On a Method for the Solution of the Boundary Value Problem for the Polyharmonic Equation

SOV/140-59-3-7/22

functions $\varphi_1(z)$ the author reduces the problem to a system of two integral equations; the solvability of this system is proved. There are 4 Soviet references.

ASSOCIATION: Kazanskiy inzhenerno-stroitel'nyy institut (Kazan' Institute of Civil Engineers)

SUBMITTED: April 28, 1958

Card 2/2

16(1)

AUTHOR: Kim Yu. Ts.

SOV/140-59-4-11/26

TITLE: On the Connection of a Problem of the Theory of Biharmonic Functions With a Special Case of the Poincaré Problem

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1959, Nr 4, pp 80 - 88 (USSR)

ABSTRACT: Biharmonic functions $u(x,y)$, $v(x,y)$ satisfying the boundary conditions

$$(1)\quad u = f_{11}(t)\ ,\ v = f_{12}(t)\ ,\ \frac{1}{2}\left(\frac{\partial u}{\partial x} - \frac{\partial v}{\partial y}\right) =$$

$$= f_{21}(t)\ ,\ \frac{1}{2}\left(\frac{\partial u}{\partial y} + \frac{\partial v}{\partial x}\right) = f_{22}(t)$$

are sought, where $f_{ij}(t)$ satisfy the Hölder condition.

The author seeks the unknown functions $u(x,y)$ and $v(x,y)$ in the form

On the Connection of a Problem of the Theory of Biharmonic Functions With a Special Case of the Poincaré Problem

SOV/140-59-4-11/26

$$u = \frac{\partial \varphi}{\partial x} + \frac{\partial \psi}{\partial y} , \quad v = \frac{\partial \varphi}{\partial y} - \frac{\partial \psi}{\partial x} ,$$

where φ and ψ satisfy the equation $\Delta^2 W = C$, constructs the potentials for φ and ψ and reduces the problem to a system of two Fredholm integral equations which he investigated in [Ref 4], where the existence and uniqueness of the solution are proved too.
A similar problem was treated for harmonic functions by D.I. Sherman in [Ref 1].
There are 5 references, 4 of which are Soviet, and 1 French.

ASSOCIATION: Kazanskiy inzhenerno-stroitel'nyy institut (Kazan' Institute of Civil Engineering)

SUBMITTED: April 28, 1958

Card 2/2

KIM, Yu. Ts., Doc Phys-Math Sci -- "Linear marginal problems in the theory of analytic functions for differential equations of the elliptic type and their application to certain ~~problems~~ tasks of mechanics." Kazan', 1961. (Min of Higher and Sec Spec Ed RSFSR. Kazan' Order of Labor Red Banner State Inst im V. I. Ul'yanov-Lenin) (KL, 8-61, 225)

KIM, Yu.TS. (Kazan')

Relation between a problem in elasticity theory with a particular case of Poincaré's problem. Izv. vys. ucheb. zav.; mat. no.6: 67-69 '64. (MIRA 18:3)

KIM, Yu.TS (Kazan')

A conjugation problem for a biharmonic function. Izv.vys.ucheb. zav.; mat. no.1:73-80 '65. (MIRA 18:3)

KIM, Yu.TS. (Kazan')

Application of the theory of functions of complex variables in solving problems of control of the motion of an oil-bearing contour. Izv. vys. ucheb. zav.; mat. no.3:91-97 '65. (MIRA 18:7)

KIM, Z.V.; BYKOV, A.V.; YERZHANOVA, M.S.; SOKOL'SKIY, D.V.

Reactor for liquid-phase catalytic reactions in thin layers.
Kin. i kat. 6 no.1:176-177 Ja-F '65.
(MIRA 18:6)

1. Kazakhskiy tekhnologicheskiy institut.

S/094/61/000/005/001/001
E194/E284

AUTHORS: Kima, K. T. and Safronov, N. V.

TITLE: The Production of Small Section Copper Tubes by a Winding Method

PERIODICAL: Promyshlennaya energetika, 1961, No. 5, p. 15

TEXT: This brief note describes a suggestion that received a prize in the 16th All-Union Competition on power economy. Copper tubes up to 12 mm diameter are usually made by pressing from a suitable blank followed by drawing on chain type drawing machines. With this method the rate of drawing is slow, there is considerable wastage and power consumption is high. The authors proposed a winding method of making tubes in which the first pressing is done on a horizontal instead of a vertical press end the tube is drawn and wound on drums. In this way a tube of up to 70 metres length can be made and wound in a coil from which tubes of the standard length of 5-6 metres are then cut. The tube production line contains a chain type draw bench up to 23 metres long, 2 winding drums and a machine for straightening and cutting the tubes after they have been coiled. The tube is cut into lengths automatically by means of a suitable limit switch. With tne new method of

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S/094/61/000/005/001/001
E194/E284

The Production of Small Section Copper Tubes by a Winding Method

production the output of acceptable product is increased by 14.5% and the labour required is reduced by more than 35%. The old and new methods are compared in the following table:

Method of manufacture	Number of operations	Acceptable product output %	Production Time per ton		Production cost for 1 ton in roubles
			Machine hours	Total time hours	
Previous method ...	30	52.85	112.15	126.39	59.7
Coiling method ...	23	67.29	73.79	83.89	41.94

There is 1 table.

Card 2/2

L 33354-66 EWP(e) WH

ACC NR: AP6024596 SOURCE CODE: RU/0017/65/000/009/0466/0468

AUTHOR: Debrascu, E. (Physicist); Vermesanu, M. (Engineer); Kimacovitz, E. (Mathematician) 32 B

ORG: Metallurgical Research Institute (Institutul de Cercetari Metalurgice)

TITLE: Method for the spectral determination of the chemical components of refractory chamottes and clays 15

SOURCE: Metalurgia, no. 9, 1965, 466-468

TOPIC TAGS: clay, refractory product, chemical analysis, spectrum analysis

ABSTRACT: The authors describe and give an example of the use of spectrum analysis to determine the chemical composition of refractory materials, and point out the savings of time and materials of this method as compared to chemical analysis. Orig. art. has: 3 figures and 2 tables. (Based on authors' Eng. abst.) (JPRS: 33,732)

SUB CODE: 11, 07 / SUBM DATE: none / ORIG REF: 009

1/1 blg UDC: 666.763.1/.2:543.42

KIMAKSYAN, A.M., kand.tekhn.nauk; PETROV, V.P., kand.tekhn.nauk

Remote control system for production processes. Mekh. i avtom. proizv. 19 no.1:31-36 Ja '65. (MIRA 18:3)

KIMARSKAYA, A.V., assistent, zasluzhennyy vrach RSFSR; STRADOMSKAYA, M.N.

Use of the vacuum extractor in obstetric practice and its effect on the physical development of infants during their first year of life. Sbor. nauch. trud. Ivan. gos. med. inst. no. 28:273-278 '63 (MIRA 19:1)

1. Iz kafedry akusherstva i ginekologii (ispolnyayushchiy obyazannosti zav. - dotsent M.A. Timokhina) Ivanovskogo gosudarstvennogo meditsinskogo instituta (rektor - dotsent Ya.M. Romanov) i rodil'nogo doma No. 1, g. Ivanovo (glavnyy vrach - M.N. Stradomskaya).

KIMARSKAYA, I.V.; D'YACHENKO, L.Ya.

