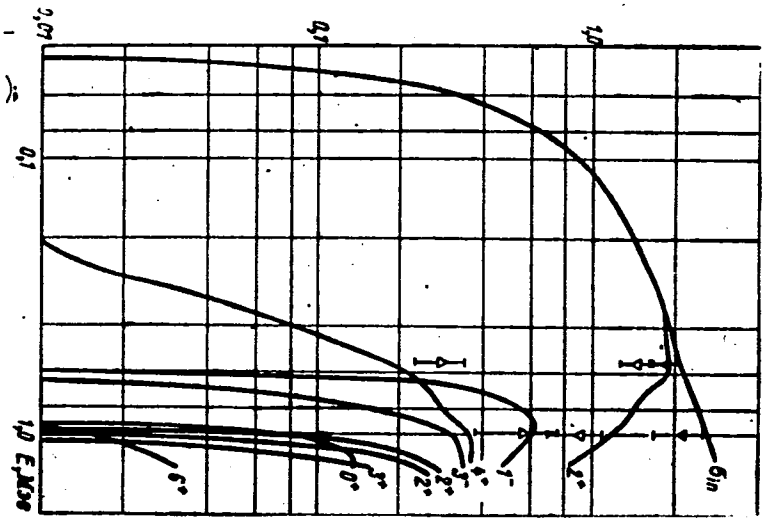
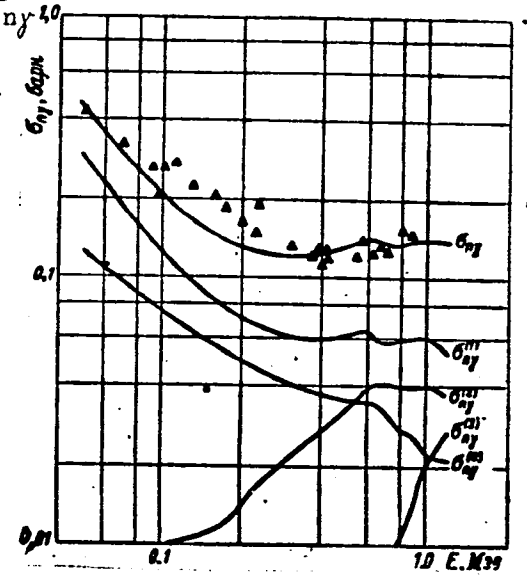
Calculation of the U^{238} ...

Fig. 2. σ_{in} and the excitation functions of the individual levels of U^{238}. Legend: ● σ_{in}, ▽ 2^+(44 kev); Δ 4^+ (146 kev). Experimental data taken from L. Kranberg, J. Levin, Phys. Rev., 109, 2063 (1958).



Card 3/4

Fig. 3. Radiative capture cross section $\sigma_{n\gamma}$ for U^{238} and partial cross sections $\sigma_{n\gamma}^{(\chi)}$ for $\chi = 0$, 1, 2, and 3. Experimental data taken from Hughes' Neutron Cross Section Atlas.



Card 4/4

38865

24.6600

S/056/62/042/006/030/047
B104/B108

AUTHORS: Stavinskiy, V. S., Kovalev, V. P.

TITLE: Calculation of the fission threshold and the excitation energy of fragments in the droplet nuclear model taking account of the Wigner symmetry energy

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 6, 1962, 1614 - 1617

TEXT: According to C. F. Weizsäcker (Zs. Phys., 96, 431, 1935) and E. P. Wigner (Phys. Rev., 51, 947, 1937), the total coupling energy of a nucleus is given by

$$E(N_1Z_1\sigma) = -\alpha A + \beta B_S(\sigma) A^{2/3} + \gamma \frac{(N-Z)^2}{A} + \delta B_C(\sigma) \frac{Z^2}{A^{1/3}} + \varepsilon B_S(\sigma) \frac{(N-Z)^2}{A^{4/3}}.$$

A is the number of nucleons in the nucleus, Z the nuclear charge. The constants $\alpha, \beta, \gamma, \delta, \varepsilon$ are determined from experiments, and are equal for all nuclei. The energy change with deformation of the nucleus is described

Card 1/2

Calculation of the fission ...

by the coefficients $B_S(\sigma)$, $B_C(\sigma)$.

$$E_f = \beta A^{2/3}[B_S(\sigma_{kp}) - 1] + \delta \frac{Z^2}{A^{1/3}}[B_C(\sigma_{kp}) - 1] - \gamma e' \frac{(N-Z)^2}{A^{1/3}}[B_S(\sigma_{kp}) - 1], \quad (2)$$

is obtained for the threshold energy allowing for the surface term in the symmetry energy. σ_{kp} is the nuclear deformation corresponding to a saddle point. Since values of B_S and B_C are known in publications only for symmetric decay the effect of the last term in (2) is studied here for the case of symmetric fission only. It is shown that the experimental correlation of the characteristics of spontaneous fission with neutron excess in the fissionable nucleus is obtained if the dependence of the Wigner symmetry energy on the nuclear deformation is considered in the mass formula. Experimental results and theory are in better agreement when making this consideration. There are 2 figures.

SUBMITTED: January 11, 1962

Card 2/2

STAVINSKIY, V. S.

