SOV/133-59-2-20/28

AUTHORS: Bobrov, A.V., and Sinitsyn, A.A.

TITLE: Medium Size Ingot Moulds from Nodular Iron (Srednive izlozhnitsy iz chuguna s sharovidnym grafitom)

PERIODICAL: Stal', 1959, Nr 2, pp 189-191 (USSR)

ABSTRACT: As published results on the durability of ingot moulds from nodular iron are contradictory, experimental batches of ingot moulds were cast from magnesium inoculated iron for 1.75 ton ingots of alloyed electric steel and their durability tested. The casting arrangement is shown in Fig.1. To increase the metal temperature by 80-130°C an addition of oxygen in the runner (fig.2) was used. The addition of magnesium was done by immersion in a special bell (fig.3). Chemical composition and durability of the experimental moulds - table 1; mechanical properties of the metal in moulds before and after thermal treatment - table 2. All experimental moulds were thermally treated before the removal of cores according to the following practice: a) heating to 900°C at a rate of 150°/hr and soaking at this temperature for 8-10 hours; b) cooling from 900° to 550°C at a rate of 25°/hr;

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Medium Size Ingot Moulds from Nodular Iron

c) cooling from 550° to 200-300° at a rate of 50°/hr and then in air. It was found that the durability of moulds from nodular iron was 2.17 times higher than that of ordinary moulds (from grey iron). Literature data on the low durability of ingot moulds from nodular iron could be related to cases when no thermal treatment was applied or when iron with a too high content of manganese, phosphorus or sulphur was used or when the structure was pearlitic. There are 3 figures, 2 tables and 4 Soviet references.

ASSOCIATION: Chelyabinskiy Metallurgicheskiy Zavod (Chelyabinsk Metallurgical Works)

Card 2/2

LYAKISHEV, V.T.; PLATONOV, G.P.; SINITSYN, A.A.

Spectral determinaion of silicon in blast furnace cast iron. Zav.lab. 29 no.12:1452 '63. (MIRA 17:1)

1. Chelyabinskiy metallurgicheskiy zavod.

SINITSYN, A.D., podpolkovnik meditsinskoy sluzhby; GERASKIN, P.A., podpolkovnik meditsinskoy sluzhby

Contrast radiography of the maxillary sinus. Voen.-med. zhur. no.11:76 N '61. (MIRA 15:6)
(MAXILLARY SINUS--RADIOGRAPHY)

SINITSYN, A.F.; LOSKUTOV, A.I., inzh.; CHICHILANOV, M.T., slesar'

Measure for eliminating the melting of contacts of a quick-break switch on electric locomotives. Elek. i tepl. tiaga no.1:18 Ja '61. (MIRA 14:3)

1. Master apparatnogo tsekha depo Zlatoust (for Sinitsyn).
(Electric locomotives—Electric equipment) (Electric switchgear)

SIN[illegible]YN, [illegible].F.

Assembly line for the ?5? electric meters. Avtom. i prib. no.2: 90-92 Ap-Je '63. (MIRA 18:2)

1. Kiyevskiy zavod "Tochelektropribor".

BARABASH, M.B., kandidat tekhnicheskikh nauk; SINITSYN, A.I., inzhener.

Effect of temperature and air humidity on the operation of marine diesel engines. Sudostroenie 22 no.5:17-21 My '56. (MLRA 9:9)
(Marine diesel engines)

SINITSYN, A.I., inzh.; MEL'NIKOV, K.M., inzh.

Resistance welding machine with a wedge-type pneumatic drive for flash and upset welding. Svar. proizv. no.8:35-36 Ag '64. (MIRA 17:9)

1. Ural'skiy avtomobil'nyy zavod.

SINITSYN, A. I., inzh.; BRODYAGIN, G. N., inzh.

Attachment for the dressing of rollers on seam welding machines. Svar. proizv. no.10:35-36 O '62. (MIRA 15:10)

1. Ural'skiy avtomobil'nyy zavod.

(Electric welding—Equipment and supplies)

GREYNER, Gans Rolandovich; IL'YASHENKO, Vladimir Pavlovich; PERVUSHIN, Nikolay Nikolayevich; CHUMAYEVSKIY, Viktor Alekseyevich; GEYNRIKHS, G.K., kand.tekhn.nauk, retsenzent; SEKUNOVA, O.N., nauchn.red.; SINITSIN, A.I., nauchn.red.; VASIL'YEVA, N.N., red.; FRUMKIN, P.S., tekhn. red.

[Automatic control of air pump compressor plants] Avtomatizatsiia vozdushnykh porshnevykh kompressornykh ustanovok. Moskva, Sudpromgiz, 1963. 147 p. (MIRA 16:8)
(Air compressors) (Automatic control)

135-4-6/15

SUBJECT: USSR/Welding.

AUTHORS: Sinitsyn, A.M., Engineer, Belov, V.Ya, Engineer, and Gitlevich, A.D., Engineer.

TITLE: Production-Line Manufacturing of Overhead Traveling Crane End Beams. (Potochnaya liniya proizvodstva kontsevykh balok mostovykh kranov).

PERIODICAL: "Svarochnoye Proizvodstvo", 1957, # 4, pp 18-21 (USSR)

ABSTRACT: The article describes the first production line in the USSR for assembling by welding major component parts of overhead traveling cranes. The All-Union Designing-Technological Institute (ВПТИ) presently works on mechanizing the entire assembling process of these cranes. The authors emphasize the fact that there are presently - as a rule - no specialized work stands and fixtures for assembling available, and the semi-automatic and automatic welding methods are not being sufficiently applied.

The described production line consists of 8 work stands, all of which are described and shown in illustrations.

Card 1/2

SINITSYN, A.N.

Effect of the morphine group analgesics on induced potentials of the afferent sustems of the brain. Uch.zap.Inst.farm. i khimioter. AMN SSSR 3:52-64'63. (MIRA 16:9)

1. Department of Pharmacology (Head-Professor V.V.Zakusov, Member of the U.S.S.R. Academy of Medical Sciences) of the Institute of Pharmacology and Chemotherapy of the U.S.S.R. Academy of Medical Sciences.
(ANALGESICS) (BRAIN)

SINITSYN, A.V., doktor tekhnicheskikh nauk, professor.

Simple design of continuous beam-partitions weakened by holes. Insul. no toor. sooruzh. no.4:110-114 '49. (MLRA 10:8)
(Girders, Continuous) (Concrete construction)

MINITSYN, A.I., doktor tekhnicheskikh nauk, professor.

Distribution of stresses in retaining walls having broken profiles. Issl. po teor. sooruzh., no.4:115-140 '48. (MLRA 10:8)
(Retaining walls)

SIROTIN, A.P., doktor tekhnicheskikh nauk, professor.

Calculating the settling of framed multistoried buildings. Issl. po teor. sooruzh. no.4:285-298 '49. (MLRA 7:5)
(Soil mechanics) (Foundations)

SINITSYN, A.P., professor, doktor tekhnicheskikh nauk (Moscow)

Simplified calculation of plates having a wedge shape. Issledovaniia po teorii sooruzhenii. Sbornik statei no.6:479-490 '54. (MLRA 7:11)
(Structures, Theory of) (Strains and stresses) (Elastic plates and shells)

SOV/124-58-3-3201

Translation from: Referativnyy zhurnal. Mekhanika 1958 Nr 3, p 96 (USSR)

AUTHOR: Sinitsyn, A. P.

TITLE: The Dynamic Influence Surfaces for a System With Several Degrees of Freedom (Dinamicheskiye poverkhnosti vliyaniya dlya sistemy s neskol'kimi stepenyami svobody)

PERIODICAL: V sb.: Issledovaniya po teorii sooruzheniy. Nr 7. Moscow: Gosstroyizdat 1957, pp 121-134

ABSTRACT: Influence surfaces are developed for the bending moments and shearing forces as functions of initial unit conditions given at various points of a beam which constitutes a system with several degrees of freedom. Numerical influence numbers relative to deflection are used, i.e. those values of the arbitrary constants of the solution which are obtained from initial unit conditions wherein velocities alone are introduced as the latter (during earthquakes the initial accelerations bear a substantial influence). A plane problem is solved on the dynamic calculation of beams and actual influence lines are developed for forces depending upon the point of application of a single unit velocity; by constructing a network of the influence lines for various

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SOV/124-58-3-3201

The Dynamic Influence Surfaces for a System With Several Degrees/(cont.)

moments of time the author obtains an influence surface. A valuable example is discussed of the development of the influence surfaces of the stresses for a simple cantilever beam with two concentrated mass loads for various points of application of the initial velocity.