Five years of experience in radioactive phosphorus therapy for patients with polycythemia. Sov.med. 25 no.8:53-57 Ag '60. (MIRA 13:9)

1. Iz kafedry propedevtiki vnutrennikh bolezney (zav. - dotsent S.F. Surovtseva) Khabarovskogo meditsinskogo instituta (dir. - dotsent S.K. Nechepayev).
(PHOSPHORUS—ISOTOPES) (POLYCYTHEMIA)

KIMASHEVSKAYA, V. F.

Joints - Tuberculosis

Pathogenic properites of staphylococci isolated from patients with osteo-articular tuberculosis. Probl. tub., no. 6, 1951.

Monthly List of Russian Accessions, Library of Congress, March 1952. UNCLASSIFIED.

TIMAKOV, S.; KIMASK. O.; KIRSPUU, V.; HIZNJAKOV, V.; SOKOLOV, A.; PAULMAN, V.; SÕMUS, E., red.

[25 years of Soviet Estonia; a statistical abstract] 25 aastat Nõukogude Eestit; statistiline kogumik. Tallinn, Eesti Raamat, 1965. 173 p. [In Estonian] (MIRA 18:12)

1. Estonian S.S.R. Statistika Keskvalitsus.

YEGORUSHKIN, Vasiliy Yegorovich; KITUNOVICH, Fedor Grigor'yevich; KIMBAR, B.A., red.; ZHUK, V.N., tekhn. red.

[Mechanization of work and electrical wiring operations] Mekhanizatsiia truda i elektromontazhnye raboty; posobie dlia uchashchikhsia VIII klassa. Minsk, Gos.uchebno-pedagog. izd-vo M-va prosv.BSSR, 1963. 134 p. (MIRA 16:12)

(Electric wiring)

KACHANOVICH, Anatoliy Mikhaylovich; BYTEV, Aleksandr Alekseyevich; [illegible]; GOKYANOVA, L.E., red.

[Collection of problems to prepare for physics olympiads] Sbornik podgotovitel'nykh zadach k olimpiadam po fizike. Minsk, Narodnaia aversta, 1964. 136 p. (MIRA 18:1)

KIMBAROVSKAYA, Ye. M.

"Changes in Peripheral Nerve Fibers Under Strain." Cand Med Sci, Dnepropetrovsk State Medical Inst, Dnepropetrovsk, 1953. (RZhBiol, No 2, Sep 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (10)

SO: Sum. No. 481, 5 May 55

USSR / Human and Animal Morphology - Nervous System. S

Abs Jour : Ref. Zhur. - Biol., No. 22, 1958, No. 101465

Author : Kimbarovskaya, Ye. M.
Inst : Dnepropetrovsk Medical Institute
Title : The Problem of the Normal Structure of the Nerve Fiber.

Orig Pub : Sb. nauchn. rabot. Dnepropetr. med. in-t, 1956, Vol. 1, 47-48

Abstract : Along the course of myelinated nerve fibers structures are found which the author designates as "tonoset" [= "tonus-network"], consisting of thick chains, seemingly fixed in position, and a fine reticulum associated with these which is capable of considerable stretching and which is disposed on all sides of the network. The "tonoset" lies between the myelin and Schwann layers.

Card 1/2

USSR / Human and Animal Morphology - Nervous System. S

Abs Jour : Ref. Zhur. - Biol., No. 22, 1958, No. 101465

The notches [? of Ranvier] appear as clefts 1-2 microns wide (in the vagus nerve), positioned at an angle of 40-50 degrees to the axis cylinder. The wall of the notch does not permit lipids to pass. The parts of the axon which are most resistant to stretching are the parts in the area of constriction. The neurilemma consists of highly stable structures and is similar to cuticular formations in composition. It contains very fine pores through which drops can be seen to pass in certain parts. The pores are not numerous.

Card 2/2

Conditions of vesical tissues under varying degrees of stretch. Urologiia 24 no.2:48-52 Mr-Ap '59. (MIRA 12:12)

1. Iz kafedry gistologii i embriologii Dnepropetrovskogo i Kiyevskogo meditsinskikh institutov (nauchnyye rukovoditeli - chlen-korrespondent AMN SSSR prof. N.I. Zasybin i doktor med.nauk O.P. Lisogor).
(BLADDER, physiol.
eff. of distention in dogs (Rus))

KIMBAROVSKAYA, Ye.M., kand.med.nauk

Effect of vesical calculi on the intramural nervous system of the bladder. Urologiia 28 no.2:39-42 Mr-Ap'63. (MIRA 16:6)

1. Iz kafedry gistologii Dnepropetrovskogo (zav. - prof. O.P.Lisogor) i Kiyevskogo (zav. - chlen-korrespondent AMN SSSR prof. N.A.Zazybin) meditsinskikh institutov.
(CALCULI, URINARY) (BLADDER--INNERVATION)

KIMBAROVSKI, J.A., prof. dr.

The problem of chemical mechanisms of Kimbarovski's color reaction with urinary sediment. Med. arh. 18 no.1:1-12 Ja-F '64.

KIMBAROVSKI, J.A.

The problem of chemical mechanisms of Kimbarovski's color reaction of urinary sediment. Metabolism and color reaction of urinary sediment. Med. arh. 18 no.2:7-21 Mr-Je '64.

KIMBAROVSKIY, M. A.

New method of anastomosis of the small intestines with the colon. Khirurgiia, Moskva no.9:26-29 Sept. 1950. (CLML 20:1)

1. Of the Hospital Surgical Clinic, Dnepropetrovsk Medical Institute.

KIMBAROVSKIY, M.A., professor.

Surgical therapy of aneurysms of the subclavian vessels. Khirurgiia no.11:29-30 N '53. (MLRA 6:12)

1. Iz gospital'noy khirurgicheskoy kliniki Dnepropetrovskogo meditsinskogo instituta.

(Arteries--Surgery) (Aneurysms)

KIMBAROVSKIY, M.A., professor

Treatment of benign tumors of the posterior mediastinum.
Khirurgiia no.8:53-56 Ag. '55. (MLRA 9:2)

1. Iz fakul'tetskoy khirurgicheskoy kliniki (zav.-prof. M.A. Kimbarovskiy) Dnepropetrovskogo meditsinskogo instituta (dir.-dotsent D.P. Chukhriyenko)
(MEDIASTINUM, neoplasms
benign tumors of posterior mediastinum, diag. & surg.)

KIMBAROVSKIY, M.A., professor (Dnepropetrovsk)

Formation of an obturator apparatus in anus praeternaturalis.
Khirurgiia 32 no.4:94-96 Ap '56. (MIRA 9:8)
(ANUS, surgery,
restorative (Rus))

KIMBAROVSKIY, M.A., prof. (Dnepropetrovsk)

"Surgical pathology of the organs of the abdominal cavity" by A.F. Zverev. Reviewed by M.A. Kimbarovskii. Klin. khir. no.10: 82-83 O '62. (MIRA 16:7)

(ABDOMEN—SURGERY) (ZVEREV, A.F.)

KIMBAROVSKIY, YA. A.

PA 34/49T69

USSR/Medicine - Public Health, Progress Sep/Oct 48
Medicine - Public Health, Associations

"The Meeting of the Sanitation-Hygiene Scientific Institutes of the RSFSR," Ya. A. Kimbarovskiy, D. Ye. Rozenberg, Cand Med Sci, 3 pp

"Sov Zdravookhran" No 5

Reports proceedings at session held 18 - 22 May 48.

