}{8\sigma^2}\left(1 - \frac{2\left(\frac{1}{2}\beta^2\sigma^2\varepsilon_0 - 1\right)}{1-\sigma^2}\right)\right] \leq 1$$

The additional term dF_1^0 is

$$(18)\quad dF_1^0 = dF_+ + dF_- \quad ,$$

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where it holds

$$(19)\quad dF_+ = \frac{e^2}{16c^2}\omega d\omega\left[1-\left(\frac{1}{\beta\sqrt{\varepsilon_0}}+\frac{\lambda}{l\sqrt{\varepsilon_0}}\right)^2\right]\frac{\Delta^2\sigma^2\left(1+\frac{1}{2}\beta^2\sigma\varepsilon_0\right)^2}{(1+\sigma)^2}$$

with the radiation angle

$$(20)\quad 0\leq\cos\theta=\frac{1}{\beta\sqrt{\varepsilon_0}}+\frac{\lambda}{l\sqrt{\varepsilon_0}}+\frac{\Delta^2}{8\beta\sqrt{\varepsilon_0}\sigma(\sigma+2)}\left[1+\frac{\left(\frac{1}{2}\beta^2\sigma^2\varepsilon_0-1\right)^2}{(1+\sigma)(3+\sigma)}\right]\leq 1$$

and

$$(21)\quad dF_- = \frac{e^2}{16c^2}\omega d\omega\left[1-\left(\frac{1}{\beta\sqrt{\varepsilon_0}}-\frac{\lambda}{l\sqrt{\varepsilon_0}}\right)^2\right]\frac{\Delta^2\sigma^2\left(1-\frac{1}{2}\beta^2\sigma\varepsilon_0\right)^2}{(1-\sigma)^2}$$

with the radiation angle

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$$(22)\quad 0 \leq \cos\theta = \left| \frac{1}{\beta\sqrt{\varepsilon_0}} - \frac{\lambda}{1\sqrt{\varepsilon_0}} \right| + \frac{\Delta^2}{8\beta\sqrt{\varepsilon_0}\sigma|\sigma - 2|} \times$$

$$\times \left[1 + \frac{\left(\frac{1}{2}\beta^2\sigma^2\varepsilon_0 - 1\right)^2}{(1-\sigma)(3-\sigma)} \right] \leq 1 \quad .$$

The formulas (19), (20) give the additional Cherenkov radiation being characteristic for a periodic medium. The Cherenkov basic radiation is the result of the coincidence of the frequency of the "eigenvibrations" μ and the frequency of the external force σ; the additional terms in (19) and (21) are caused by a resonance of the combined frequencies. The derived formulas hold under the assumptions

$$(23)\quad \left| \frac{\left(\frac{1}{2}\beta^2\sigma^2\varepsilon_0 - 1\right)\Delta}{4(1-\nu^2)} \right| \ll 1$$

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(24) $$\left|\frac{\left(\frac{1}{2}\beta^2\sigma^2\varepsilon_0 - 1\right)\Delta}{\nu^2}\right| \ll 1 ; \qquad \frac{5\Delta^2}{2\nu^2} \ll 1$$

(25) $$\left|\frac{\left(\frac{1}{2}\beta^2\sigma^2\varepsilon_0 - 1\right)\Delta^2}{4(1-\nu^2)\nu^2}\right| \ll 1 .$$

In the formulas (23)-(25) it holds $\nu = s$ for the case (16), $\nu = \sigma + 2$ for the case (19), and $\nu = |\sigma - 2|$ for (21).
Some special cases of the loss of energy of a charged particle per unit of the length of path are given. The estimation of the variable part of the force acting upon the particle is briefly mentioned.
The authors thank G.M. Garibyan and M.L. Ter - Mikayelyan for discussions. They mention L.D. Landau, Ye.M. Lifshits, Ya.B. Feynberg, N.A. Khizhnyak, and I.I. Gol'dman.

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S/022/60/013/005/006/008
C111/C222

Radiation of a Charged Particle in a Medium With a Periodically Variable Density

There are 9 references : 7 Soviet and 2 American.