N K Snitko

Card 2/2

RABINOVICH, I.M., prof.; SINITSYN, A.P., prof., doktor tekhn.nauk

First Czechoslovak Congress on the Theory of Calculating Construction Elements. Stroi. prom. 36 no.9:46-48 S '58. (MIRA 11:10)

1. Chlen-korrespondent AN SSSR, deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Rabinovich).
(Precast concrete construction)

SINITSYN, A.P. (Moskva)

Vibrations in massive structures subjected to vertical seismic actions. Stroi. mekh. i rasch. soor. 1 no.4:9-12 '59. (MIRA 12:10)

(Earthquakes and building) (Vibration)

39180
S/196/62/000/013/011/018
E194/E155

12-3100
12 7700

AUTHOR: Sinitsyn, A.P.

TITLE: Application of dynamic surfaces of influence to the design of dams

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.13, 1962, 10, abstract 13 D 52. (In: "Issled. po teorii sooruzh." ("Investigations on the theory of structures"), no.8, Moscow, Gostroyizdat, 1959, 53-78).

TEXT: An approximate method is presented for calculating the dynamic loads on a dam that result from motion of water in the spillway, from impacts of surface gravitational waves against shutters, and also during seismic effects transmitted through an elastic foundation. The calculation is a complicated problem of structural mechanics. The problem is solved by an approximate method in which the dam is considered as a system with three degrees of freedom. From the results of the calculation a generalised surface of pressure change under the dam foot may be

Card 1/2

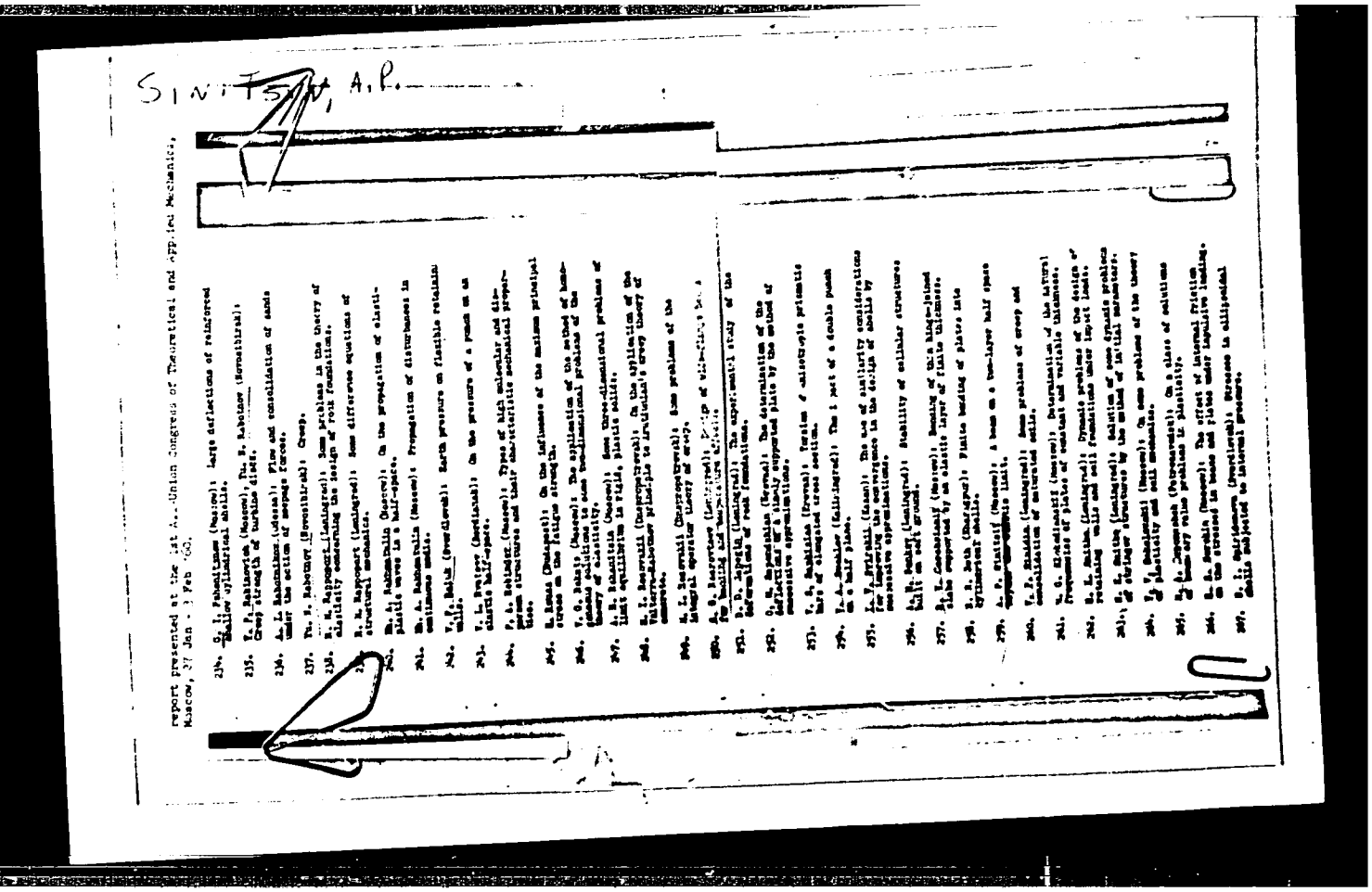
SINITSYN, A.P., doktor tekhn. nauk, prof. (Moskva)

Drawing generalized influence diagrams for elastically supported beams. Issl. po teor. sooruzh. no.8:93-106 '59. (MIRA 12:12)

(Girders)

SINITSYN, A.P., prof., doktor tekhn.nauk; GLUSHKOV, G.I., doktor tekhn.nauk

Cement concrete pavements subjected to the action of moving loads. (MIRA 12:6)
Avt.dor. 22 no.4:25-27 Ap '59.
(Pavements, Concrete--Testing)



SINITSYN, A.P.

report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 60.

S/519/60/000/008/029/031
D051/D113

AUTHOR: Sinitsyn, A. P.

TITLE: Contribution to the problem of determining the seismic load on massive structures

SOURCE: Akademiya nauk SSSR. Sovet po seysmologii. Byulleten', no. 8, Moscow, 1960. Voprosy seysmicheskogo rayonirovaniya, 212-216

TEXT: A system of calculating seismic effects on dams and other hydro-technical structures is discussed. For this purpose, a calculation system, in which the structure is considered as an absolutely rigid beam, fastened to an elastic half-space by non-elastic rods, is chosen for the first approximation, the dimensions of the structure being commensurable with the length of the seismic waves. The distribution of vertical reactions in a structural foundation is considered for symmetric and asymmetric arrangements of the structure, relative to the crest of the seismic wave. In the first case, the reactions are concentrated at the edge of the foundation. The equivalent force of inertia and the reactions of the half-space will create only progressive

Card 1/2

Contribution to the problem of ...

displacements of the structure. For a definite moment, the reactions in the rods can be calculated with the usual dynamic formulae, the factors of irregular reaction distribution K_{max} and K_{min}, which depend on the ratio of length and width of the foundation, being considered. In the second case, the distribution of the reactions is more complicated due to the combination of progressive upward displacements and swing. For a fixed moment, the factors are composed of two components correspondingly. The distribution of the vertical reactions for $t_1=1/4c$ and $t_2=1/2c$ (1 = length of foundation; c = velocity of propagating seismic wave) is shown graphically. The combined effect of horizontal and vertical seismic loads on structures is also considered, the effect of these forces on a dam serving as an example. The mass of the structure is considered as a total of mass points to which the external forces are applied. A formula is given permitting the displacement of the masses to be calculated and a spatial graph of the reactions is also included. The article contains the names of the following associates of the Institut fiziki Zemli (Institute of the Physics of the Earth): Ye. F. Savarenskiy, S. V. Medvedev, and D. A. Kharin. Scientist B. N. Zhemochkin is also mentioned. There are 5 figures, 1 table, and 2 Soviet references.

Card 2/2

S/124/62/000/002/012/014
D234/D302

24.4200 Sinitsyn, A.P.

AUTHOR:

TITLE: Design of a beam in an elastic half-space beyond the limit of elasticity

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 2, 1962, 30, abstract 2V259 (V sb. Issled. po teorii sooruzh. no. 9, M., Gosstroyizdat, 1960, 3-14)

TEXT: The author offers a method of design for a beam in an elastic half-space taking into account the formation of a plastic hinge in the loaded section. The scheme of B.N. Zhemochkin is used in the design. The reactions of the base are sought in the form of a sum of two terms. The first term corresponds to a system of reactions balancing the external load and giving together with the latter a zero bending moment in the loaded section. The second term refers to the self-balanced system of reactions, the moment due to which in the section under consideration equals the limit moment. Since for a beam on an elastic base the appearance

Card 1/2

S/124/62/000/002/012/014
D234/D302

Design of a beam in an ...

of several plastic hinges does not yet mean the transition to the varied system, the author considers two ways of determining the critical value of the external load: From the maximum value of mean load on the base and from the maximum deflection of the beam. [Abstracter's note: Complete translation].