[redacted] 34/49T69

KIMBAROVSKI, I.A.

Color test of urine precipitation as index of intoxication of the organism and of activity of rheumatic processes. Probl. reumat.,Bucur. 4:7-19 1956.

1. Cercetator Stiintific Principal, Moscova.
(RHEUMATISM, diagnosis
urine precipitation test)
(KIDNEY FUNCTION TESTS
color test of urine precipitation in rheum. dis.)

KIMBAROVSKIY, Ya.

LETAVET, A.; KHOTSYANOV, L.; ARKHIPOV, A.; SMELYANSKIY, Z.; KIMBAROVSKIY, Ya.; PASTERNAK, A.; FONGAUZ, M.; ARNOL'DI, I.; BYKHOVSKIY, B.; GORKIN, Z.; ZHISLIN, L.; ZAIDSHNUR, I.; KOYRANSKIY, B.; MILLER, S.; NAVTROTSKIY, V.

Professor S.M.Aranovskii; obituary. Gig. i san. 21 no.10:62 O '56.
(MLRA 9:11)

(ARANOVSKII, SOLOMON MOISEEVICH, 1885-1956)

KIMBAROVSKIY, Ya.A.

Comparative evaluation of "colored sediment" reaction (TCR), urochromogen reaction and diazo reaction of the urine in various diseases. Lab.delo 3 no.3:23-26 My-Je '57. (MIRA 10:9)

1. Iz klinicheskoy ordena Lenina bol'nitsy imeni S.P.Botkina i kafedry laboratornoy diagnostiki (zav. - prof. Ye.A.Kost) TSentral'nogo instituta usovershenstvovaniya vrachey, Moskva.
(URINE--ANALYSIS AND PATHOLOGY)

KIMBAROWSKI, J. A. (Moskwa)

The Kimbarovskii chromatic sedimentation reaction in neurology and psychiatry. Neur. &c. polska 7 no.6:885-898 Nov-Dec 57.

1. Starszy pracownik naukowy.

(MENTAL DISORDERS, blood in,
sedimentation, Kimbarovskii chromatic reaction, review (Pol))
(BLOOD SEDIMENTATION, in var. dis.
ment. disord., Kimbarovskii chromatic reaction, review (Pol))

KIMBAROVSKII, Ia. A. St. nauch. sutrudnik---Moskva)

Use of the lagent color reaction of urine usi ng Kimberovskii's method in appendicitis; review of literature. Izv. Mikrob. inst., Sofia no.8:658-667 1957.

(APPENDICITIS, urine in
Kimbarovskii's latent color reaction, diag. value (Bul))

KIMBAROVSKII, Ia. A. st. nauch. sutrudnik -- Moskva.

Comparative studies on latent color reaction of Kimbarovskii, chromatogenic reaction & Weiss & Ehrlich's diazole reaction in various diseases. Izv. Mikrob. inst., Sofia no.8:667-670 1957.

(URINE,
Kimbarovskii's latent color reaction, chromatogenic reaction and Weiss & Ehrlich's diazole reaction (Bul))

KIMBAROVSKII, In. A. st. nauch. sutrudnik -- Moskva.

Significance of Kimbarovskii's latent color reaction with urine in gastroenterology. Izv. Mikrob. inst., Sofia no.8:671-675 1957.

(GASTROINTESTINAL DISEASES, urine in
Kimbarovskii's latent color reaction, diag. value (Bul))

KIMBAROVSKII, Ia. A. st. nauch.sutrudnik -- Moskva.

Use of Kimbarovskii's latent color reaction in malignant conditions of the gastrointestinal tract; review of literature. Izv. Mikrob. inst., Sofia no.8:675-681 1957.
(GASTROINTESTINAL TRACT, neoplasms,
urine in, Kimbarovskii's latent color reaction (Bul))

KIMBAROVSKIY, J.A.

Stained sediment reaction (Cork) and clinical analysis of urine. Med. arh., Sarajevo 11 no.2:1-21 Mar-Apr 57.

1. Stariji naucni saradnik - Moskva.
(URINE,
stained sediment reaction, comparison with clin. analysis (Ser))

KIMBAROWSKI, J. A., (Moskwa)

Use of Kimbarowski color sediment reaction in internal disease clinic. Polskie arch. med. wewn. 27 no.1:37-51 1957.

1. Adres autora: Moskwa, D-57, 1-j Cwetkowskij pr. 16/A, m. 3.
(URINE
sediment, Kibarowski color reaction, review (Pol))

KIMBAROWSKI, J.A. (Moskwa D-57 1j. Gwetkowskij pr 16/a m 3.)

Pigment reaction of Kimbarowski's sediment in normal pregnancy and in pregnancy toxemia in parturients and infected abortions. Gin. polska 28 no.4:417-426 July-Aug 57.

1. (Moskwa-ZSRR).
(PREGNANCY, urine in
pigment reaction of Kimbarowski's sediment, results (Pol))
(PREGNANCY TOXEMIAS, urine in
same)

KIMBAROWSKA J.A.

2022. CLINICAL AND PROGNOSTIC IMPORTANCE OF A COLOUR REACTION IN URINE SEDIMENT OF CHILDREN WITH INFECTIOUS DISEASES - Kliniczne i prognostyczne znaczenie barwnej reakcji osadu moczu w chorobach zakaźnych u dzieci - Kimbarowski J.A., Gwetkowski pr.16/A, Moskwa - PEDIAT.POL. 1957, 32/4 (363-376) Tables 1

The test is based on hot precipitation of urine sediment by a 5% aqueous solution of silver nitrate. In infectious diseases toxic metabolic products and cellular debris are excreted with the urine and contribute to the black sediment (positive test). Along with the recovery of the patient the colour of the sediment returns to normal. Observations along these lines were made on scarlet fever, diphtheria, typhoid fever, paratyphoid fever, dysentery, and infectious hepatitis ('Botkin's disease'). This test reaction is considered to indicate not only the degree of dynamics of the inflammatory process, but also evaluates the recovery of the patient and the efficacy of the treatment. The test is not specific for a given disease.

Anigstein - Galveston, Tex. (L, 6, 7)

KIMBAROVSKY, Ya.A.

Clinical importance of Kimbarovski's colored precipitation reaction in complicated examination of patients in various diseases. Cas. lek. cesk. 96 no.43:1379-1383 25 Oct 57.

1. Starsi vedecky pracovnik - Moskva.
(URINE,
Kimbarovski's colored precipitation reaction, diag. & clin. value (Cz))

KIMBAROVSKIY, Ya. A.: Doc Med Sci (diss) -- "The color precipitation reaction of the author (TsORK), its clinical and prognostic significance". Leningrad, 1958. 29 pp (Leningrad Sanitary-Hygiene Med Inst), 200 copies (KL, No 6, 1959, 141)

KIMBAROWSKI, J. A.

Importance of the Kimbarovskii color sedimentation reaction (KCSR) in the clinical manifestations of infectious diseases. Polski tygod. lek. 13 no.24:901-904 16 June 58.