[Abstracter's note : (Ref. 5) is a paper of the authors in "Zh ETF" in print]

ASSOCIATION: Fizicheskiy institut AN Armyanskoy SSR;Yerevanskiy gos-universitet (Physical Institute of the Academy of Sciences Armyanskaya SSR ; Yerevan State University)

SUBMITTED: June 16, 1960

Card 11/11

S/056/60/039/004/021/048
B006/B063

24.4500

AUTHORS: Amatuni, A. Ts., Korkhmazyan, N. A.

TITLE: Transition Radiation in the Case of a Diffuse Boundary Between Two Media

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 4(10), pp. 1011-1019

TEXT: The present paper describes a theoretical study of the transition radiation of a relativistic charged particle in the case of a diffuse boundary between two media. The authors proceed from the following assumptions: The dielectric properties of the media change only in the direction of the z-axis and remain unchanged in all planes z=const; the media are not magnetic ($\mu=1$). $\varepsilon(\omega,z) = 1 + \alpha(\omega)/(1+e^{-az})$; $a>0$. The diameter of the diffuse boundary is equal to $z_0 = 1/a$. A point charge (e) moves in the direction of the z-axis with a relativistic velocity $\vec{v}$. In this case, transition radiation occurs only in a narrow cone round $\vec{v}$. Then $\alpha = -\omega_0^2/\omega^2$, $\omega_0 = 4\pi e^2 N/m$ [illegible]. In zeroth approximation

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of perturbation theory, the following equation is obtained for the function $u(\vec{\kappa},\omega,z)$, defined by $\vec{H}_\rho = [\vec{n}\vec{\kappa}]\sqrt{\varepsilon}\,u(\vec{\kappa},\omega,z)$: $u''+\left[\frac{\omega^2}{c^2}\varepsilon-\kappa^2\right]u$ $= ie.\exp(i\omega z/v)/2\eta^2 c\sqrt{\varepsilon}$ (9), where $\vec{n} = \vec{v}/v$, and $\vec{H}_\rho$ is the component perpendicular to the z-axis. Again, new variables are introduced ($x = -e^{-az}$, $u = x^\nu v(x)$), and a hypergeometric equation is obtained for v. Equation (9) can then be solved. One obtains equation (14): $\frac{W}{b}u$ $= u_1\int\frac{u^2}{\sqrt{\varepsilon}}e^{i\omega z/v}dz - u_2\int\frac{u_1}{\sqrt{\varepsilon}}e^{i\omega z/v}dz + c_1u_1 + c_2u_2$, where W is a Wronski determinant, $b = -ie/2\pi^2c$. After integration, (14) leads to equation (19): $\frac{W}{b}u = \frac{1}{a}e^{i\omega z/v}\Gamma_2^2\left\{v(-\nu,\mu,\sigma,e^{-az})-v(\nu,\mu,\sigma,e^{-az})\right\}+\frac{u_1}{2a}\Gamma(-\sigma,\nu,-\mu)-\frac{u^2}{2a}\Gamma(\sigma,\mu,-\nu)$ $+c_1u_1+c_2u_2$, which is valid in the semispace $z>0$. The following solution

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is obtained for $z<0$: $\frac{W}{6}u = \frac{1}{a} e^{i\omega z/v} \Gamma_1^1\left\{\nu(-\mu,-\nu,-\sigma,e^{az})-\nu(\mu,-\nu,-\sigma,e^{az})\right\} -$ $- \frac{u_1}{2a}\Gamma(-\sigma,\nu,-\mu)+\frac{u_2}{2a}\Gamma(\sigma,\mu,-\nu)+ c_1u_1+ c_2u_2$. The radiation field in $z>0$ can thus be described by (23): $\frac{W}{6} u_{rad} = \frac{u_1}{a}\Gamma(-\sigma,\nu,-\mu)$, and that in $z<0$ by (24): $\frac{W}{6} u_{rad} = \frac{u_2}{a}\Gamma(\sigma,\mu,-\nu)$. This is the "forward" and "backward" transition radiation for high frequencies $\omega \gg \omega_c$. The last section of the present paper deals with the intensity of "forward" radiation. For this purpose, the authors determined the flux of the Poynting vector through a sufficiently distant plane z = const. They study the case where the thickness of the diffuse region z_0 is very small compared to that of the regions R_0 and R_c of the formation of transition radiation in the two media; and the cases $z_0 \gg R_0 > R_c$, and $R_c \ll z_0 \ll R_0$. G. M. Garibyan and

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3,2310 (also 1031, 1482, 1502) also 2806

33530
S/022/061/014/005/004/007
D218/D301

AUTHOR: Amatuni, A. Ts. and Oganesyan, A. N.