Card 2/2

SINITSYN, A.P., doktor tekhn.nauk, prof. (Moskva)

Beam on a two-layer semispace beyond the elastic limit. Issl. po teor. sooruzh. no.10:117-126 '61. (MIRA 14:8)
(Beams and girders)

ZHEMOCHKIN, Boris Nikolayevich [1887-1961], prof.; SINITSYN, A.P., prof.; GORYACHEVA, T.V., red.izd-va; OSENKO, L.M., tekhn.red.

[Practical methods of designing foundation beams and slabs on an elastic foundation] Prakticheskie metody rascheta fundamentnykh balok i plit na uprugom osnovanii. 2.izd., perer. i dop. Moskva, Gosstroiizdat, 1962. 238 p. (MIRA 15:5)
(Foundations)

SINITSYN, A. P.

Causes of beats during vibrations of buildings. Trudy Inst. fiz. Zem. no.22. Vop. inzh. seism. no.7:95-104 '62.
(MIRA 15:10)

(Earthquakes and building)

SINITSYN, A.P., doktor tekhn.nauk, prof. (Moskva)

Thermoelastic vibrations of a system with several degrees of freedom. Issl.po teor.sooruzh. no.11:69-82 '62. (MIRA 15:8)
(Thermal stresses) (Vibration)

SINTSYN, A.P. (Moskva)

Vibrations of a beam on an elastic foundation with one-sided connections. Stroi. mekh. i rasch. soor. 4 no.1:19-25 '62. (MIRA 16:12)

KELDYSH, V.M., prof., doktor tekhn.nauk; SINITSYN, A.P., prof., doktor tekhn.nauk; POPOV, G.I., dotsent, kand.tekhn.nauk; ZHDANOV, V.S., dotsent, kand.tekhn.nauk

"Design of reinforced concrete axially symmetrical elements (shells)" by A.M. Ovechkina. Reviewed by V.M. Keldysh and others. Bet. i zhel.-bet. 8 no.10:477-478 O '62. (MIRA 15:11)

1. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Keldysh).
(Roofs, Shell)
(Ovechkina, A.M.)

MEDVEDEV, S.V.; SINITSYN, A.P.

Vibrations of arch dams under seismic loads. Trudy Inst. fiz. Zem. 28 Vop. inzh. seism. no.8:126-134 '63.
(MIRA 16:11)

SINITSYN, A.P., doktor tekhn. nauk, prof. (Moskva)

Thermoelastic vibrations of a rectangular plate. Issl. po teor. sooruzh. no.12:11-20 '63. (MIRA 16:6)

(Elastic plates and shells)

SINITSYN, A. P.

Limiting resistance of buildings subject to seismic effects.
Biul. Sov. po seism. no.14:133-135 '63. (MIRA 16:4)

(Earthquakes and building)

[illegible], A.I. (Moscow)

"Thermoelastic and thermoplastic vibrations of bar systems and plates"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan - 5 Feb 64.

[redacted]

"Tests and theoretical studies on the earthquake resistant properties of arch dams."

report presented at the 32nd Exec Mtg & 56th Intl Conf, Intl Comm on Large Dams, Edinburgh, 4-7 May 64.

ZINITSYN, A.P., doktor tekhn. nauk (Moskva)

Thermoelastic vibrations of a three-layered plate. Issl. po teor. sooruzh. no.13:51-61 '64. (MIRA 18:2)

SINITSYN, Aleksey Petrovich; ZUBKOVA, M.S., red.; GOLOVKINA, A.A., tekhn. red.

[Design of beams and plates on an elastic foundation beyond the elastic limit] Raschet balok i plit na uprugom osnovanii za predelom uprugosti; posobie dlia proektirovshchikov. Moskva, Stroiizdat, 1964. 154 p. (MIRA 17:2)

BEZUKHOV, N.I.; BAZHANOV, V.L.; GOL'DENBLAT, I.I., doktor tekhn.nauk, prof., red.; NIKOLAYENKO, N.A.; SINYUKOV, A.M.; SINITSYN, A.P., doktor tekhn. nauk, prof., retsenzent

[Calculations for strength, stability, and vibrations at high temperatures] Raschety na prochnost', ustoichivost' i kolebaniia v usloviiakh vysokikh temperatur. [By] N.I.Bezukhov i dr. Moskva, Mashinostroenie, 1965. 566 p. (MIRA 18:3)

SINITSYN, A.P., doktor tekhn.nauk, prof. (Moskva)

Thermoelastic and thermoplastic vibrations of rod systems and plates. Issl. po teor. sooruzh. no.14:93-111 '65. (MIRA 18:10)

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28(1) PHASE I BOOK EXPLOITATION SOV/2078

Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki

Avtomatika i telemekhanika; sbornik (Automation and Telemechanics; Collection of Articles) Moscow, 1958. 144 p. 5,000 copies printed

Resp. Ed.: Ya.Z. Tsypkin; Ed. of Publishing House: V.A. Kotov; Tech. Ed: I.N. Guseva

PURPOSE: This collection of articles is intended for specialists in automation and remote control.

COVERAGE: The book contains fifteen papers presented at the fourth and fifth scientific and technical conferences, held in 1955 and 1956, by junior members of the staff of the Institut automatiki i telemekhaniki (Institute of Automation and Telemechanics), Academy of Sciences, USSR. The papers are based on the individual research of their authors. The collection consists of five parts: Automatic Control, Components of Automatic and

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Remote Control Systems, Automated Electric Drive, Automatic Checking, and Remote Control.

TABLE OF CONTENTS:

of individual components of the servo system. Then, through analysis of transient processes, he attempts to determine the shape of the correcting signal which must be reproduced by the stabilizing feedback. The introduction of this signal into the position servo system should provide conditions for a single switch-on, switch-off operation. This increase is determined by the minimum signal which operates the system. There are five Soviet references. No personalities are mentioned.

Pyshkin, I.V. Stability of Automatic Control Systems Equipped With a Key 21

The author describes three basic types of pulse-control systems and adds to these such systems in which the pulsing component is a key which periodically switches the feedback on and off. He finds the general form of the characteristic equation and the expression for the transient process caused by a jump-type signal in systems equipped with a key. This can be found when the roots of the characteristic equations

being obtained for the open and closed position of the key. A system of the first order with delay and which is unstable in both the closed and open conditions can always be stabilized through the introduction of a key and the increase of the feedback gain factor. This conclusion was confirmed by the author by investigations on a model. There are five Soviet references. No personalities are mentioned.

Sinitsin, A.S. A Device for Experimental Determination of Servo System Frequency Response Characteristics 29

The author explains two methods of determining the dynamic characteristics of automatic control systems: 1) by applying signals representing periodic time functions and 2) by applying random signals. The latter method has as yet found little use. The author employed the first method. He mentions a set of infralow-frequency equipment (lot-produced by the SAM Plant) but considers this equipment not entirely satisfactory for investigating servo systems, especially closed-cycle systems operating on a-c. He describes in detail an apparatus developed in 1954 at

L 25734-65
ACCESSION NR: AT4046213 S/2588/64/000/006/0232/0305

AUTHOR: Matveyev, P.S.; Sinitsyn, A.S.

TITLE: Dynamic precision of an automatic control system with random parameters

SOURCE: Avtomaticheskoye upravleniye i vychislitel'nay tekhnika, no. 6, 1964, 232-305

TOPIC TAGS: control system, automation, random variable, random parameter, Green function, linear integral equation, amplification factor

ABSTRACT: The purpose of the present work was to investigate the analysis and synthesis of systems with stationary, random parameters. It is assumed that the amplification factor of the system changes according to a random law, in the form of "white noise", so that the solution of the problem in the general case presents well-known difficulties. The system is considered with respect to one, two, or n impinging influences of either a random or a non-random character. The problem of synthesis is solved within a given time-region, using the correlation function connected with Green's function. The work is illustrated with various examples, demonstrating the applicability of the proposed methods. Figure 1 of the Enclosure shows a typical system considered. Orig. art. has: 17 figures and 200 formulas.

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L 25734-65
ACCESSION NR: AT4045213

ASSOCIATION: none

SUBMITTED: 00 ENCL: 01 SUB CODE: IE

NO REF SOV: 004 OTHER: 004

Card 2/3

L 41423-65 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) Pf-4 GS
ACCESSION NR: AT5009738 UR/0000/65/000/000/0262/0287

28
B+1

AUTHOR: Matveyev, P. S.; Sinitsyn, A. S.