(COMMUNICABLE DISEASES, urine in
proteins, clin. value of Kimbarovskii reaction (Pol))
(PROTEINS, in urine
in infect. dis., clin. value of Kimbarovskii reaction (Pol))
(URINE
Kimbarovskii reaction in infect. dis., clin. value (Pol))

KIMBAROWSKI, J.A. (Moskwa)

The role & use of urinary Kimbarovski color sedimentation reaction (KCSR) in the medical prevention of dysentery. Polski tygod. lek. 13 no.25: 947-952 23 June 58.

(DYSENTERY, urine in
Kimbarovski reaction, clin. value as prev. measure (Pol))
(URINE
Kimbarovskii reaction in dysentery, clin. value as prev. measure (Pol))

KIMBAROVSKIJ, starsi vedecky pracovnik (Moskva)

Use of Kimbarovsky's color precipitation reaction in cases of breast & genital cancer. Cesk. gyn 23 [37] no.3:218-222 Apr 58.

(BREAST NEOPLASMS, diag.
Kimbarovsky's color precipitation test (Cz))
(GENITALIA, FEMALE, neopl.
diag., Kimbarovsky's color precipitation test (Cz))

KIMBAROWSKIJ, J.A. (Moskwa, D-57, 1. Cwetkowski pr. 16/A m. 3.)

Application of personal color sedimentation reaction in surgical practice.
Polski przegl. chir. 30 no.6:633-647 June 58.
(URINE
sedimentation color reaction test, Kimbarovsky technic, application in surg. (pol))

KIMBAROVSKIY, Ya.A. (Moskva)

Kimbarovskii's urine color precipitation reaction in erysipelatous diseases and other injuries and inflammations of the skin and subcutaneous cellular tissue. Vest.derm. i ven. 32 no.3:83-84 My-Je '58 (MIRA 11:7)

(URINE--ANALYSIS AND PATHOLOGY)
(SKIN--DISEASES)

KIMBAROVSKIY, Ya.A. (Moskva)

Color sedimentation test, clinical analysis of the urine, leucocyte reaction, and erythrocyte sedimentation reaction in various diseases. Vrach.delo no.6:655 Je '59. (MIRA 12:12)
(URINE--ANALYSIS AND PATHOLOGY)

KIMBAROWSKI, J.A.(Moskwa)

On the application of Kimbarovskii's color sedimentation reaction in dermatology and venereology. Przegl.derm.,Warsz.46 no.4:355-361 Jl-Ag '59.

(SKIN DISEASES urine)
(VENEREAL DISEASES urine)

KIMBAROVSKIY, Ya.A. (Moskva)

Urine color sedimentation test in Botkin's disease. Kaz.med.zhur. 40 no.6:89-90 N-D '59. (MIRA 13:5)
(URINE--ANALYSIS AND PATHOLOGY) (HEPATITIS, INFECTIOUS)

KIMBAROVSKI, IA.A. (Moskva)

Color precipitation reaction and the microflora. Suvr. med. 12 no.12:59-66 '61.

(COMMUNICABLE DISEASES) (URINE)

KIMBAROWSKI, J.A., [Kimbarovskiy, Ya.A.] (Moscow)

Gastric lavage in combined treatment of gastric catarrh applied to outpatients. Przegl lek 20 no.2:133-137 '63.

1. Consultant of the Department of Internal Diseases of the Outpatient Clinic of the City Health Department, Moscow. Director of the Clinic: D.M. Etinger.

KIMBERG, A. N.

27057. KIMBERG, A. N. - K opredeleniyu vnutrennikh usiliy i deformatsiy prostoy balki. Trudy (Gruz. politekhn. in-t im. Kirova), No. 18, 1949, s. 31-34.-- Rezyume na gruz. yaz.

SO: Letopis' Zhurnal'nykh Statey, Vol. 36, 1949.

KIRBERG, A. M. (Engr)

Dissertation: "An Analysis of Uncombined Systems of Strut-Type Metal Bridges." Cand Tech Sci, Tbilisi Institute of Railroad Transport Engineers imeni V. I. Lenin, 23 Jun 54. (Zarya Vostoka, Tbilisi, 12 Jun 54)

SO: Sum. 318, 23 Dec 1954

SLOVINSKIY, N.A., kand.tkehn.nauk; KIMBERG, A.M., kand.tekhn.nauk

Using designs made by Soviet bridge builders. Avt. dor. 23 no.5: 26 My '60. (MIRA 13:10)
(Yellow river--Bridges, Concrete)

KIMBERG, G.S.

Overall automation of telephone communication in the Kaliningrad Province. Vest. sviazi 24 no.6:27 Je '64. (MIRA 17:11)

1. Glavnyy inzh. Kaliningradskogo oblastnogo upravleniya svyazi.

KIMBERG, N.V.

Direction of Development of the Soil Cover of the Amu-Darya Delta (resume in Uzbekistani) Izv. AN Uzbek. SSR, No 3, 1953. 31-35

The author gives the reasons why the general scheme of evolution of the bottom land-delta soils in Central Asia (V. A. Kovda, Problemy sov. pochvovedeniya, No 14, 1946) cannot completely be applied to the development of soils in the Amu-Darya delta. He considers that the flooding must be taken into account, which is of significance in the exploitation of the Amu-Darya delta. (RZhGeol, No 1, 1954)

SO: W-31128, 11 Jan 55

Kimberg, N.V.

USSR/Soil Science - Genesis and Geography of Soils. J-2

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10473

Author : Kalashnikov, A.I., Kimberg, N.V., Kochubey, Ye.P., Kochubey, M.I.

Inst : Institute of Soil Science, Academy of Sciences UzSSR

Title : The Soils of the Right Bank Region of the Lower Amu-Dar'ya

Orig Pub : Tr. In-ta pochvoved. Akad Nauk UzSSR, 1956, No 2, 3-92

Abstract : The results are given of an investigation of 700,000 hectares of the right bank of the Amu-Dar'ya delta. The meadow soils of the region can be divided into two groups: those which have been intensively built up by alluvial deposits from the regular floods and those which have been weakly built up. The soils of low-lying areas are distinguished by their heavier mechanical composition, and occasionally by their salinity (112-186 tons/hectare and less

Card 1/4

USSR/Soil Science - Genesis and Geography of Soils. J-2

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10473

of soluble salts in the three-meter layer). The meadow carbonate soils are formed where the ground water is not far from the surface; they contain 0.6-3.0% humus, are poor in P, and rich in N and K. These soils can be divided into three categories: salt-free, weakly saline (139 T/hectare of salts), and heavily saline (241 T/hectare of salts). The salts are a chloride-sulfate mixture. Marshy and meadow-marshy soils occupy a comparatively small area. Solonchaks occupied ~ 9.5% of the investigated area and fall into the following categories: typical, meadow, marshy, and residual. On the average the solonchaks contain 746 tons of salts per hectare, with chloride-sulfate and sodium-magnesium mixtures predominating. The meadow and marshy solonchaks, which are adapted to low-lying areas, occupy 1% of the region. Meadow-desert and meadow-takyr soils are formed in the channels of dried up rivers under conditions of weakened

Card 2/4

and meadow-desert soils. The soils are rich in [illegible] P. The takyr soils are formed in stratified alluvial deposits on the edge of the present delta, where the ground water level is from four to eight meters below the surface. The soils are rather impermeable to water (0.50-0.17

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[Materials on the productive forces of Uzbekistan] Materialy po proizvoditel'nym silam Uzbekistana. Tashkent. No.10. [Natural conditions and resources of the lower reaches of Amu-Darya; Kara-Kalpak A.S.S.R. and Khorezm Province of the Uzbek S.S.R.] Prirodnye usloviia i resursy nizov'ev Amu-Dar'i; Kara-Kalpakskaia ASSR i Khorezmskaia oblast' UzSSR. 1959. 351 p. (MIRA 13:5)

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Some data on the extent of erosion in Uzbekistan, its aftereffects and control measures. Uzb.biol.zhur. no.1:73-81 '59.
(MIRA 12:7)

1. Institut pochvovedeniye AN UzSSR.
(Uzbekistan--Erosion)

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[Soil and climatic zoning of Uzbekistan for farming purposes] Pochevenno-klimaticheskoe raionirovanie Uzbekistana v sel'skokhoziaistvennykh tseliakh. Tashkent, Uzbekskaia Akad. sel'khoz. nauk In-t pochvovedeniia, 1960. 116 p. (MIRA 15:5)
(Uzbekistan—Soils and climate)

KIMBERG, N.V.; KOCHUBEY, M.I.; SUCHKOV, S.P.