TITLE: Radiation emitted during the flight of charged particles over a system of metal spheres or cylinders

PERIODICAL: Akademiya nauk Armyanskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 14, no. 5, 1961, 99-107

TEXT: The first part of this paper is concerned with calculating the electromagnetic waves emitted by a system consisting of a metal sphere and a charged particle flying past it. It is assumed that the velocity of the charged particle is much smaller than that of light, but at the same time sufficiently large for it to remain constant, i.e. recoil effects are neglected. The field outside the sphere is obtained by adding together the fields due to the charged particle and its image in the sphere. It is shown that the angular distribution of the radiation is given by

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$$\frac{dE_n^{\rightarrow}}{} = \frac{225e^2v^3}{4096c^3l}\left(\frac{a}{l}\right)^6\left[7\sin^2\theta + 5(1 - \sin^2\theta\sin^2\varphi)\right]d\Omega \quad (1.3)$$

where e is the charge on the particle, v is its velocity, a is the radius of the sphere, l is the impact parameter, c is the velocity of light, and θ and φ are the polar angles of the direction of emission. A formula is also derived for the frequency distribution and it is shown that the maximum of this distribution occurs at a frequency of 2.2 v/l. At frequencies much smaller than the latter value, the energy is proportional to the fourth power of the frequency, while in the other extreme case it is proportional to $\omega^5 \exp(-2l\omega/v)$. The next case considered is that of a charged particle moving along a line which is parallel to the line of centers of m identical metal spheres. It is stated that if $(a/r)^3 \ll 1$, then the radiation field is simply equal to the sum of the radiation

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fields due to the isolated spheres. i.e. the images of images can be neglected. Subject to this assumption, a formula is derived for the angular end frequency distribution. Finally the analysis is repeated for the case of m parallel metal cylinders. Here the charged particle is replaced by a charged filament which is parallel to the axes of the cylinders and moves with a uniform velocity at right angles to them. It is stated that these calculations can easily be generalized to the case of a charged particle moving over an arbitrarily periodic structure. Acknowledgements are expressed to G.M. Garibyan for his advice. There are 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: S. J. Smith and E. M. Purcell, Phys. Rev., 92, 1069, (1955).

ASSOCIATION: Fizicheskiy institut, AN Armyanskoy SSR (Physics Institute, AS Armenian SSR)

SUBMITTED: June 27, 1961

Card 3/3

ALIKHANYAN, A.I., red.; NIKITIN, S.Ya., prof., otv. red.; TER-MARTIROSYAN, K.A., prof., otv. red.; AMATUNI, A.TS., red.; SHARKHATUNYAN, R.O., red.; SHAKHBAZYAN, V.A., red.; SHTIBEN, R.A., red. izd-va; KAPLANYAN, M.A., tekhn. red.

[Problems in the physics of elementary particles]Voprosy fiziki elementarnykh chastits; lektsii, prochitannye na 2. sessii... Pod obshchei red. A.I.Alikhanianna. Erevan, Izd-vo Akad. nauk Armianskoi SSR, 1962. 396 p. (MIRA 16:3)

1. Vesennyaya shkola teoreticheskoy i eksperimental'noy fiziki. 2. sessiia, Nor-Amberd, 1962. 2. Chlen-korrespondent Akademii nauk SSSR (for Alikhanyan).

(Particles (Nuclear physics))

35305
S/022/62/015/001/005/007
D237/D301

9.3700 (also 1057,1163)

AUTHOR: Amatuni, A. Ts.