5

S/056/62/043/001/047/056
B102/B104

AUTHORS: Barkov, L. M., Mukhin, K. N., Ogurtsov, V. V., Romantseva, A. S., Svetlolobov, I. A., Chuyeva, S. A., Shlyapnikov, R. S., Likhachev, M. F., Stavinskiy, V. S., Strunov, L. N.

TITLE: The problem of the D^+-meson

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 1(7), 1962, 335-337

TEXT: The authors have searched for a D^+-meson production or a decay among 14,000 pairs of photographs. A propane bubble chamber with pulsed magnetic field was irradiated with a beam of positively charged particles (momentum $\approx$1.8 Bev/c) containing up to 9% K^+ mesons. The processes looked for were $K^+ + p \rightarrow D^+ + \Sigma^+$ and

$$D^+ \nearrow K^0 + \pi^+$$
$$\searrow K^+ + \pi^0$$

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5

S/056/62/043/001/047/056
B102/B104

The problem of the D^+-meson

The first branch of the decay reaction is the more possible. Neither a process $K^+ + p \rightarrow D^+ + \Sigma^+$ nor one of the type $K^+ + n \rightarrow D^+ + \Sigma^0$ could be found. It is inferred that the D^+ meson production cross section in K^+N reactions will be smaller than $1.2 \cdot 10^{-29} cm^2$.

ASSOCIATION: Institut atomnoy energii (Institute of Atomic Energy) (R. S. Shlyapnikov); Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) (L. N. Strunov)

SUBMITTED: April 25, 1962

Card 2/2

KARDASHEV, D.A.; STAVINSKIY, V.S.; HRODER, D.L.; LASHUK, A.I.; SADOKHIN, I.P.

Analysis of the excitation functions for levels of the Fe^{56} nucleus in the case of inelastic neutron scattering in an optical nuclear model. Atom.energ. 13 no.6:587-588 D '62. (MIRA 15:12)
(Iron—Isotopes) (Neutrons—Scattering)
(Nuclear optical models)

L 11946-66 EWT(m)/T/EWA(m)-2

ACC NR: AP6000736 SOURCE CODE: UR/0386/65/002/009/0409/0413

AUTHOR: Vovenko, A. S.; Gus'kov, B. N.; Likhachev, M. F.; Lyubimov, A. L.; Matulenko, Yu. A.; Savin, I. A.; Stavinskiy, V. S.

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

TITLE: Elastic 180° scattering of π^+ mesons by protons at high energies

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 9, 1965, 409-413

TOPIC TAGS: elastic scattering, pion scattering, proton scattering, scattering cross section

ABSTRACT: This is a continuation of earlier measurements of the differential cross sections for elastic π^+p scattering in a small solid angle about 180° at π^+-meson l.s. momenta 3.15, 4.10, and 4.85 Gev/c, carried out at the High Energy Laboratory of the Joint Institute for Nuclear Research, the results of which for 3.15 Gev/c have already been published (Phys. Lett. v. 17, 68, 1965). In this paper the authors present the results for 4.10 and 4.85 Gev/c and compare the data obtained at all three energies. The measurements at the different energies were made with the same setup, which was already described earlier. The ratio of the number of elastic π^+-meson backward-scattering events registered by the apparatus to the total number of obtained photographs decreased with increasing energy (1:4.4, 1:11, and 1:40 at 3.15, 4.10, and 4.85 Gev/c, respectively). This was due not only to the decrease in the measured

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cross section, but to a deterioration of the background conditions as a result of the smaller spatial separation of the recoil protons from the beam particles. It was therefore required to apply more rigorous criteria for the selection of the backward elastic-scattering events than earlier. The effective c.m.s. solid angle of the setup, calculated by the Monte Carlo method with account of the Coulomb scattering of the particles, was 3.87×10^{-3} sr for 4.10 Gev/c and 3.04×10^{-3} sr for 4.85 Gev/c. The effective cross sections, corrected for the nuclear interaction of the primary and back-scattered π^+ mesons and the recoil proton in the hydrogen target and in the counters, for the muon contamination of the beam, for decay of the scattered pion, for the efficiency of the scintillation counters and the electronic circuitry, and for the efficiency of the spark chambers, were (99 ± 12), (74 ± 11), and (37 ± 12) μb/sr for 3.15, 4.10, and 4.85 Gev/c, respectively. The previously deduced existence of a narrow peak of appreciable magnitude in the differential cross section of elastic π^+p backward scattering at 3.15 Gev/c is confirmed. Authors thank V. Birulev, T. Dobrovol'skiy, A. Zagorodnyi, I. Kakurin, V. Perevozchikov, and N. Chernyshov for help with the work, V. Kochkin for compiling the program and performing the computations, the proton synchrotron crew for stable operation of the accelerator, and the operating staff of the cryogenic division for supplying the liquid hydrogen. Orig. art. has: 1 figure, 1 formula, and 1 table.

SUB CODE: 20/ SUBM DATE: 15Sep65/ OTH REF: 002

HW

SVIRIDOV, F.; STAVIRSKIY, I., inzhener-tekhnolog.