Classification of the soils of the agricultural regions of Uzbekistan. Pochvovedenie no.6:78-84 Je '60. (MIRA 13:11)

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(Uzbekistan—Soils—Classification)

CORBUNOV, B.V.; KIMBERG, N.V.

Boundary between the latitudinal soil zones and altitudinal soil belts in Central Asia. Pochvovedenie no.11:24-30 N '61. (MIRA 14:12)

1. Institut pochvovedeniya Akademii sel'skokhozyaystvennykh nauk UzSSR.

(Soviet Central Asia--Soils)

GENUSOV, A.Z.; GORBUNOV, B.V.; KIMBERG, N.V.

Dividing the Uzbek S.S.R. into regions according to soil and climate. Trudy TashGU no.186:40-55 '61. (MIRA 14:12)

1. Akademiya nauk UzSSR.
(Uzbekistan--Soil and climate)

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(Uzbekistan--Soils--Classification)

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GENUSOV, A.Z.; KIMBERG, N.V., kand. sel'khoz. nauk; KOCHUBEY, M.I.; SHUVALOV, S.A.; TIKHONOVA, I., red.

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KOVDA, V.A., otv. red. LOBOVA, Ye.V., doktor sel'khoz. nauk, otv. red. (Moskva); ZIMBERG, N.V., red. (Tashkent); MAMYTOV, A.M., red. (Frunze); UMAROV, M.U., red.

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KIMBERG, V. A.

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[What the Kamyshin sandstones and the Yergeni Hills sand tell us; the history of vegetation in the lower Volga Valley] O chem govoriat peschaniki Kamyshina i peski Ergenei; k istorii rastitel'nosti Nizhnego Povolozh'ia. Stalingrad, Oblastnoe knigoizdatel'stvo 1952. 46 p. (MLRA 8:8)

(Volga Valley--Paleontology)

KIMCZAK, E.

Geologic documentary evidence on strata as a basis of economic planning of raw materials in ceramic constructions. p. 146, Vol. 10, no. 6, June 1955
MATERIALY BUDOWLANE
So: MONTHLY LIST OF EAST EUROPEAN ACCESSIONS, (EEAL), Vol. 4, LC, No.9, Sept. 1955, Uncl.

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p. 369 (Roczniki Chemii) Vol. 31, no. 1, 1957, Warszawa, Poland

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

KIMEK, J.

Heating coefficients of metallurgic furnaces for heating. Biuletyn. P. 17 HUTNIK Poland Vol. 21, no. 5, May 1954

SOURCE: EEAL LC Vol. 5, no. 10, Oct. 1956

KIMEL, A.

Securing high-tension electric lines with feeders by a relay. Pt. 1. (To be contd.) p. 305.
(ENERGETYKA. Vol. 10, no. 6, Nov./Dec. 1956.)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 7, July 1957.Uncl.

KINEL, A.

Securing high-tension electric lines with feeders by a relay. Pt. 2. p.19.

(ENERGETYKA. Vol. 11, No. 1, Jan./Feb. 1957. Warszawa, Poland)

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

(A) L 11156-66 ENT(m)/ENP(j) RM

ACC NR: AP6000348 SOURCE CODE: UR/0286/65/000/021/0046/0046

AUTHORS: Utyanskiy, Z. S.; Kimel', E. A.

ORG: none

TITLE: A method for obtaining thermosetting phenol resins. Class 39, No. 176061

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 21, 1965, 46

TOPIC TAGS: resin, phenol resin, polymer, monocarboxylic acid

ABSTRACT: This Author Certificate presents a method for obtaining thermosetting phenol resins based on a dimer of dimethylvinyl-ethinylphenol in an alkaline medium. To obtain resins that harden with practically no formation of the volatiles, the dimer is condensed with a monohaloid containing monocarboxylic acids such as monochloracetic or monochlorenanthic acids.

SUB CODE: 07, 11/ SUBM DATE: 13Oct64

Card 1/1 UDC: 678.673

KIMEL' L.

AUTHOR CHETVERIKOVA Z., KIMEL' L.

TITLE The Contents of the Atomic Pavillion of the All Soviet Industrial Exhibition (Department "Protective Devices") 89-5-12/22
(V atomnom pavil'one Vsesoyuznoy promyshlennoy vystavki , (Otdel "Zashchitnaya tekhnika)-Russian).

PERIODICAL Atomnaia Energiia, 1957, Vol 2, Nr 5, pp 474-475 (U.S.S.R.)
Received 6/1957 Reviewed 7/1957

ABSTRACT In this department various devices and means for the protection of persons against exterior radiation and the penetration of radioactive substances in formof gases or aerosols into the interior of the human organism and on the skin are exhibited. Further, various dosimetric apparatuses are on show, which are intended for the control of radiation levels (with signals if the permitted limit is exceeded), as well as tables and nomograms for the determination of safety conditions during work with radioactive radiation sources. In the Soviet Union special porophylactic and protective measures were applied. This department also shows tables of the permissible levels of ionizing radiations for work of longer duration with radioactive isotopes. The exhibition further shows various means for the protection against pentrating radiation. In "hot" chambers work is carried out behind lead- or concrete shields with special "tele-manipulators". Thus, gripping instruments and pincers with long handles were shown. Furthermore, hermetically tight boxes with gloves built into their walls were on show. The booths contained numerous devices for individual protection when working with open radiactive

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S/089/63/014/003/010/020
B102/B186

AUTHOR: Kimel', L. P.

TITLE: Determination of the build-up factor for barrier geometry

PERIODICAL: Atomnaya energiya, v. 14, no. 3, 1963, 315 - 316

TEXT: A relation is derived which renders the common build-up factors (for infinite shields) applicable also to practical cases of finite shields of thickness μx: $B_\sigma(h\nu, Z, \mu x) = \delta(h\nu, Z)B_\infty(h\nu, Z, \mu x)$. The main advantage of this relation is that the proportionality factor is independent of μx. For water $\delta = 0.797$ ($h\nu$=0.66 Mev), 0.845 (1.00), and 0.950 (4.00); for iron, $\delta = 0.907$ ($h\nu$=1.00 Mev) and 0.965 (4.00). This relation is well suited for calculating dose distributions of shielded extended sources. For water the correction for finiteness of the shield amounts to $\leq$ 2 %; for heavy shield materials and higher quantum energies a calculation of δ is unnecessary; in no case does the correction amount to more than 5 %. Numerical results are presented for a monodirectional plane source shielded by water of μx = 1 - 15 and three $h\nu$-values. There are 2 tables.