TITLE: Transient radiation from charged particles periodically following each other

PERIODICAL: Akademiya nauk Armyanskoy SSR. Izvestiya. Fiziko-matematicheskiye nauki, v. 35, no. 1, 1962, 109-114

TEXT: In view of possible utilization of transient radiation for the generation of waves in suitable ranges, e.g. the millimeter range, the investigation of transient radiation from the bundles of charged particles becomes advisable and this, together with the problem of interference is the purpose of this paper. Considering a linear charge of length a_3, charge density q, oriented in Z direction and moving towards the xy plane with velocity v, the author finds that the resulting field equation is identical to that of a point charge e, in which e/2 is replaced by a factor given in

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$$\frac{q}{k_z} \sin \frac{k_z a_3}{2} \rightleftarrows \frac{e}{2} \qquad (4)$$

where $k_z = w/v$. Similar expressions are obtained for the line charges in x and y direction, and for the positions of line charges parallel to the boundary, situated in a plane parallel to xy. It is found that the spectral radiation intensity is proportional either to the square of total charge Q^2 or to $Q^2/(k_i a_i)^2$. A factor analogous to one given in (4) is then obtained for a parallelipiped and the formula for intensity of radiation by m bundles which shows great similarity to the formula of the theory of diffraction on m slits. Finally, the formula for the intensity of n groups of m bundles is given. The author expresses his gratitude to G. M. Garibyan and E. A. Laziyev for their criticisms. There are 11 Soviet-bloc references.

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Transient radiation from ... S/022/62/015/001/005/007
D237/D301

ASSOCIATION: Yerevanskiy gosudarstvennyy universitet (Yerevan State University)

SUBMITTED: July 12, 1961

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AMATUNI, A.TS.

Transient radiation from periodically successive bunches of charged particles. Izv.AN Arm.SSR.Ser.fiz.-mat.nauk 15 no.1:109-114 '62. (MIRA 15:2)

1. Yerevanskiy gosudarstvennyy universitet.
(Radiation) (Particles (Nuclear physics))

AMATUNI, A.TS.; GARIBYAN, G.M.

Development of theoretical physics in Soviet Armenia. Iz ist.est.i tekh. 2:45 '62. (MIRA 18:4)

39827
S/057/62/032/008/015/015
B104/B102

9.3130

AUTHOR: Amatuni, A. Ts.

TITLE: A possibility of producing polarized electrons

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 8, 1962, 1034 - 1035

TEXT: The resonance effect of the s-electrons in ferromagnetics, proved experimentally by G. S. Krinchik (Vestnik MGU, ser. fiz., no. 6, 87, 1957; ZhETF, 36, 1022, 1959, ZhETF, 36, 1924, 1959) - which is very important in explaining ferromagnetism - can be used for producing intense polarized electron beams. If the s-electron distribution over the levels can be expressed by two distributions with mixed Fermi levels, the electron work function of ferromagnetics irradiated with polarized light depends on the electron spin orientation. The differences between the work functions of the different electrons in autoelectronic emission can be used for producing a polarized electron beam. With an emission current of ~107 a/cm^2 the polarization reaches some ten percent.

ASSOCIATION: Fizicheskiy institut AN Arm.SSR Yerevan (Physics Institute AS ArSSR, Yerevan)

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A possibility of producing...

S/057/62/032/008/015/015
B104/B102

SUBMITTED: March 19, 1962

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ACCESSION NR: AP4010025 S/0022/63/016/006/0101/0112

AUTHORS: Amatuni, A. Ts.; Garibyan, G. M.; Kibakyan, S. S.

TITLE: Radiation from time varying charge moving in a medium at constant speed

SOURCE: AN ArmSSR. Izvestiya. Ser. fiz. -matem. nauk, v. 16, no. 6, 1963, 101-112

TOPIC TAGS: line charge, angular intensity, point charge, photon cascade, electron gas, plasma

ABSTRACT: The radiation from a charge moving at constant speed in a homogeneous medium with a time-dependent charge magnitude has been studied. The charge itself remains constant in all space but changes by getting out of the moving state into the medium (similar to excess electron disappearance in electron-photon cascades). Expressions are obtained for the intensity of a point charge over its motion-time duration and for angular intensities and spectral distributions for two special cases expressed by the excess charge distribution

$$n(t) = \begin{cases} 0 & \text{at } t > |t_0|, \\ 1 & \text{at } t < |t_0|. \end{cases}$$