Production of semiwool shawls. Prom.koop. no.2:27 F '57.
(MLRA 10:5)

1.Direktor trikotazhnoy fabriki no. 20 tresta "Mosgortekstil'prom". (for Sviridov)

(Knit goods industry)

STAVISKAYA, Ye.

Processing of the left side of a beef carcass. Mias.ind. SSSR 26 no.1:58 '55. (MLRA 8:5)
(Meat cutting)

STAVISKAYA, Ye.

Restoring the quality of lard. Mias.ind.SSSR 26 no.4:55 '55.
(MLRA 8:10)

1. Kiyevskiy myasotrest
(Lard)

STAVISKAYA, Ye.

Norms for spice input and the flavor of sausage products. Mias. ind. SSSR 34 no.3:22-23 '63. (MIRA 16:7)

1. Ukrainskiy nauchno-issledovatel'skiy institut myaso-molochnoy promyshlennosti.

STAVISKAYA, Ye.; POPOV, P.

Information. Mias.ind.SSSR 35 no.1:57-59 '64. (MIRA 17:4)

1. Ukrainskiy nauchno-issledovatel'skiy institut myasnoy promyshlennosti (for Staviskaya). 2. Komitet po ekonomike i organizatsii proizvodstva Nauchno-tekhnocheskogo obshchestva pishchevoy promyshlennosti (for Popov).

STAVISKIY, N., inzh. po ratsionalizatsii i izobretatel'stvu;
KOLODIN, I., inzh.; REZNIK, F., inzh.

Suggestions of innovators. Grazhd. av. 18 no.6:20-21 Je '61.
(MIRA 14:7)
(Technological innovations)

STAVISKIY, N., inzh.; CHERNYSHEV, G., nachal'nik tsekha; YENA, O., rabotnik

Technical novelties. Grazhd. av. 22 no.6:27 Je '65. (MIRA 18:6)

LOTOTSKIY, B.V.; MURATOV, Ye.A.; STAVISKIY, Ye.D.

Seasonal variability in the virulant nature of pathogenic micro-organisms transferred by argasidae and ixodidae. Izv.otd.est. nauk AN Tadzh.SSR no.8:157-166 '54. (MIRA 9:9)

1.Institut zoologii i parazitologii imeni akademika Ye.N.Pavlovskogo AN Tadzhikskoy SSR i Stalinabadskiy gosudarstvennyy meditsinskiy institut imeni Abuali-Ibn-Sino.
(MICRO-ORGANISMS, PATHOGENIC) (ARGASIDAE) (TICKS)

MANSUROV, Kh.Kh.; KUTCHAK, S.N.; STAVISKIY, Ya.D.; MAKAREVICH, Ya.A.; AMINDZHANOV, S.A.

Diagnostic significance of intravital liver biopsy. Zdrav. Tadzh. 7 no.5:8-13 '60. (MIRA 13:12)
(LIVER) (BIOPSY)

MANSUROV, Kh.Kh.; STAVISKIY, Ya.D.; RUDOY, D.G.

Needle biopsy of the liver; method, indications and contra-indications. Trudy Inst. kraev. med. AN Tadzh. SSR no.1:248-260 '62. (MIRA 17:5)

L 06982-67 EWT(m) IJP(c)

ACC NR: AP6018358 (A,N) SOURCE CODE: UR/0089/66/020/005/0431/0432

37

AUTHOR: Koroleva, V. P.; Stavisskiy, Yu. Ya.

31

ORG: none

19 B

TITLE: Measuremont of the fast neutron absorption cross section with the aid of a resonant detector in water

19

SOURCE: Atomnaya energiya, v. 20, no. 5, 1966, 431-432

TOPIC TAGS: neutron absorption, neutron cross section, neutron flux, neutron detector, resonance absorption

ABSTRACT: The authors describe a method for monitoring the intensity of a neutron source; this method is a modification of the "manganese bath" method originally proposed by E. Amaldi (Phys. Rev. v. 50, 899, 1936). It is shown that it can be used successfully to monitor exactly small changes in the flux of the fast neutrons during the measurement of absorption cross sections. The experimental setup consists of a water tank (2 x 2 meters) with spherical cavity 1 meter in diameter, in the center of which are placed the photoneutron source and the samples. Part of the water volume is occupied by an aqueous solution of a resonant activator

Card 1/2 UDC: 539.172.4:539.17.02

STAVISSKIY, Yu.

AUTHOR: LEYPUNSKIY, A.I., BLOKHINTSEV, D.I., ARUTYUNOV, M.S., BONDARENKO, I.I., KAZACHKOVSKIY, O.D., FIRKHASIK, M.S., STAVISSKIY, Yu.Ya., STUMBUR, E.A., UKRAINTSEV, F.I., USACHEV, L.N.

TITLE: The Experimental Reactor for Fast Neutrons BR - 2. (Eksperimental'nyy reaktor na bystrykh neytronakh BR-2- Russian)

PERIODICAL: Atomnaya Energiya, 1957, Vol 2, Nr 6, pp 497-500 (U.S.S.R.)