TITLE: Determination of the optimum dynamic characteristics of automatic control systems consisting of nonideal elements

SOURCE: Analiticheskiye samonastroivayushchiyesya sistemy avtomaticheskogo upravleniya (Analytical adaptive control systems). Moscow, Izd-vo Mashinostroyeniye, 1965, 262-287

TOPIC TAGS: optimum dynamic characteristic, automatic control system, nonideal control element, mean square error, nonideal system synthesis

ABSTRACT: Before one can decide whether a newly designed system should contain an adaptive feature, one must develop a method for determining the deviations of the system from the optimum operating conditions in the case of possible departures of the system's parameters from their respective "ideal" values. The method discussed in the present article yields, for a given chosen optimum dynamic characteristic of the control system, the increase in the mean square error caused by the nonideal properties of the elements. It also supplies the optimum

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ACCESSION NR: AT5009738

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values for the parameters of the nonideal elements which will generate a possible minimum mean square error under given conditions. The method may be used during the design of arbitrary a priori systems. The article also presents the synthesis from nonideal elements of systems having a nonminimal-phase specified part, and of systems with finite memories. Solutions are obtained using the connections between the correlation function and Green's function. Orig. art. has: 98 formulas, 12 figures, and 2 tables.

ASSOCIATION: None

SUBMITTED: 15Dec64 ENCL: 00 SUB CODE: IE

NO REF SOV: 006 OTHER: 003

mc
Card 2/2

SINITSYN, A.V.

Geological position and age of an igneous complex of basic rocks on the east Murmansk shore of the Kola Peninsula. Dokl. AN SSSR 151 no.4:930-933 Ag '63. (MIRA 16:8)

1. Severo-Zapadnoye geologicheskoye upravleniye. Predstavleno akademikom V.S.Sobolevym.
(Kola Peninsula—Rocks, Igneous)

YEVSTRAT'YEVA, Ye.D.; KURYACH'YEV, A.P.; SINITSYN, A.V.

Drying cottage cheese by sublimation. Kons. i ov. prom. 14 no.4:16-18 Ap '59. (MIRA 12:5)

1.Rostovskiy konservnyy zavod "Smychka" (for Yevstrat'yeva, Sinitsyn).
2.Giprorybproyekt (for Kuryach'yev).
(Cottage cheese--Drying)

SINITSYN, A.V.

Drying of minced meat of pork and mutton by sublimation.
Kons.i ov.prom. 15 no.1:25-28 Ja '60. (MIRA 13:5)

1. Rostovskiy konservnyy zavod "Smychka."
(Meat--Drying)

SINITSYN, A.V.

Drying pieces of meat by sublimation. Kons.i ov.prom. 15 no.3: 24-26 Mr '60. (MIRA 13:6)

1. Rostovskiy konservnyy zavod "Smychka".
(Rostov--Meat--Drying)

DIMITRIYA, A.V.

Sublimation drying of vegetables. Kons.i ov.prom. 17 no.5:24-26 My '62. (MIRA 15:5)

1. Rostovskiy konservnoy zavod "Smychka".
(Vegetables--Drying)

[redacted]

[redacted] (MIRA 18:7)

[redacted]

SINITSYN, A.V.

Pyrexenes of differentiated dolerite intrusion. Zap.Vses.min. ob-va 94 no.5:583-592 '65.

(MIRA 18:11)

ACC NR: AT7004002 SOURCE CODE: UR/0000/66/000/000/0240/0248

AUTHOR: Ivashin, V. V.; Pereverzev, A. G.; Sinitsyn, A. V.; Sipaylov, G. A.

ORG: Scientific Research Institute of Nuclear Physics, Electronics, and Automation, Tomsk Polytechnic Institute (Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki i avtomatiki pri TPI)

TITLE: Producing quasi-triangular and quasi-trapesoidal high-power current impulses in inductive loads

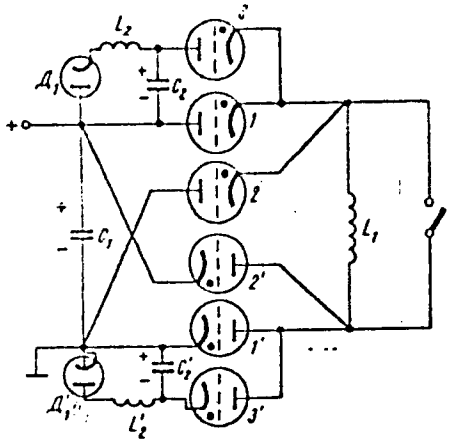
SOURCE: Mezhvuzovskaya konferentsiya po elektronnym uskoritelyam. 5th, Tomsk, 1964. Elektronnyye uskoriteli (Electron accelerators); trudy konferentsii. Moscow, Atomizdat, 1966, 240-248

TOPIC TAGS: pulse shaper, pulse shape, particle accelerator

ABSTRACT: A new impulse shaper (see figure) is described which produces quasi-triangular, quasi-trapezoidal, and stepped impulses and uses a capacitive switching in an LC oscillatory circuit. Main capacitor bank C_1 and small auxiliary banks C_2, C_2' have initial polarities as indicated in the figure. When thyratrons 1, 1′ are fired,

Card 1/2

ACC NR: AT7004002



an oscillatory process arises in circuit L_1C_1. Quasi-triangular impulses are shaped when 1, 1' are turned off at a current phase $\omega t < 90^\circ$. This switching is effected by firing 3, 3' which introduces capacitors C_2, C_2' into the power circuit. The new circuit preempts the current in 1, 1' which become nonconductive. Later, C_2, C_2' acquire the reverse polarity, and the current is transferred to 2, 2'; the oscillatory process ends when the current drops to zero. Meanwhile, the load current flows in one direction and has a near-triangular shape. A modification of the above circuit produces quasi-trapezoidal or stepped impulse shapes. Application of the above circuit to particle accelerators promises higher (up to 3 times) repetition rates and efficiency of accelerator operation. An experimental verification is claimed. Orig. art. has: 4 figures and 7 formulas.

SUB CODE: 09 / SUBM DATE: 06Mar66 / ORIG REF: 003 / OTH REF: 001

Card 2/2

ACC NR: AP7000799 (A,N) SOURCE CODE: UR/0089/66/021/005/0394/0395

AUTHOR: Bozin, G. M.; Degtyarev, S. F.; Kukhtevich, V. I.; Sinitsyn, B. I.; Tikhonov, V. K.; Staroverov, V. B.; Tsypin, S. G.

ORG: none

TITLE: Passage of fast neutrons through thick layers of lithium hydride

SOURCE: Atomnaya energiya, v. 21, no. 5, 1966, 394-395

TOPIC TAGS: fast neutron, neutron radiation, radiation intensity, lithium compound, neutron shielding, neutron distribution

ABSTRACT: The authors investigated experimentally the attenuation of the flux (dose intensity) of fast neutrons in lithium hydride of density 0.5 g/cm^3. The unidirectional neutron source employed and its spectrum are described in a preceding paper in the same source (p. 392, Acc. Nr. AP7000798). The shield tested was made up of blocks of lithium hydride with channels for the detector. The empty channels were sealed during the measurements with stoppers made of the same material. The transverse dimensions of the shielding blocks were chosed such taht the detector plates inside the shield was under conditions of so-called infinite geometry. To determine the accumulation factor in the lithium hydride, measurements were made of the neutron attenuation in good geometry under careful collimation of the source and detector. The fast-neutron flux was registered with a scintillation counter with a tablet of ZnS(Ag) mixed with Plexiglas. Plots for the attenuation of neutrons with energy

Card 1/2 UDC: 539.125.5: 539.121.72

ACC NR: AP7000799

E > 0.7 Mev as functions of the thickness, and of the accumulation factor of the fast neutrons as functions of the thickness are presented and found to agree satisfactorily with calculations based on formulas derived for conditions of broad geometry. Orig. art. has: 2 figures and 2 formulas.

SUB CODE: 20,18/ SUBM DATE: 05Jul66/ ORIG REF: 003

Card 2/2

SINITSYN, E.I.

Increasing the strength of cutting tools by the correction of their profile. Avt.prom. 29 no.12:34-35 D '63. (MIRA 17:4)

1. Minskiy avtozavod.

21(7) SOV/89-5-5-11/27

AUTHORS: Kukatevich V. I., Sinitsyn, B. I., Tsypin, S. G.