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or

$$\overline{n(t)} = \theta(t + t_0) - \theta(t - t_0).$$

and

$$n(t) = e^{-\omega_0^2 t^2}$$

where ω_0 - frequency of field variation. The conditions satisfying a point charge are specified by

$$\left| \rho_0 \frac{|\omega|}{c} \right| \sqrt{\varepsilon\mu} \sin\theta \ll 1.$$

Also calculated are the radiation intensity from a line charge of density $q^{\sigma}(z)$ and a charge cluster in the form of a disk of radius

$$\rho_0 = \sqrt{x^2 + y^2}$$

The authors express their gratitude to Professor A. I. Alikhanyan, and to V. A. Tumanyan and E. M. Lasiyev for evaluating this work." Orig. art. has: 28 equa-

Card 2/3

ACCESSION NR: AP4010025

tions.

ASSOCIATION: none

SUBMITTED: 10Mar63 DATE ACQ: 03Feb64 ENCL: 00

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

Card 3/3

ALIKHANYAN, A.I., red.; NIKITIN, S.Ya., prof., otv. red.; ISPIRYAN, K.A., red.; AMATUNI, A.TS., red.; KAPLANYAN, M.A., tekhn. red.

[Physics of elementary particles] Voprosy fiziki elementarnykh chastits. Pod obshchei red. A.I.Alikhaniana. Erevan, Izd-vo AN Arm.SSR, 1963. 594 p. (MIRA 16:12)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii. 2. Chlen-korrespondent AN SSSR (for Alikhanyan).

(Particles (Nuclear physics))

ACCESSION NR: AP4042919 S/0057/64/034/008/1354/1364

AUTHOR: Amatuni, A.Ts.

TITLE: Solution of the problem of transition radiation in the case of a plasma-like medium

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.8, 1964, 1354-1364

TOPIC TAGS: plasma boundary layer, fast particle, electromagnetic radiation, Maxwell equation

ABSTRACT: The transition radiation produced when a fast charged particle crosses the boundary between the vacuum and a medium exhibiting spatial dispersion (plasma-like medium) is discussed theoretically on the basis of Maxwell's equations and the linearized kinetic equation for the perturbation to the electron distribution function. The problem is solved for two extreme types of boundary condition on the electron distribution function at the surface of the medium: specular reflection of the electrons by the surface, and diffuse reflection of them. The calculations were undertaken primarily to compare the effects of these different boundary conditions. The charge and current due to the moving particle, the electric and magnetic fields

in the medium, and the electron distribution function are subjected to a Fourier transform with respect to time and the two spatial coordinates parallel to the surface of the medium, and the differential equation for the partial Fourier component of the electron distribution function is solved with the two different boundary conditions. The remaining Fourier transform (with respect to the coordinate normal to the boundary plane) is then performed. For the purpose of calculating the Fourier components of the field within the medium, the field outside the medium is assumed to be the image in the boundary plane of the field within for the case of specular reflection boundary conditions, and to vanish for the diffuse reflection case. The bulk of the paper is devoted to the solution of the resulting equations. The field outside the medium is obtained from that within it by fitting a suitable solution of Maxwell's equations for the vacuum with the aid of the usual boundary conditions. The results reduce in the case of no spatial dispersion (neglect of the electron thermal velocities) to those of G.M.Garibyan (ZhETF 33,1403,1957). In the presence of spatial dispersion a surface wave is excited (in addition to the longitudinal and transverse transition radiation in the medium) when the boundary condition on the electron distribution function is that of diffuse reflection, but not when it is that of specular reflection. The calculations can be generalized to the case of

ACCESSION NR: AP4042919

a plane boundary between two plasma-like media, and also to take account of the polarization of the bound electrons in the medium. "In conclusion, the author expresses his gratitude to G.M.Garibyan, V.A.Dzhrbashyan and R.V.Tevikyan for their interest in the work and for discussions." Orig.art.has: 68 formulas.

ASSOCIATION: none

SUBMITTED: 19Nov63 ENCL: 00

SUB CODE: EM,NP NR REF SOV: 009 OTHER:003

3/3

AMATUNI, A.TS.; GARIBYAN, G.M.; RIBARYAN, S.S.