ABSTRACT: This reactor is intended to be used for physical investigations with fast neutrons. At first the active zone of the reactor is discussed. The heat-separating elements of the reactor BR-2 consist of plutonium rods of 10 mm diameter and 130 mm length. Besides the plutonium rods there are similarly constructed rods in the active zone which are made of poor uranium. Altogether there are 108 uranium- and plutonium rods which are mounted in a steel tube with an inner diameter of 130 mm. The reflector of the reactor consists of an uranium layer (outer diameter 700 mm) and a copper layer (outer diameter 1000 mm). The reactor is controlled by a control system and by an emergency system. The operating control organs are part of a screen which are located near the active zone. The control system also contains boron-ionization chambers, an electronic apparatus, and servofeeds. The emergency system enters into operation if the prescribed or assumed power of the reactor is exceeded. Circulating mercury is used for the system of heat conduction. This mercury is then cooled in a heat exchanger with water. The radiation protection of the reactor consists of the following parts: a) a water layer of 300 mm thickness b) a cast iron layer of 400 mm

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thickness c) a layer of heavy concrete of 1200 mm thickness. A special laboratory building was erected for the purpose of housing the reactor and its auxiliary installations.
Experimental Installations: The central experimental channel is determined for the irradiation of samples with strong fluxes of fast neutrons. In the experimental channels in the lateral reflector of the reactor also samples are irradiated, but also a local oscillator may be fitted. Three horizontal channels serve the purpose of conveying bundles of fast neutrons through the protective casing of the reactor. The reactor furthermore contains a thermal column of graphite, the dimensions of which are 1400 x 1400 x 2600 mm. In conclusion the applicability of this reactor is discussed; in particular physical constants are determined precisely.
(3 illustrations).

ASSOCIATION Not Given.
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Card 2/2

LEIJPUNSKIJ, A.I. [Leypunskiy, A.I.]; BLOCHINCEV, D.I. [Blokhintsev, D.I.]; ARISTARCHOV, I.N. [Aristarkhov, I.N.]; BONDARENKO, I.I.; KAZACKOVSKIJ, O.D. [Kazakovskiy, O.D.]; PINCHASIK, M.S.; STAVISAKIJ, Ju.Ja. [Stavisskiy, Yu.Ya.]; STUMBUR, E.A.; UKRAJINCEV, F.I. [Ukraintsev, F.I.]; USACEV, L.N. [Usachev, L.N.]; MEDONOS, S. [translator]

Soviet experimental reactor with fast neutrons BR-2. Jaderna energie 3 no.8:231-233 Ag '57.

LEYPUNSKIY, A. I., KAZACHKOVSKIY, O. D., ARTUKHOV, G. A., BELANOVA, T. S., BARISHNIKOV, A. I., GALKOV, V. I., STAVISKIY, Yu.Ya., STUMBUR, E. A. and SHERMAN, L. Ye.

"Effective Cross-Section Measurements, of Fast Neutron Radiation Capture."

paper to be presented at 2nd UN Intl.' Conf. on the peaceful usees of Atomic Energy, Geneva, 1 - 13 Sept 58.

LEYPUNSKIY, A.I.; ABRAMOV, A.I.; ANDREYEV, V.N.; BARYSHNIKOV, A.I.; BONDARENKO, I.I.; GALKOV, V.I.; GOLUBEV, V.I.; GUL'KO, A.D.; GUSEYNOV, A.G.; KAZACHKOVSKIY, O.D.; KOZLOVA, M.V.; KRASNOYAROV, N.V.; KUZ'MINOV, B.D.; MOROZOV, V.N.; NIKOLAYEV, M.N.; SMIRENKIN, G.N.; STAVISSKIY, Yu.Ya.; UKRAINTSEV, F.I.; USACHEV, L.N.; FETISOV, N.I.; SHERMAN, L.Ye.

Studies in the physics of fast-neutron reactors. Atom. energ. 5 no.3:277-293 S '58. (MIRA 11:10)
(Nuclear reactors)

SOV/89-5-5-10/27

21(7)

AUTHORS: Kononov, V. N., Stavisskiy, Yu. Ya., Tolstikov, V. A.

TITLE: Measurement of the Cross Section of the Radiation Capture of Neutrons With an Energy of 25 keV (Izmereniye secheniy radiatsionnogo zakhvata neytronov s energiyey 25 kev)

PERIODICAL: Atomnaya energiya, 1958, Vol 5, Nr 5, pp 564-564 (USSR)

ABSTRACT: By means of the activation method the cross section for the photoneutrons of a Sb+Be-source was measured ($E_n \sim 25$ keV). A spherical source of 3 cm diameter was used, which radiates about 10^7 n/sec. The beryllium layer had a thickness of 1 cm. J^{127} was used as standard of reference. Activity was measured by means of the counting tube MCT-17. The following cross sections were measured:

Isotope	σ mb	Isotope	σ mb
Na^{23}	1,72 ± 0,27	Br^{79}	710 ± 33
Al^{27}	1,90 ± 0,27	Sr^{86}	400

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Measurement of the Cross Section of the Radiation Capture of Neutrons With an Energy of 25 keV

Isotope	σ mb	Isotope	σ mb
Si^{30}	2,09 ± 0,51	Rb^{87}	29,0 ± 1,4
Cl^{37}	3,71 ± 0,64	Nb^{93}	120 ± 12
K^{41}	26	Mo^{100}	112 ± 3
V^{51}	32,5 ± 2,1	Ag^{107}	1330 ± 91
Mn^{55}	65 ± 3	In^{115}	590 ± 20
Ni^{64}	37	Ba^{138}	8,6 ± 0,4
Cu^{65}	38,6 ± 0,3	W^{186}	285 ± 58
Zn^{68}	24,0 ± 2,8	Au^{197}	960 ± 6
Ga^{69}	151,0 ± 1,2	Tl^{205}	51 ± 2

There is fairly good agreement between the measuring results obtained and the data given by reference 4. There are 1 table and 4 references, 0 of which is Soviet.