TITLE: The Removal Cross Section of Fast Neutrons With an Energy of 2,9 MeV (Secheniye vyvedeniya bystrykh neytronov s energiyey 2,9 Mev)

PERIODICAL: Atomnaya energiya, 1958, Vol 5, Nr 5, pp 565-566 (USSR)

ABSTRACT: Measurement was carried out in a rectangular container of water, in which the material to be investigated (80.80.10 to 20 cm) was placed against one of the walls. The neutron source was located on the outside of this wall. The $D(d,n)He^3$ reaction was used. Neutron energy: 2,9 ± 0,1 MeV. A BF_3-counter could be freely moved along the axis of the container. The following removal cross sections were measured:

Element	σ_r in b	distance absorber - detector in cm
B	1,38 ± 0,13	20
C	1,58 ± 0,02	42

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The Removal Cross Section of Fast Neutrons With an Energy of 2,9 MeV

Element	σ_r in b	distance absorber - detector in cm
Al	1,63 ± 0,07	47
Fe	1,96 ± 0,04	45
Zn	1,90 ± 0,03	57
Cu	2,34 ± 0,13	66
Nb	2,93 ± 0,52	20
Pb	3,72 ± 0,13	65

The grave measuring error committed with respect to B may be explained by the fact that B_4C was used as an absorber. In the case of niobium the inaccuracy is caused by the fact that niobium powder was used which contained 15 per cent of weight of water.

By plotting the dependence of the removal cross section referred to the mass unit upon the weight of the atoms of the absorber, a curve is obtained which can be represented by means of the following empirical formula:

Card 2/3

On Removal Cross Section of Fast Neutrons With an Energy of 2,9 MeV

$\sum r/\varrho = 0,385\ A^{-0,689}$; for 2.9 MeV neutrons.

The results obtained were discussed with I. I. Bondarenko, Doctor of Physico-Mathematical Sciences. A. N. Serbinov, Candidate of Technical Sciences , and I. A. Vorontsov assisted in carrying out experiments. There are 1 figure, 2 tables, and 6 references, 1 of which is Soviet.

SUBMITTED: June 25 1958

21.5000

SOV/89-8-1-18/29

AUTHORS: Kukhtevich, V. I., Shemetenko, B. P., Sinitsyn, B. I.

TITLE: Co^{60} Gamma-Rays Dosage Measurement in the Neighborhood of the Separation Border of the Two Media. Letter to the Editor

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 1, pp 66-68 (USSR)

ABSTRACT: Authors measured in water near the separation border the strength of the dose $D_1(\rho, h)$ whose influence on the γ-rays crossing it can be characterized by the coefficient $L = \frac{D_o(\rho, h)}{D_1(\rho, h)}$ where $D_o(\rho, h)$ is the dose strength in an infinite medium. Co^{60} γ-rays were used in a geometric arrangement as shown in Fig. 1. Medium I was water, and for II the authors used air, Pb, Ni, and Al. Distance ρ varied from 0.7 to 5.0 of the mean free path, and h from 0.05 to 2.0 free path length of γ-rays in water. The water container was 2.0 x 2.2 x 1.6 m in size, and for the medium II

Card 1/8

Co^{60} Gamma-Rays Dosage Measurement in the Neighborhood of the Separation Border of the Two Media. Letter to the Editor

77224
SOV/89-8-1-18/29

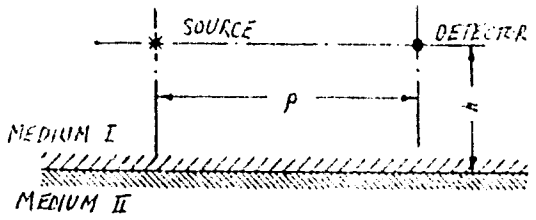

Fig. 1. Diagram of experiment.

the authors used layers with a 90 x 150 cm surface and a thickness equal to 2.5 mean free path of Co^{60} γ-rays in the respective material used. Water-air measurements were performed with the container placed on an unobstructed platform. An anthracene crystal γ-dosimeter was used as detector, and the source was of spherical shape, 0.5 cm in diameter, and an activity of

Co^{60} Gamma-Ray Dose Measurement In the Neighborhood of the Separation Border of the Two Media. Letter to the Editor

SOV/89-[illegible]-16/29

0.153 ± 0.005 Curie. Results are contained in Fig. 3, where the errors in L never exceeded 3%. Using the Monte-Carlo method, Berger calculated the 1.28 mev γ-ray energy dissipation in a medium having a Z close to that of H_2O and assuming two limiting situation for the region of II Medium. In the first case K = 1/L was computed for a Z in Medium II similar to that in I, but was either vacuum or a material with a negligible albedo. This situation is represented by the coefficient K^1 on Fig. 2, giving comparison between theoretical and experimental curves. S. G. Tsypin discussed the above results. There are 3 figures; and 2 references, 1 Soviet, 1 U.S. The U.S. reference is: M. Berger, J. Appl. Phys., 28, 1502 (1957).

SUBMITTED: August 10, 1959

Card 3/3

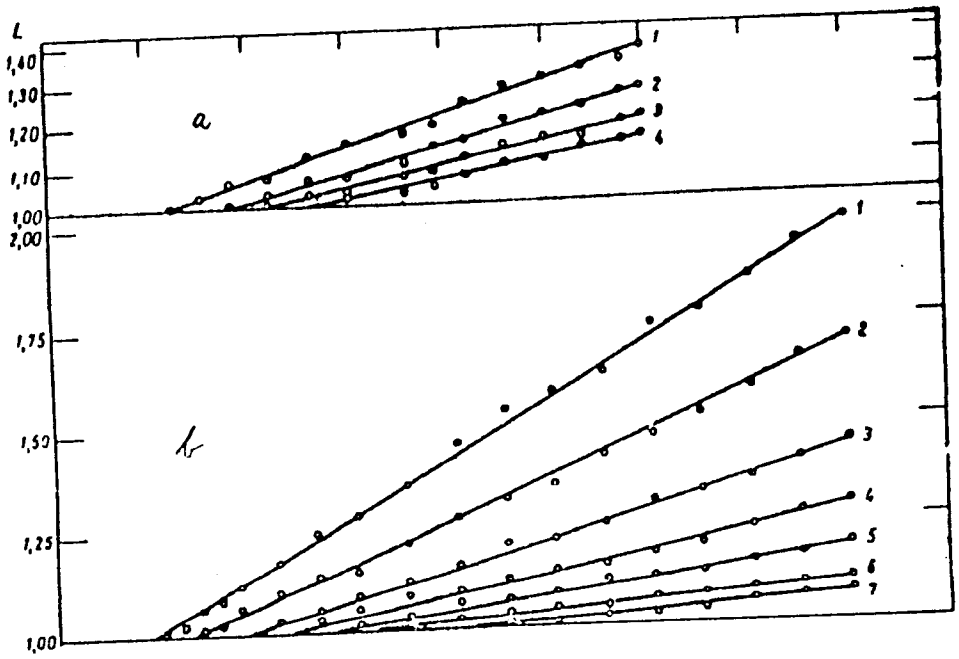

Fig. 3 (cont.)

Card 4/4

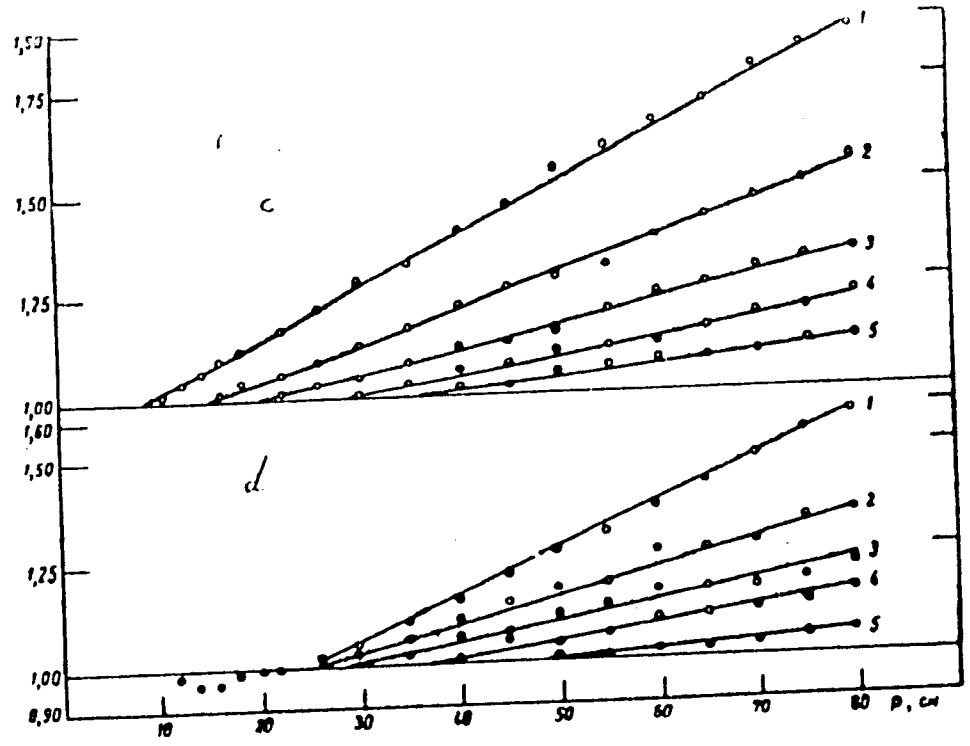

Fig. 3 (cont)