SUBMITTED: June 9, 1962

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L 9874-63 EWT(1)/EPF(n)-2/EDS AFFTC/ASD/AFWL/SSD Pu-4 IJP(C)
ACCESSION NR: AP3002266 S/0089/63/014/006/0577/0579

AUTHOR: Leypunskiy, O. I.; Kimel', L. P.; Panchenko, A. M.

TITLE: Gamma-radiation field of collimated point sources Cs sup 137 and Co sup 60 in iron

SOURCE: Atomnaya energiya, v. 14, no. 6, 1963, 577-579

TOPIC TAGS: gamma radiation, point radiation sources, Cs sup 137, Co sup 60, iron, plane radiation sources, energy buildup factors

ABSTRACT: Measurements have been made of the spatial distribution of scattered gamma quanta in an iron block measuring 16 x 18 x 25 cm from highly collimated point sources Cs sup 137 and Co sup 60 with activities from 1 to 0.55 curie. The geometry of the experimental setup is shown in Fig. 1 of the Enclosures. The block consisted of separate sheets of iron. An SBM-10 gas-discharge counter, with a special screen to reduce energy dependence and provide practically isotropic sensitivity of the counter, served as the detector. The measurements were made at points with h and r coordinates, where h = beam distance from the entrance to the middle, and r = radial distance in the plane

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L 9814-63
ACCESSION NR: AP3002266

2

perpendicular to the beam. For Cs sup 137 the measurements were made at five fixed points: 1.19, 2.56, 3.92, 5.28, and 6.65 (where the numbers represent multiples of the mean free path). For Co sup 60, the values used were 1, 4, and 5. The results are shown in Figs. 1 and 2. A formula (see Formula 1 of the Enclosures) has been derived from data for the Cs sup 137 source for calculating the buildup factor B sub E for a plane collimated source. Within the limits of experimental error, the calculated values of the buildup factor for a plane collimated source in iron at the energies of primary gamma quanta of 0.661 Mev were found to be in good agreement with the experimental data of H. Goldstein and S. Wilkins (US AEC Report NYO-3075 (1954)). Similar experiments have been conducted for concrete, aluminum, and lead. "In conclusion, the authors express their appreciation to V. I. Ivanov and Y. P. Mashkovich for valuable advice expressed during the review of the work." Orig. art. has: 3 figures and 1 formula.

ASSOCIATION: none
SUBMITTED: 29Sep62 DATE ACQ: 12Jul63 ENCL: 03
SUB CODE: 00 NO REF SOV: 004 OTHER: 005

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SOV/89-7-3-15/29

21(3)
AUTHOR: Kimel', L. R.

TITLE: Determination of the Optimum Shape of a Shielding Barrier

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 3, pp 265-266 (USSR)

ABSTRACT: For a linear source having the length 2L, an activity M (milligram-equivalent Ra), which is uniformly distributed along its entire length, the optimum shape of the shielding barrier is calculated in such a manner that a given dose rate P_0 is not exceeded in a certain space point. Besides, the shape should be such that the weight of the shielding barrier is as low as possible. The corresponding formulas are briefly deduced and are as follows:

$$P = 2\int_0^L \frac{MK}{2LR^2} e^{-\mu r} dx = \int_0^{\varphi_0} \frac{MK}{LH} e^{-\mu y \sec\varphi} d\varphi$$

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Determination of the Optimum Shape of a Shielding Barrier

where μ denotes the linear attenuation coefficient of the material from which the shielding barrier is made, K - a proportionality factor, H - the distance between the space point in which the dose rate is given and φ - the vectorial angle, φ_0 = arctg L/H. The curve $r = f(\varphi)$, which corresponds to the deduced formulas, is graphically represented. In this connection the multiple scattering in the shielding barrier was not taken into account. This phenomenon may be taken into account by employing the method given in reference 3. The theoretically deduced shape of the shielding barrier was checked by means of a linear Co^{60}-γ-source of 1 m length. The calculated and measured dose rates were found to coincide within the limits of measuring accuracy, whereas the weight of the shielding barrier was by 20% lower than calculated because of the multiple scattering. There are 2 figures and 3 Soviet references.

KIMEL, L.R.

PHASE I BOOK EXPLOITATION SOV/5717

Moscow. Inzhenerno-fizicheskiy institut.

Pribory i metody analiza izlucheniy; sbornik nauchnykh rabot, vyp. 2. (Apparatus and Methods for the Analysis of Radiation; Collection of Scientific Papers, no. 2) Moscow, Atomizdat, 1960. 166 p. 4000 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy inzhenerno-fizicheskiy institut.

Ed. (Title page): Ye. L. Stolyarova, Candidate of Physics and Mathematics; Tech. Ed.: S. M. Popova.

PURPOSE: This collection of articles is intended for specialists in nuclear physics, dosimetry of nuclear radiations, and shielding.

COVERAGE: The articles were prepared by scientists of MIFI (Moscow Physics and Engineering Institute) and presented at the 1957 conference of the Institute. Brief annotations to the articles have been included in the Table of Contents. No personalities are mentioned. References follow each article.

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the heavy one, the factors can be determined according to Ref. 3; the build-up factor for Al + Pb is somewhat higher than for lead only of the same thickness. For Fe + Al and Al + Fe these factors are practically equal in the case of not too high thickness. In general, the build-up factor for two-layer shields may be determined according to $B_{I,II} = B_{II}(\mu_o x_{II}) + \frac{\int_0^{h\nu} J_I(h\nu)\exp(-\mu_{II}(h\nu)x_{II})B[h\nu,\mu_{II}(h\nu)x_{II}]dh\nu}{J_o\exp(-\mu_o(x_I+x_{II}))}$, where $B_{II}(\mu_o x_{II})$ denotes the build-up factor of primary radiation for the second material, μ_o the attenuation factor of the primary radiation, $J_I(h\nu)$ the gamma radiation spectrum behind the first material of the thickness $\mu_o x_I$; $\mu_{II}(h\nu)$ the attenuation factor of a radiation of energy $h\nu$ in the second material; $B[h\nu\ \mu_{II}(h\nu x)_{II}]$ the build-up factor of the radiation with energy $h\nu$ in the second medium. According to this formula the build-up factors for the Pb + Al combination was calculated under certain simplifying conditions and the results were compared with the experimental ones. The discrepancies do not exceed ±15%.

Build-up factors for ...

The agreement between experimental and theoretical values is the best for the 5μxFe + 1.85μxPb (A+B) combination. The ratio of the energy build-up factors of B+A and A+B was determined to be 6.3 : 4.0 = 1.58 (1.5 was obtained in Ref. 6). This refers to operation with an isotropic point source. In conclusion, the author thanks O. I. Leypunskiy for his interest in this work. There are 4 tables and 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc.

SUBMITTED: June 15, 1960

Legend to the tables: The tables show the energy build-up factors at hν = 1.25 Mev for the combinations Pb + Al (upper value) and Al + Pb (lower value) (Table 1); Pb + Fe (upper value), Fe + Pb (lower value) (Table 2); Fe + Al (upper value), Al + Fe (lower value) (Table 3). 1) Thickness of the material nearer to the source; 2) thickness of the material nearer to the detector (thickness in μx).