Card 2/3

STAVISSKIY, Yu. YA.

21(4) PHASE I BOOK EXPLOITATION SOV/2583

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

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

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

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

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

PART II. EXPERIMENTAL AND RESEARCH REACTORS

PART III. PHYSICS AND ENGINEERING OF REACTOR DESIGN

199

SOV/89-7-3-12/29

21(7)

AUTHORS: Stavisskiy, Yu. Ya., Tolstikov, V. A.

TITLE: The Measurement of the Cross Sections of the Radiative Capture of Fast Neutrons by Isotopes of Gallium

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 3, p 259 (USSR)

ABSTRACT: By comparison with the capture cross section of J^{127} the capture cross sections of Ga^{69} and Ga^{71} were measured. The samples of the respective gallium isotope and the iodine sample used for comparison were, at the same time, irradiated by a fast neutron flux. The occurring β-activities were measured by means of an end-window-counter. After the decrease of β-activity, both samples were irradiated in a thermal neutron flux and the occurring β-activities were newly measured. By comparison of the activities occurring in both cases, it was possible to calculate $\sigma x(n,\gamma)$. The protons accelerated in a Van de Graaf generator furnished the fast neutrons with the aid of the reaction $T(p,n)He^3$. Within the energy range of from 200 to 1400 kev, the neutron energy could be measured with an accuracy of ± 30 kev, and within the range of 1400 to 200 kev with an accuracy of ± 50 kev. Irradiation with thermal neutrons took place in the thermal column of the experimental fast reactor. In order to eliminate the

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The Measurement of the Cross Sections of the Radiative Capture of Fast Neutrons by Isotopes of Gallium

influence of resonance- and fast neutrons, the "cadmium"-method was employed. The results obtained are shown graphically. In the case of Ga^{69} a smooth dependence of the capture cross section on neutron energy is found, whereas in the case of Ga^{71} a sharper decrease is observed in the neighborhood of 550 kev. This is probably due to the inelastic scattering of neutrons on the levels 510 and 610 kev of Ga^{71}. There are 1 figure and 3 references, 1 of which is Soviet.

SUBMITTED: March 26, 1959

TOLSTIKOV, V.A.; STAVISSKIY, Yu.Ya.

[Cross sections of radiative capture of fast neutrons by the Mo^{100} isotope] Secheniia radiatsionnogo zakhvata bystrykh neitronov izotopom Mo^{100}. Moskva, Glav. upr. po ispol'zovaniiu atomnoi energii, 1960. 5 p. (MIRA 17:2)

STAVISSKIY, Yu.Ya.; SHAPAR', A.V.

[Capture cross sections of fast neutrons for tungsten and molybdenum] Secheniia radiatsionnogo zakhvata bystrykh neitronov dlia vol'frama i molibdena. Moskva, Glav. upr. po ispol'zovaniiu atomnoi energii, 1960. 6 p.
(MIRA 17:1)

S/089/60/009/005/007/020
B025/B070

26.2243

AUTHORS: Stavisskiy, Yu. Ya., Tolstikov, V. A.

TITLE: Radiative Capture Cross Sections of the Isotopes V^{51}, Nb^{93}, W^{186}, and Tl^{205} for Fast Neutrons

PERIODICAL: Atomnaya energiya, 1960, Vol. 9, No. 5, pp. 401 - 403

TEXT: The object of the work was to measure the radiative capture cross sections of the isotopes mentioned in the title for neutrons of energies of 0.03 - 2.1 Mev. The source of neutrons was the reaction $T(p,n)He^3$ carried out in a Van de Graaff accelerator. The sample activation by neutrons of energies $E_n < 300$ kev was measured at an angle of 95° with the direction of the proton beam in the accelerator; for neutrons of energies $E_n > 300$ kev it was measured at an angle of 0°. The error in neutron energy is due to the thickness of the tritium target, the geometrical dimensions of the sample, and the fluctuations in the accelerating voltage of the accelerator. For neutron energies of up to

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Radiative Capture Cross Sections of the Isotopes V^{51}, Nb^{93}, W^{186}, and Tl^{205} for Fast Neutrons

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200 kev the error amounted to ± 12 - 20 kev; for higher energies it was ± 30 - 40 kev. Activation by thermal neutrons was carried out in the thermal column of a fast reactor. I^{127} and U^{235} were used as standards for the cross section measurements by the method of relative activation. The results of measurement are represented in Figs. 1-4, their accuracy being 2 - 5%. For neutrons of energies higher than 150 kev the results for V^{51} and W^{186} agree well with the measurements of Barshall; for Tl^{205} agreement is not so good. The capture cross section for Nb^{93} is essentially equal to the production cross section of the isomer Nb^{94*}.