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Fig. 3. Experimental values of L vs ρ and h for medium II: [a] air (h in cm: (1) 2.8; (2) 4.8; (3) 6.8; (4) 8.8); [b] lead (h in cm: (1) 0.8; (2) 2.1; (3) 4.4; (4) 6.4; (5) 10.4; (6) 16.4; (7) 20.4); [c] nickel (h in cm: (1) 0.8; (2) 2.4; (3) 4.4; (4) 6.4; (5) 10.4); [d] aluminum (h in cm: (1) 0.8; (2) 2.2; (3) 4.2; (4) 6.2; (5) 10.2).

Co^{60} Gamma-Rays Dosage Measurement In the Neighborhood of the Separation Border of the Two Media. Letter to the Editor

77264
SOV/89-9-1-14/29

Fig. 2. Comparison of experimental coefficients 1/L (as functions of the distance between the source and detector at $\mu_o h = 0.5$ for different materials in medium II) with the theoretical coefficients K and K^1 from U.S. reference given at the end of this abstract.

Card 3/4

ORLOV, V.V., kand. fiz.-mat. nauk, red.; TSYPIN, S.G., kand. fiz.-mat. nauk, red.; KAZANSKIY, Yu.A. [translator]; KUKHTEVICH, V.I. [translator]; MATUSEVICH, Ye.S. [translator]; NIKOLAYSHVILI, Sh.S. [translator]; SIMITSYN, B.I. [translator]; YUS, S.V. [translator]; VISKOVA, M.V., red.; RYBKINA, V.P., tekhn. red.

[Protection of transportation units having nuclear engines; translated articles] Zashchita transportnykh ustanovok s iadernym dvigatelem; sbornik perevodov. Moskva, Izd-vo inostr. lit-ry, 1961. 619 p. (MIRA 14:12)

(Radiation protection) (Nuclear reactors—Safety measures)

32994
S/641/61/000/000/021/033
B108/B102

26.2245

AUTHORS: Kukhtevich, V. I., Sinitsyn, B. I., Degtyarev, S. F.

TITLE: Fast neutron removal cross sections for 3 and 15 Mev

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey. Moscow, 1961, 278 - 282

TEXT: Results are given of measurements of the removal cross sections of various elements. The method of measurement has been described by the authors (Atomnaya energiya, 11, 565 (1958)). The neutrons with 3 and 15 Mev were obtained from the reactions $D(d,n)He^3$ and $T(d,n)He^4$, respectively. The mean errors in the measurements were 7 and 5%. The great difference in the cross sections at 3 and 15 Mev in the case of light nuclei is explained by the relatively greater scattering anisotropy on light nuclei with increasing energy. There are 2 figures, 2 tables, and 17 references: 2 Soviet and 15 non-Soviet. The four most recent references to English-language publications read as follows: Hughes D. J., Schwartz R. B. Neutron Cross Sections, N. Y., 1958; Nakada M. P. et al. Phys. Rev., 110, 1439 (1958); Cooner J. P., Phys. Rev., 109, 1268 (1958); Anderson J. O.

Card 1/1

32994
S/641/61/000/000/021/033
B108/B102

Fast neutron removal cross...

et al. Phys. Rev., 110, 160 (1958).

Table 1. Cross sections (in barns) for 3-Mev neutrons.
Legend: (1) element or compound, (2) total, (3) elastic scattering, (4) mean cosines, (5) total transport, (6) microscopic removal, (7) mass removal cross section, (8) least distance from test medium at which thermal neutron detector indicates reduction of neutron intensity. The figures in brackets refer to publications quoted by the authors.

Table 2. Cross sections (in barns) for 15-Mev neutrons.
Legend: see Table 1. (A) Result obtained by interpolating the differential elastic scattering cross sections of Be and C.

Card 2/

KUKHTEVICH, V.I.; SINITSYN, B.I.

Passage of 0.5 and 1.0 Mev neutrons through water in a mixture of water with a heavy component. Atom.energ. 10 no.5:511-513 My :61. (MIRA 14:5)

(Neutrons)

S/089/62/012/004/005/014
B102/B104

Author: Sinitsyn, B. I., Tsypin, S. G.

Title: Use of empirical constants in shield calculations

Publication: Atomnaya energiya, v. 12, no. 4, 1962, 306-314

Text: The results of papers on the determination and use of removal cross sections are generalized and it is tried to extend the applicability of empirical constants in the design of neutron shields. The problems are discussed for heterogeneous and homogeneous reactors, for monochromatic and fission neutron sources. The discussions lead to the following results: (1) If the spectrum of the neutrons which leave the reactor is not highly important in the range of 2-3 Mev, the removal cross sections given by Chapman and Storrs can be used for all hydrogen-containing media. They cannot be used for light elements as Be, B, or C since their removal cross sections increase in this energy range, a fact which has to be taken into account. (2) The removal cross sections measured in heterogeneous media can also be used for homogeneous media. The error will not exceed 5-10% for all elements. (3) The removal cross sections can be used at any

Card 1/3

... of empirical constants ...

... from the source when calculating homogeneous media. The absolute ... from the results of exact calculations does not exceed 25-30% at ... from the source of 2-3 relaxation lengths. (4) If the removal ... cross sections are used for dose calculations, the dose weakening for ... has to be taken into account. (5) For reactors with an effective ... threshold of 3 Mev, the cross sections obtained from the reciprocal ... lengths coincide with the removal cross sections given by Chapman-Storrs for hydrogen-free media. (6) The minimum distance from the ... increases with increasing energy threshold of the detector. (7) The ... Chapman-Storrs removal cross sections can be used for the upper groups in ... calculations if the effective energy threshold is 3 Mev; the ... cross sections for 1.4 Mev - ∞ or the quantities $\sigma_{1/4}$ ... to the 3-Mev threshold can be used. (8) The asymptotic cross ... for the groups 1.4 Mev - ∞ are similar to the Chapman-Storrs cross ... (9) For a more detailed description of the spatial energy ... distributions of fast neutrons (E > 1 Mev) a large system of empirical ... constants for the groups between 1 and 18 Mev is available. A. I. ... I. I. Bondarenko, V. I. Mukhtevich, Yu. A. Kazanskiy, A. A. ... D. V. Markratov, and A. P. Suvorov are thanked for advice and

Card 2/3

Use of empirical constants ...

discussions. There are 4 figures, 5 tables, and 20 references: 9 Soviet and 11 non-Soviet. The four most recent references to English-language publications read as follows: G. Chapman, C. Storrs. Effective Neutron Removal Cross Sections for Shielding, Report AECD-3978, 1955; M. Clark. Nucl. Engng. 6, No. 56, 16, 1961; D. Wood. Nucl. Sci. Engng. 5, 45, 1959; J. Grundl, A. Usner. Nucl. Sci. Engng, 8, 598, 1960.

SUBMITTED: April 17, 1961

Card 3/3

ACCESSION NR: AT4019033 S/0000/63/000/000/0075/0085

AUTHOR: Sinitsy*n, B. I.; Tsy*pin, S. G.

TITLE: The use of empirical data in shielding computation

SOURCE: Voprosy*fiziki zashchity* reaktorov; sbornik statey (Problems in physics of reactor shielding; collection of articles). Moscow, Gosatomizdat, 1963, 75-85

TOPIC TAGS: nuclear reactor, reactor shielding, neutron, neutron distribution, removal cross section

ABSTRACT: The authors note that the use of removal cross sections for neutron shielding computation is still the simplest and most efficient method, with the result that it continues to be developed further. The present article represents an attempt to summarize the results of work relating to the determination and utilization of removal cross sections, to evaluate them critically, as well as to expand the area of applicability of empirical constants for the computation of various forms of neutron shielding. Basic definitions are given and formulas are derived for removal cross sections for both homogeneous and heterogeneous media. Monoenergetic neutron sources and fission spectrum neutron sources are considered. The removal cross sections for certain elements measured with detectors having different thresholds are compared with one another and with sections obtained from

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ACCESSION NR: AT4019033

inverse relaxation lines. The effective energy threshold for different kinds of neutrons is determined and analyzed. The authors also compared the removal cross sections of asymptotic sections and sections derived from inverse relaxation lines for different elements. The article contains an extensive bibliography of Soviet and foreign papers in the general problem area. "The authors express gratitude to A. I. Leypunskiy for his valuable comments during the evaluation of the results, as well as to I. I. Bondarenko, V. I. Kukhtevich, Yu. A. Kazanskiy, A. A. Abagyan, D. V. Pankratov and A. P. Suvorov for valuable advice." Orig. art. has: 4 figures, 6 tables and 10 formulas.