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Build-up factors for ...

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B102/B209

Tab.1

Толщина материала, расположенного ближе к источнику, μx	Толщина материала, расположенного ближе к детектору, μx				
	1	2	3	4	5
1	2,3 2,1	3,2 2,7	4,4 3,0	5,4 3,3	6,6 3,4
2	3,0 2,7	4,1 3,1	5,4 3,3	6,9 3,6	8,4 3,8
3	3,7 3,0	5,0 3,4	6,7 3,7	8,5 3,8	10,3 4,0
4	4,4 3,2	6,0 3,6	8,0 3,9	10,2 4,0	12,5 4,3
5	5,3 3,4	7,0 3,8	9,4 4,1	12,0 4,3	14,6 4,6

Tab.2

Толщина материала, расположенного ближе к источнику, μx	Толщина материала, расположенного ближе к детектору, μx				
	1	2	3	4	5
1	2,3 1,8	2,8 2,0	3,5 2,2	4,4 2,5	5,1 2,8
2	2,7 2,0	3,5 2,3	4,3 2,6	5,2 3,0	6,3 3,3
3	3,3 2,5	4,2 2,8	5,2 3,2	6,3 3,5	7,4 3,8
4	3,8 3,1	5,0 3,4	6,1 3,7	7,5 4,1	8,8 4,4
5	4,3 3,6	5,8 4,0	7,1 4,3	8,7 4,6	10,2 5,0

Tab.3

Толщина материала, расположенного ближе к источнику, μx	Толщина материала, расположенного ближе к детектору, μx				
	1	2	3	4	5
1	2,6 2,5	3,4 3,4	4,5 4,3	5,5 5,1	6,8 6,0
2	3,3 3,3	4,1 4,1	5,4 5,2	6,6 6,0	7,0 6,9
3	4,2 4,2	5,3 5,3	6,5 6,3	7,7 7,2	9,3 8,0
4	5,3 5,3	6,5 6,4	7,8 7,4	9,1 8,2	10,7 9,0
5	6,7 6,4	8,0 7,5	9,3 8,5	10,6 9,4	12,2 10,3

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S/796/62/000/003/006/019

AUTHOR: Kimel', L. R.

TITLE: Gradient nonlinear-programming method for the calculation of a minimum-weight shield.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Pribory i metody analiza izlucheniy. no.3. 1962, 61-70.

TEXT: The practicability of nuclear propulsion engines depends greatly on the shielding weight. The problem of minimization of shielding weight under the premise that a limiting radiational dosage must be ensured only for a limited space, e.g., a cabin, whereas the remainder of space needs either limited protection only or none at all, has been solved by the method of gradient nonlinear programming (Sheffield, R., NARF-57-62). The paper expounds the essence of Sheffield's method and finds it applicable to a multilayered shield and to mixed γ-n radiation sources, if certain supplementary conditions are observed. A numerical example is calculated. A spherical 1000-curie Co^{60} source is imagined to project a 10^{o} pencil upon a spherical region, 3 m away, in which a maximum permissible dose is to be ensured. The scattering medium is air (for simplicity of calculation). The shield material is to be Pb, and it is assumed that some source shielding and some target shielding is to be used. A simplified weight analysis demonstrates that is the source and the target to be protected are of equal size, the minimum-weight shielding thickness for either is also equal; if the radiation source is punctuate

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and if the sum of the two shielding thicknesses is equal to or smaller than the target radius, then minimal weight is achieved by shielding the source only. In the further development of the source-shielding example the source is divided into 7 symmetrical pairs of sectors. One of the sector pairs is to be shielded to provide direct-radiation protection to an external point A, the others are to be shielded to afford scattered-radiation protection to the same point. In calculating the contribution of the various sectors, single scattering of the radiation only is taken into account, since for the 1.25-mev energy of Co^{60} γ-quanta, the presence of an aerial medium, and the selected distance single scattering predominates (Nuclear reactor shielding. Russian translation of U.S. AEC reports. Moscow. Foreign Lit. Publ. House, 1958). The curve of the differential scattering cross-section vs. impingement angle is reduced to three simply expressed linear segments, which facilitates the integration of the expression for the intensity of the scattered radiation at point A. The dosage rate is obtained by graphic integration over each scattering sector (results are tabulated). The final shape of the shield, i.e., the thickness of each shielding sector, is obtained by the gradient nonlinear programming method (tabulated) for a maximum permissible dosage rate of 5 mcurie/sec. There are 6 figures, 2 tables, and 3 U.S. references, of which one is English-language and two are cited in their Russian-language translations.

ASSOCIATION: None given.

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S/796/62/000/003/007/019

AUTHORS: Kimel', L.R., Mashkovich, V.P., Panchenko, A.M.

TITLE: Shielding against the radiation of electron accelerators with a maximum energy of the accelerated electrons of 30 mev.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut, Pribory i metody analiza izluchenly. no.3. 1962, 71-78.

TEXT: The paper expounds a simplified method and initial data indispensable for the calculation of shielding against bremsstrahlung and photoneutron radiation for accelerators with a maximum accelerated-electron energy of 30 mev. The electron beam is treated as monoenergetic; in nonmonoenergetic beams the energy distribution spectrum of the electrons can be divided into energy intervals, and each interval is then treated as a monoenergetic beam. Shielding calculations require a knowledge of the distribution of the dosage fields of the bremsstrahlung and the photoneutron fluxes around the target, also their spectral distribution. Shielding thicknesses for either type of radiation are first calculated separately, whereupon the shield thicknesses required to afford protection against both radiations are selected. Bremsstrahlen shielding: The bremsstrahlen dosage rate is a function of the target flux, the electron energy, the atomic number, and the target thickness. The linear dependence of the integral intensity of the bremsstrahlen on the target

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Shielding against the radiation of electron accelerators. S/796/62/000/003/007/019

atomic number, as experimentally obtained and reported by Price-Horton-Spinney (cited in Russian translation), is accepted in preference to the quadratic dependence stipulated by Bethe-Heitler theory. Calculations are made for the radiationally most dangerous case, namely, for a target with maximal atomic number and optimal thickness. The angular distributions of bremsstrahlen dosage rates, under such premise, can be calculated according to Lawson's intensity formula (Nucleonics, v. 10, 1952, 61), since the spectral distribution of bremsstrahlen are independent of the angle (Levin, S., Nucleonics, v.6, 1954, 54). Data for the dosage spectrum are taken from U.S. literature. From the dosage rate thus obtained, the shield thickness for a nonmonochromatic bremsstrahlung is calculated by the competitive-line method (Gusev, N.G. Spravochnik po radioaktivnym izlucheniyam i zashchite - Radioactive radiation and shielding manual. Moscow. Medgiz, 1956). The thicknesses of concrete (density 2.3 g/cm^3) required for various attenuation fractions are tabulated. Gusev's competitive-line method is used up to 6 mev, the experimental data of F.Kirn and R.Kennedy (Nucleonics, v.6, 1954, 44) for higher energies. Thicknesses calculated according to these two references are graphically compared. The calculated points lie some 8% above the experimental points, presumably because the Gusev tables employ infinite geometry. Photoneutron shielding is required only when the maximal bremsstrahlen energy exceeds the threshold value of the (γ,n) reaction which determines the binding energy of the neutron in the nucleus. This occurs at above 6 mev for almost all elements, except for Be (1.67