A. I. Leypunskiy, Member of the Academy of Sciences of the UkrSSR, and O. D. Kazachkovskiy, Doctor of Physical and Mathematical Sciences, are thanked for valuable discussions. There are 4 figures and 11 references: 4 Soviet and 7 US.

SUBMITTED: April 27, 1960

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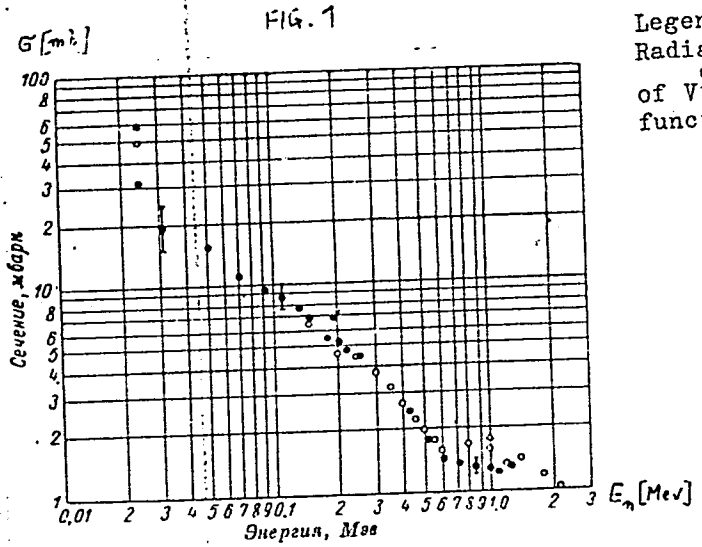
B025/B070

FIG. 1



Legend to Fig.1:
Radiative capture cross section of V^{51} for fast neutrons as a function of their energy.

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B025/B070

Fig. 3

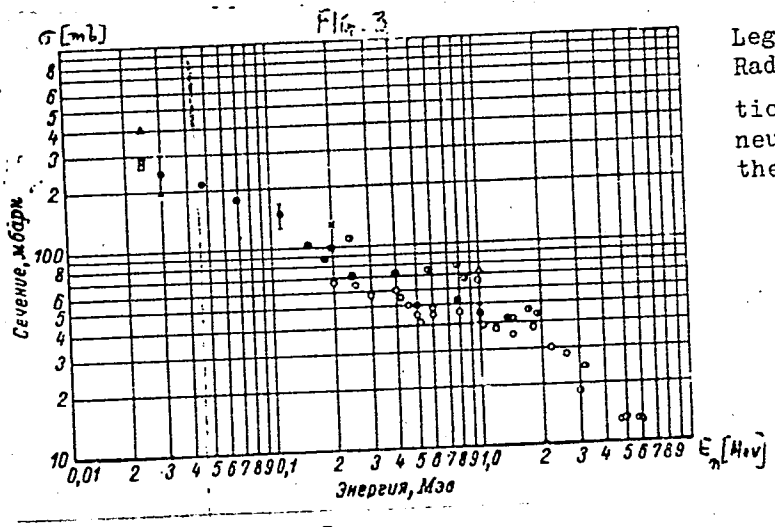

Fig.3

Legend to Fig.3:
Radiative capture cross section of W^{186} for fast neutrons as a function of their energy.

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B025/B070

Fig 4

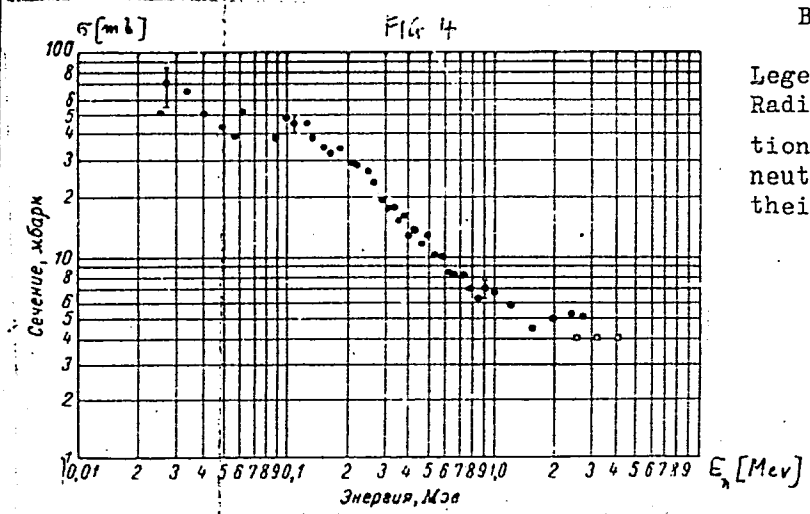

Fig.4

Legend to Fig.4:
Radiative capture cross section of Tl^{205} for fast neutrons as a function of their energy.