ASSOCIATION: none

SUBMITTED: 14Aug63 DATE ACQ: 27Feb64 ENCL: 00

SUB CODE: NP NO REF SOV: 009 OTHER: 014

Card 2/2

ACCESSION NR: AP4042264 S/0089/64/017/001/0060/0063

AUTHORS: Daruga, V. K.; Lazutkin, I. I.; Nikolayev, A. N.; Sakharov, V. K.; Sinitsy*n, B. I. Tsy*pin, S. G.

TITLE: Study of the passage of neutrons through carbon and through a carbon-iron mixture

SOURCE: Atomnaya energiya, v. 17, no. 1, 1964, 60-63

TOPIC TAGS: reactor material, neutron cross section, neutron interaction, neutron spectrum, fast neutron spectrometry

ABSTRACT: In view of the fact that theoretical calculations are made difficult by lack of detailed information on the cross sections for the interaction between neutrons and matter, the authors consider the spatial distribution of neutrons of different energies passing through layers of carbon from 10 to 130--150 cm thick. The passage of neutrons through an iron-carbon mixture containing 91.4% of iron

ACCESSION NR: AP4042264

by volume was also investigated. The B-2 channel of the BR-5 reactor served as the neutron source. The measurements were made under conditions of semi-infinite geometry, and the neutrons with E > 3 MeV leaving the channel had the same energy distribution as the fission spectrum, becoming softer at low energies. Sulfur and aluminum threshold indicators, thorium fission chambers, and proportional recoil-proton counters were used as fast-neutron detectors. Thermal and epithermal neutrons were detected with copper and indium resonant indicators. To permit comparison with the available results, the experimental data were converted into neutron attenuation functions of an infinite flat isotropic source. The experimental data show that the neutron relaxation length in iron increases for low energies, while in carbon it remains practically constant over a wide range of energies. Consequently the addition of iron to the carbon decreases the relaxation length of the neutrons in the upper groups (E > 2 MeV), while the addition of carbon to iron decreases the relaxation length of the neutrons in the 1--1.5 MeV. By choosing

ACCESSION NR: AP4042264

the suitable composition of the mixture it is possible to make the neutron relaxation lengths practically equal over a wide energy interval. The use of such a mixture, which is relatively cheap and heat resistant, is quite promising. "The authors are grateful to M. Ya. Kulakovskiy for participating in the discussion of the experimental results and to A. A. Goncharenko for help with the work." Orig. art. has: 3 figures, 2 formulas, and 2 tables.

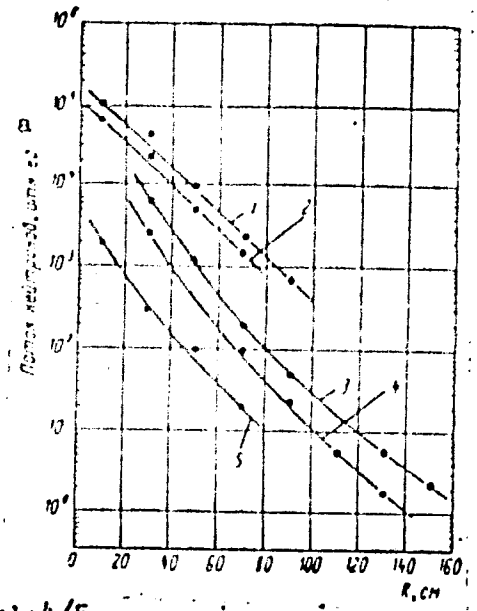
ASSOCIATION: None

SUBMITTED: 15Dec63 DATE ACQ: ENC: 02

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

ACCESSION NR: AP4042264

ENCLOSURE: 01



Neutron attenuation function in carbon for different energy groups. The detectors used were:

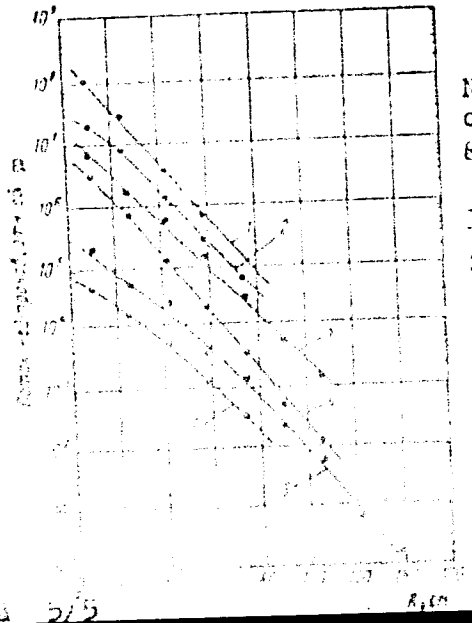
1 - Al^{27}
2 - S^{32}
3 - Cu^{63}
4 - proportional counter
5 - Th^{232}

a - neutron flux, rel. units

Card 4/5

ENCLOSURE: 02

ACCESSION NR: AP4042264



Neutron attenuation function in iron-carbon mixture for different energy groups. The detectors used were:

1 - Si^{32}
2 - Al^{27}
3 - Th^{232}
4 - recoil proton counter
5 - In^{115}
6 - Cu^{63}

Card 5/5

DARUGA, V. K.; LAZUTKIN, I. I.; NIKOLAYEV, A. N.; PINKHASIK, D. M.; SAKHAROV, V. K.; SINITSYN, B. I.; TSYPIN, S. G.

Space-energy distribution of neutrons from a BR-5 reactor in an iron-ore medium. Atom. energ. 17 no.1:63-65 Jl '64.(MIRA L7:7)

ACCESSION NR: AP4042266 S/0089/64/017/001/0065/0066

AUTHORS: Mashkovich, V. P.; Nikolayev, A. N.; Sinitsy*n, B. I.; Tsy*pin, S. G.

TITLE: Attenuation of fission neutron fluxes in iron-water mixtures

SOURCE: Atomnaya energiya, v. 17, no. 1, 1964, 65-66

TOPIC TAGS: neutron moderator, neutron flux, fast neutron, thermal neutron, relaxation time

ABSTRACT: The attenuation of fast, thermal, and intermediate neutrons in iron-water mixtures was investigated at an iron concentration exceeding 75% by volume. The measurements were made in the B-2 installation of the BR-5 reactor (A. I. Leypunskiy et al., in the book "Trudy* Vtoroy mezhdunarodnoy konferentsii po mirnomu ispol'zovaniyu atomnoy energii" [Trans. 2d Geneva Conf.], Papers by Soviet Scientists, v. 2, M. Atomizdat, 1959, page 215) for shielding inves-

ACCESSION NR: AP4042266

tigation (S. G. Tsy*pin, collection "Voprosy* fiziki zashchity* reaktorov" (Problems in Reactor Shielding Physics), D. L. Broder, et al., ed. 1963, page 243). The iron-water constituted iron stacks measuring 1320 x 1360 x 117 mm, placed with certain gaps in a tank full of water measuring 1370 x 1390 x 2170 mm. The iron used was St-0 with density 7.86 g/cm^2. The iron concentration in the water could be varied by varying the gap. The method for measuring the relaxation length is described. The results show that at concentration up to 18% of water by volume the efficiency for slowing down fast, thermal, and intermediate neutrons is approximately the same. In addition, the results agree with data on an iron-masonite mixture (D. Wood, Nucl. Sci. Eng. v. 5, 45, 1959). It is also concluded that in the case of light and medium nuclei (including iron), the removal cross sections can be used for shielding calculations if the number of hydrogen atoms in the mixture is about 10--12%. This value is almost half that recommended by B. Price et al. (Shielding Against Nuclear Radiation, Moscow, Izd-vo inostr. lit., 1959). Orig.

Card 2/4

ACCESSION NR: AP4042266

art. has: 1 figure.