Radiation from a charge, variable with time, moving in a medium at constant speed. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 16 no.6:101-112 '63. (MIRA 17:8)

AMATUNI, A.TS.

Solution of the problem of transient radiation in the case of a plasma-like medium. Zhur. tekh. fiz. 34 no.8:1354-1364 Ag '64. (MIRA 17:9)

AMATUNI, A.TS.

Applicability of parastatistics to elementary particles. Zhur. eksp. i teor. fiz. 47 no.3:925-929 S '64. (MIRA 17:11)

1. Fizicheskiy institut Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR, Yerevan.

L 11960-65 EWT(d)/EWT(m)/T/EWA(m)-2/EWP(1) AFWL/ESD(t)/IJP(c)
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AUTHOR: Amatuni, A. Ts.

TITLE: On the applicability of parastatistics to elementary particles

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 3, 1964, 925-929

TOPIC TAGS: elementary particle, parastatistics, paraboson, parafermion

ABSTRACT: Rules are derived for calculating various electrodynamic effects in a system of parafermions and photons (the terms parastatistics, parafermion, and paraboson were proposed by Dell-Antonio et al. University of Rochester Report, NYO-10241, 1963). The analysis is based on the Green transformation (Phys. Rev. v. 90, 270, 1953), in which the commutation relations are simpler than in the

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early method of D. V. Volkov (ZhETF v. 38, 518, 1960). It is shown that this transformation reduces the formal apparatus of quantum electrodynamics of parafermions to the usual apparatus, and any possible differences are easily explained. Comparison of the formulas for the photoproduction of parafermions with the experimental results of the Frascati group on the photoproduction of muons (Alberigi-Quaranta et al, Phys. Rev. Let. v. 9, 226, 1962) indicates that the muon is an ordinary fermion. Furthermore, arguments based on the application of the causality principle to weak-interaction Lagrangians are given and favor the assumption that the known elementary particles are neither parafermions nor parabosons. "The author thanks V. A. Dzhrbashyan, whose communications called his attention to the generalized statistics, and also R. V. Tevikyan for useful discussions." Orig. art. has: 9 formulas.

ASSOCIATION: Fiziki Institut GKAE, Yerevan (Physics Institute GKAE)

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Card 3/3

JABLONSKA, Stefania; BUBNOW, Bogdan; AMATUNI, Helena

False scleroderma (pseudoscleroderma). I. Pseudoscleromatous changes in primary chronic (evolutive) rheumatism. Przegl.derm., Warsz. 47 no.1:1-10 Ja-F '60.

1. Z Kliniki Dermatologicznej A.M. w Warszawie. Kierownik: prof. dr. S. Jablonska. Z Panstwowego Instytutu Reumatologii w Warszawie.

(ARTHRITIS RHEUMATOID pathol.)
(SCLERODERMA etiol.)

KOPEC, Maria; AMATUNI, Helena

Fibrinolygis in rheumatic patients. Polski tygod. lek. 16 no.34: 1301-1304 21 Ag '61.

1. Z Oddzialu Chorob Wewnetrznych i Pracowni Biochemii Klinicznej Instytutu Hematologii; kierownik: prof. dr med. E. Kowalski i z Instytutu Reumatologii; dyrektor: prof. dr med. E. Reicher.

(RHEUMATISM blood) (FIBRINOLYSIS)

AMATUNI, Helena

On the use of copper compounds in rheumatoid arthritis. Reum. pol. 4:87-91 '61.

1. Z Instytutu Reumatologii w Warszawie. Dyrektor: prof. dr El. Reicher.
(ARTHRITIS RHEUMATOID) (COPPER)

AMATUNI, N. L.

Amatuni, N. L. - "Measurement of Mutual Inductance at Low Frequency for Metrological Purposes." Commission on Standards, Measures, and Measuring Instruments, Council of Ministers USSR. All-Union Sci Res Inst of Metrology imeni D. I. Mendeleyev. Leningrad, 1956 (Dissertation for the Degree of Candidate in Technical Sciences).

So: Knizhnaya Letopis', No. 10, 1956, pp 116-127