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Surface Ionization of Cesium During Its Diffusion Through Porous Tungsten

S/057/60/030/010/012/019
B013/B063

for four values of cesium-vapor consumption is illustrated in Figs. 5 and 6. The dependence of the saturation temperature on the current density is shown in Fig. 7. All these Figures also contain comparative data from Refs. 4 and 5. The authors' studies have shown that during the diffusion of cesium vapor through porous tungsten, surface ionization is practically perfect at the proper temperature. The temperatures of saturation are higher than in the case of ionization on smooth emitters: At a current density of 10 ma/cm^2, temperature changes by ~80°C, but at a current density of 0.25 ma/cm^2, it changes only by ~50°C. The authors thank I. I. Bondarenko, Doctor of Physical and Mathematical Sciences, Professor N. I. Ionov, and E. Ya. Zandberg, Candidate of Physical and Mathematical Sciences, for discussions. There are 7 figures and 5 references: 1 Soviet.

SUBMITTED: April 27, 1960

Card 2/2

STAVISSKIY, Y. Y., BALNIKOV, O. A., UKRAINTSEV, F. I., USACHEV, L. N.,
LEYPUNSKIY, A. I., KAZACHKOVSKIY, O. D., ABRAMOV, A. I., ALEKSANDROV, . A.,
ARTYARKHOV, N. N., BONDARENKO, I. I., KRASNOYAROV, N. V., MORIZOV, V. N.,
NIKOLAIEV, N. N., PINKHASIK, M. S., SMIRENKIN, G. N.,

Physical charactistics of the BR-5 reactor

report submitted for the IAEA Seminar on the Physics of Fast and Intermediate reactors, Vienna, 3-11 August 1961
(report presented by G. I. Marchuk)

Acad. Sci. USSR, Moscow

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001653020005-9"

STAVISSKIY, Y. Y., [illegible], F. I., FRANK, I. M., SHALYAPIN, V. L.,
MAZVITSKIY, Y. S., [illegible], D. I., BLOKHIN, G. P., BLYUMKINA, Y. A.,
BONDARENKO, L. I., DEMIDOV, B. N., MATROSOVSKIY, A. S., ZINOVIYEV, V. P.,
KAZACHOVSKIY, O. D., KRAZNOYAROV, V. V., LYAPUNSKAYA, A. I., VALIKH, V. A.,
KAZARNOV, P. V., NIKOLAYEV, S. K.

"A Pulse Fast reactor."

report submitted for the IAEA seminar on the Physics of Fast and Intermediate Reactors, Vienna, 3-11 Aug 1961.

Acad Sci. USSR Moscow

33000
S/641/61/000/000/027/033
B102/B138

26.2243

AUTHORS: Stavisskiy, Yu. Ya., Shapar', A. V.

TITLE: Fast neutron radiative capture cross section for tungsten and molybdenum

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey. Moscow, 1961, 310-311

TEXT: The fast neutron radiative capture cross sections were measured in the range 0.05 to 1 Mev for natural isotope mixtures of W and Mo, by recording the prompt capture γ-quanta. $T(p,n)He^3$ reactions were used as the neutron source, with the protons accelerated by a Van-de-Graaf. Between 0.05 and 0.2 Mev the neutron energy spread was $\pm$ 15 kev, and $\pm$ 20 kev between 0.2 and 1 Mev. A CaF_2 scintillation counter was used for gamma detection. The energy dependence of the radiative capture cross sections was determined from a comparison with similar data for U^{235}. The measurements were carried out with "background" specimens (Bi + graphite). Measuring accuracy was 6 % in the lower and 3 % in the

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Fast neutron radiative capture...

upper energy range. For E_n = 0.2 Mev the J^{127} radiative capture cross sections were taken as reference values. For Mo $\sigma_{n,\gamma}$ was 59 ± 10 mb, for W, $\sigma_{n,\gamma}$ = 122 ± 21 mb. Professor A. I. Leypunskiy and O. D. Kazachkovskiy, Doctor of Physical and Mathematical Sciences, were thanked for interest. V. A. Romanov, A. S. Kulakov and L. A. Zhdamirov for assistance. There are 2 figures and 6 references: 3 Soviet and 3 non-Soviet. The two references to English-language publications read as follows: W. D. Allen, A. T. G. Ferguson, Proc. Phys. Soc. 70, 639, 1957; S. J. Bame, R. L. Cubitt, Phys. Rev. 113, 256, 1959.