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mev) and D (2.23 mev). The photoneutron flux is a function of the maximal bremsstrahlen energy, the atomic number, and the target geometry. For greatest safety, unless other stipulations are made, a target with high atomic number, e.g., U, which releases the greatest number of photoneutrons, is selected for shielding calculations. Photoneutron outputs per ma of flux versus impinging-electron energy for Cu, Pb, Bi, and U targets are taken from V.I.Gomonay, et al. (Atomnaya energiya, v.7, no.5, 1959, 476); using these outputs, and assuming the angular neutron distribution to be isotropic (Price,G., et al., Phys.Rev., v.77, 1950, 806), the neutron intensity at any given distance is calculated as a function of the electron flux on the target. The maximal energy of the photoneutrons is obtained from the difference between the maximal energy of the bremsstrahlung and the binding energy of the neutron in the target-substance nucleus; the photoneutron spectrum is assumed to have a Maxwellian distribution in which the maximum is shifted toward the weaker energies. From the solid-angle and the spectral distributions thus obtained, the required attenuation fraction can be calculated, whence the wall thickness follows. A specific numerical example is illustrated. The frontal wall of the sample shielding is designed for bremsstrahlung, the other three for photoneutron protection. Thanks expressed to O.I.Leypunskiy, N.G.Gusev, and Ye.L.Stolyarova for valuable advice. There are 6 figures, 1 (unnumbered) table, and 15 references (4 Russian-language Soviet and 11 U.S. references, of which 9 are in English, 2 in Russian translation).

ASSOCIATION: None given.

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AUTHORS: Kimel', L. R., Leypunskiy, O. I.

TITLE: The gamma radiation field of a monodirectional point source

PERIODICAL: Atomnaya energiya, v. 12, no. 3, 1962, 236 - 237

TEXT: Since gamma radiation sources with arbitrary angular distributions can be considered as superpositions of monodirectional point sources, this new type of elementary source is of great interest. The radiation field of a collimated gamma beam from Cs^{137} or Co^{60} was measured in a 90 · 90 · 90 cm water phantom; the beam entered the water in the middle of the tank. An СТС-5 (STS-5) counter was used as a detector; for direct beam measurements, a scintillation detector and a small СИ-2БГ (SI-2BG) counter were used. Measurements were made at distances of 12, 18, 24, 30, 36, and 42 cm along the beam and at 5, 7, 10, 15, 20, and 30 cm from the beam axis. The distribution curves show two sections: a steep drop at small distances (~1cm) and an almost linear and slow decrease at greater distances. From an experimental analysis, the relation $E_p(\mu_o h, \mu_o x)$

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The gamma radiation field of...

$= E_0 e^{-\mu_0 h} \frac{2}{\mu_0 r_0 h} \Phi\left(\sqrt{\frac{2\pi\mu_0 h}{3(B-1)}}\mu_0 x\right)$ Mev/cm^2 sec was obtained which fits the experimental curves with an accuracy of about 10%. h is the distance along the beam, x the distance from it, μ_0 the linear attenuation factor for the primary quanta, E_0 the beam energy (Mev/sec), $\Phi(z) = e^{-z} - z\int_0^\infty \frac{e^{-t}}{t}\,dt$ is the King function (tabulated), B - energy build-up factor for a plane monodirectional source. There are 1 figure and 7 references: 5 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: F. Kirn et al. Radiology, 63 (1), 94 (1954); H Goldstein, S. Wilkins US AEC Report, NYO-3075 (1954).

SUBMITTED. October 18, 1961

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KIMEL', L.R.

Determining the build-up factor in barrier geometry. Atom.energ. 14 no.3:315-316 Mr '63. (MIRA 16:2)
(Shielding (Radiation))

LEYPUNSKIY, O.I.; KIMEL', L.R.; PANCHENKO, A.M.

Gamma-radiation field of collimated point sources of Cs^{137} and Co^{60} in iron. Atom. energ. 14 no.6:577-579 Je '63. (MIRA 16:7)
(Gamma rays) (Cesium isotopes) (Cobalt isotopes)

KIMEL', L.R.; PANCHENKO, A.M.; TERENT'YEV, V.P.

Calculation of the spectral-angular distribution of scattered gamma quanta from a Cs^{137} monodirectional point source in iron. Atom. energ. 15 no.4:328-331 O '63. (MIRA 16:10)

S/2892/63/000/002/0006/0023

ACCESSION NR: AT4021246

AUTHOR: Kimel', L. R., Panchenko, A. M., Terent'yev, V. P.

TITLE: Calculation of the spectral angular distribution of scattered radiation of a point unidirectional cesium 137 source in iron by means of the Monte-Carlo method

SOURCE: Voprosy* dozimetrii i zashchity* ot izlucheniy, no. 2, 1963, 6-23

TOPIC TAGS: Monte-Carlo method, computers, Strela-3, energy scattering, spectral distribution, angular distribution, point source, unidirectional source, γ quantum, Compton effect, photoeffect, energy albedo, iron

ABSTRACT: In the article by Berger, M. J., Spenser, L. V. (radiation RES., vol. 10, no. 5, page 552 (1959)) the problem on the distribution of scattered energy of a unidirectional point source with an initial γ quantum energy of 1.28 MeV in a semi-infinite water medium was solved by a combination of the analytic method and the Monte-Carlo method. The authors have undertaken the task of presenting the spectral angular distribution of this type of source. The calculations of this article are based on the Monte-Carlo method and were done on the electronic computer Strela-3 of VTsAN SSSR. The results were obtained on the analysis of 5420 γ quantum histories. The unidirectional point source with an initial γ quanta energy of

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E_{0_3} = 0.661 MeV is located in an infinite iron medium with a density of ρ = 7.89 g/cm^3. The sequence of the calculation is as follows: 1) the track of the γ quanta is found; 2) the type of interaction is determined; 3) the angle of the quantum scattering in the Compton process is set; 4) the quantum energy after scattering is determined; and 5) the azimuthal angle of scattering is found, disregarding the polarization of the γ quanta. The spectral angular distribution and function of the attenuation of the scattered radiation is obtained. Some data, known from literature, is also calculated for the purpose of verifying the method. These are correlated in different graphs. The energy albedo is determined as a relationship of the amount of energy reflected from the semi-infinite medium to the energy falling on this medium for an identical length of time. The angular distribution of scattered energy for the central areas is constructed from the graphs. A shift of the spectra in a low energy region is noted with the increase of the angle. Radial distribution of the scattered energy corresponding with experimental data done by Gol'dshteyn (Osnovy* zashchity* reaktorov. M., Gosatomizdat, 1961) are obtained. The numerical and energy albedo and the attenuation of the primary beam are also calculated. The authors express their thanks to O. I. Leypunskiy for his constant attention to the article and to V. N. Seleznev for aid given in the programming of the problem. Orig. art. has: 16 formulas, 12 figures, and 2 tables.

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KIMEL', L.R.; PANCHENKI, A.M.; POLYAKOV, V.I.; TERENT'YEV, V.P.

Experimental study of the distribution function of monodirectional point sources of γ-quanta with initial energies of 0.661 and 1.25 Mev. in concrete, aluminum, iron, and lead. Vop. doz. i zashch. ot izluch. no.2:28-39 '63. (MIRA 17:3)