ASSOCIATION: None

SUBMITTED: 07Mar64 ENCL: 01

SUB CODE: NP NR REF SOV: 007 OTHER: 004

Card 3/4

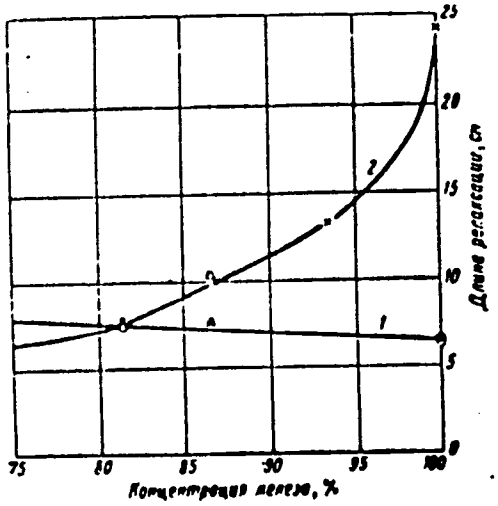
ACCESSION NR: AP4042266

ENCLOSURE: 01

Dependence of relaxation length of fast (1) and thermal and intermediate neutrons (2) on the volume concentration of iron in an iron-water mixture (the true density of the iron is 7.86 g/cc), as obtained from different sources using different indicators

Abscissas - iron concentration, %

Ordinates - relaxation length, cm



Card 4/4

L 2092-65 EWT(m)/EWA(h) --DM

ACCESSION NR: AP4043991 S/0089/64/017/002/0145/0146 12 11

AUTHOR: Daruga, V. K., Nikolayev, A. N.; Pinkhasik, D. S.; Sinitsy*n, B. I.; Tsy*pin, S. G. 19

TITLE: Study of passage of fast neutrons through sodium

SOURCE: Atomnaya energiya, v. 17, no. 2, 1964, 145-146

TOPIC TAGS: fast neutron range, neutron range, sodium, neutron detector, proton recoil counter

ABSTRACT: The authors have determined the ranges for neutrons of greater than 0.5 Mev energy in a sodium prism of 13 x 1370 x 18 mm. The measurements were made in the B-2 arrangement of the BP-15 reactor (see C. G. Tsy*pin, Atomnaya Energiya 12, 300 (1962)). Detectors used were Al^{27} (n,) Na^{24}, $S^{32}(n,p)P^{32}$, $Mg^{24}(n,p)Na^{24}$, and a proton recoil counter. The ranges for neutrons with energy 3 Mev, measured with the first three detectors were about the same (26 cm); however, the proton recoil counter gave 40 cm. "The authors are grateful to N. N. Aristerkhov for the help with the experimental arrangement,

Card 1/2

L 2097-65
ACCESSION NR: AP4043991

and to M. Ga. Kulakovskiy for a helpful discussion." Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: \03Feb64 ENCL: 00

SUB CODE: NP NO REF SOV: 003 OTHER: 003

Card 2/2

L 08355-67 EWT(m)/EWP(t)/ETI IJP(c) JD HW

ACC NR: AR6028130 SOURCE CODE: UR/0058/66/000/005/V061/V061

50

AUTHOR: Lazutkin, I. I.; Nikolayev, A. N.; Sinitsyn, B. I.

TITLE: Removal cross sections of sodium, stainless steel, and nickel

SOURCE: Ref. zh. Fizika, Abs. 5V469

REF. SOURCE: Byul. Inform. tsentra po yadern. dannym, vyp. 2, 1965, 313-319

TOPIC TAGS: sodium, nickel, stainless steel, nuclear, reactor technology

ABSTRACT: The removal cross sections (RC) of sodium, stainless steel, and nickel were measured under conditions of standard geometry at initial neutron energies 0.5, 1.0, 1.2, 3.0, and 15 Mev. The measurement results are listed in a table. Data are also given on the minimal distances from the detector to a plate of heavy material, starting with which RC can be used. On the basis of the obtained data it is possible to determine the energy dependence of the RC of sodium and nickel. A plot for this dependence is given. [Translation of Abstract]

SUB CODE: 20, 18

Card 1/1 nst

L 7862-66 EWT(m)/ETC/EWG(m)/EPF(n)-2
ACC NR: AP6001206 SOURCE CODE: CZ/0038/65/011/006/0201/0206

AUTHOR: Cypin, S.G.--Tsypin, S.G.; Sinicyn, B.I.--Sinitsyn, B.I.; Daruga, V.K.

ORG: Institute of Power Engineering, Obninsk (Fyzikalne energeticky institut)

TITLE: Investigation of hydrogenless shielding for nuclear reactors

SOURCE: Jaderna energie, v.11, no.6, 1965, 201-206

TOPIC TAGS: nuclear reactor shield, nuclear reactor technology, neutron shielding, radiation shielding

ABSTRACT: Experimental investigations and computations of neutron transmission through hydrogenless shields are reviewed. The possibilities of using simple empirical formulas to estimate the shielding properties of some materials, particularly of mixtures were examined. The values obtained showed good agreement with the experimental results, within an accuracy of 10 to 20 percent. The authors thank A.I. Lejpunsky and I.I.Bondarenk for the valuable remarks and advice concerning the presentation of this work. Orig. art. has: 2 figures, 4 formulas, and 5 tables. [NA]

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L 52253-65 EPF(n)-2/EWT(m)/EWG(m) Pu-4 DM

ACCESSION NR: AP5012469 UR/0089/65/018/004/0350/0357

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B

AUTHORS: Tsypin, S. G.; Sinitsyn, B. I.; Daruga, V. K.

TITLE: Passage of neutron radiation from a reactor through hydrogen-free media

SOURCE: Atomnaya energiya, v. 18, no. 4, 1965, 350-357

TOPIC TAGS: reactor shielding, neutron cross section, neutron attenuation, relaxation length

ABSTRACT: The article reviews the principal experimental data and calculations for reactor shields containing no hydrogen, and considers the possibility of employing simple empirical expressions for the shielding properties of specific materials (Be, BeO, C, B_4C, Na, Pb, Fe) and mixtures (Fe-C, Fe-O). The published neutron scattering lengths and reaction cross sections are compared for the entire reactor neutron-energy spectrum. The relaxation lengths ob-

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tained for various neutron energy groups are discussed. It is shown that, under certain assumptions, the attenuation of neutrons with energies $\geq$3 MeV can be described by the simple empirical formula $\Phi(x) \sim \exp(-qx)$, where q is an empirical parameter which can be calculated from the published removal, relaxation, and asymptotic macroscopic cross sections of the shielding materials. The values of these cross sections are tabulated. "The authors thank A. I. Leypunskiy and the late I. I. Bondarenko for valuable remarks and advice during the preparation of the article." Orig. art. has: 4 formulas and 5 tables. [02]

ASSOCIATION: none

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L 06978-67 EWT(m) JR

ACC NR: AP6018353 (N) SOURCE CODE: UR/0089/66/020/005/0416/0418

AUTHOR: Nikolayev, A. N.; Sakharov, V. K.; Sinitsyn, B. I.; Mashkovich, V. P.

ORG: none

TITLE: Distribution of fast fission neutrons along straight cylindrical channels in water

SOURCE: Atomnaya energiya, v. 20, no. 5, 1966, 416-418

TOPIC TAGS: neutron distribution, fast neutron, neutron absorption, reactor shielding/B-2 reactor test equipment, BR-5 reactor

ABSTRACT: Inasmuch as earlier experimental and theoretical investigations of the passage of neutrons through slots and channels in shields have been restricted to neutrons from isotropic and cosinusoidal sources, the authors investigate the influence of straight cylindrical channels in water and the passage of fast fission neutrons from unidirectional sources. The experiments were made with installation B-2 of the BR-5 reactor. The neutron source was the active zone of the reactor. The straight cylindrical channels had diameters 144 and 90 mm. The neutron detectors were sulfur and aluminum threshold indicators, with respect to energy thresholds 3

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and 7 MeV. The distribution of the fast neutrons was determined by the β activity induced in the indicators, using a method described in an earlier paper (in: Voprosy fiziki zashchity reaktorov [Problems in Physics of Reactor Shielding], edited by D. L. Broder et al., Atomizdat, 1963, p. 182). Data are obtained on the attenuation of the flux of fast neutrons along the cylinder axis, from a disc and from an infinite plane unidirectional neutron source, and the influence of the shift of the tube axis relative to the source axis on the attenuation of the neutron radiation was studied. The information obtained can be used to calculate the passage of neutron radiation through steplike channels. The results show that shifting the channel axis relative to the source axis provides a very effective means of attenuating the neutron flux, since a change by five orders of magnitude could be obtained in some geometries. The authors thank A. A. Concharenko, P. I. Kotikov, V. M. Sakharov, and Yu. V. Kharizomenov for help with the experiments and the data reduction. Orig. art. has: 5 figures and 2 formulas.

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