Card 2/2

33001
S/641/61/000/000/028/033
B102/B138

26.2243

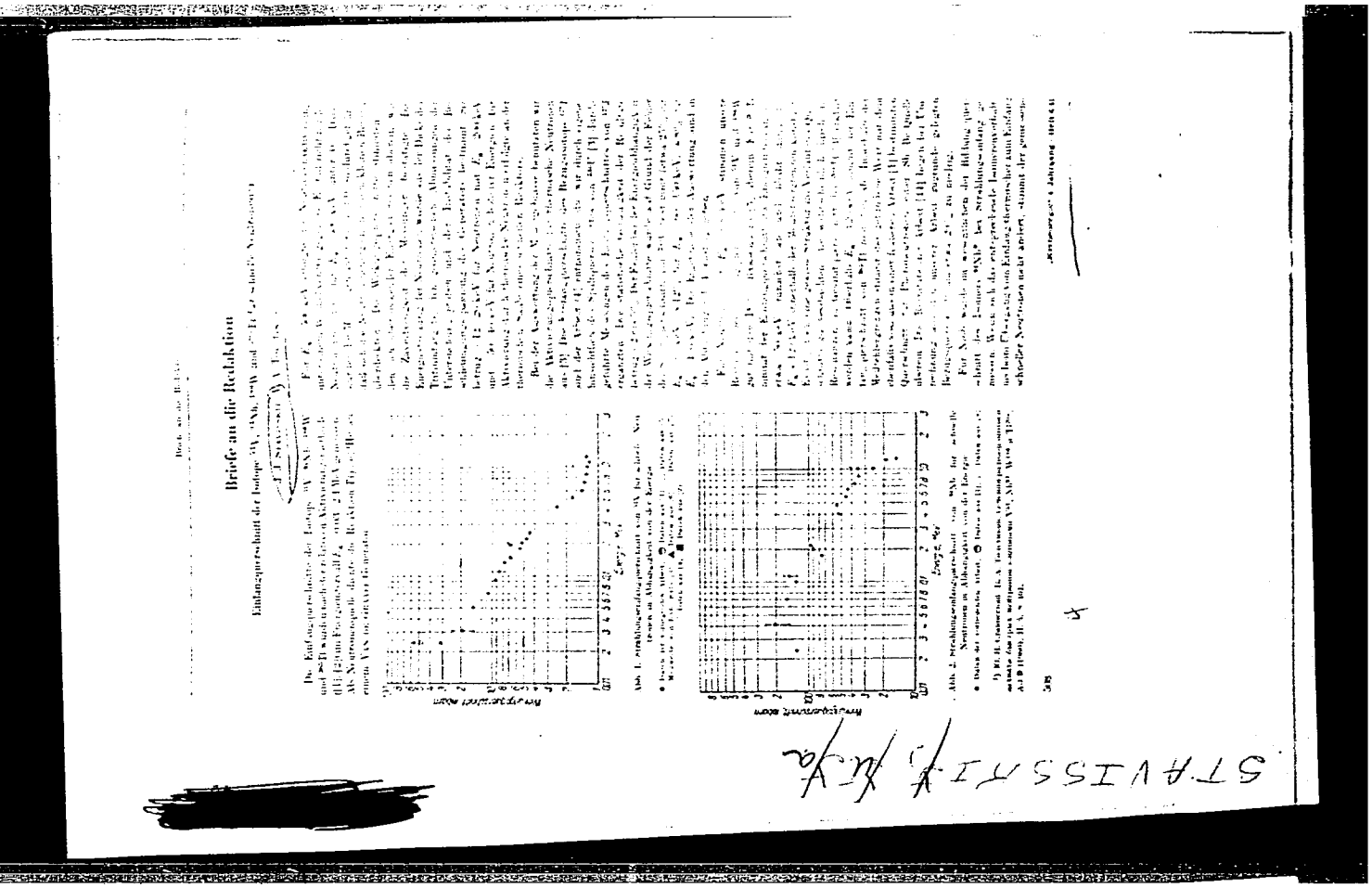
AUTHORS: Tolstikov, V. A., Stavisskiy, Yu. Ya.

TITLE: Fast neutron radiative capture cross sections of the Mo^{100} isotope

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey. Moscow, 1961, 312-313

TEXT: The fast neutron radiative capture cross sections were measured with the activation method in the range 30 to 2100 kev for Mo^{100}. The neutrons were obtained from $T(p,n)He^3$ reactions, the protons being accelerated by a Van-de-Graff. The neutron energy spread was ± 50 kev for the 400-2100 kev range (target at $\theta = 0^o$ to the proton beam) and ± 15 - ± 30 kev for 30-400 kev (target at $\theta = 100^o$ to the proton beam). The irradiation of the specimens with thermal neutrons was carried out in the thermal column of a fast research reactor. The radiative capture cross sections of J^{127} were used as reference values; for thermal neutrons σ_n, was taken to be 5.6 ± 0.3 b for J^{127} and 0.20 ± 0.05 b for Mo^{100}.

Card 1/2



Briefe an die Redaktion

89358

S/089/61/010/002/008/018
B102/B209

26.2243

AUTHORS: Stavisskiy, Yu. Ya., Tolstikov, V. A., Kononov, V. N.

TITLE: Measurement of the radiative capture cross section of fast neutrons by I^{127}

PERIODICAL: Atomnaya energiya, v. 10, no. 2, 1961, 158-160

TEXT: In activation measurements I^{127} is suited as a standard; it has an appropriate half-life, sufficiently high radiative capture cross section, and a known thermal neutron capture cross section. Data on fast-neutron capture are not yet available and/or the existing data are erroneous or contradictory, particularly in the range of 0.01 - 2.5 Mev. The authors measured (1958 - 1959) the energy dependence of the radiative capture cross sections for 0.02 - 2.5 Mev neutrons by means of the activation method. A U^{235} fission chamber and the I^{127} sample were simultaneously irradiated with a fast-neutron beam and the arising β-activity was measured with an end-window counter. The reaction $T(p,n)He^3$ served as a source of fast neutrons. The arrangement of tritium target (1), I^{127} sample (2), and fission chamber (3) was as follows:

Card 1/4

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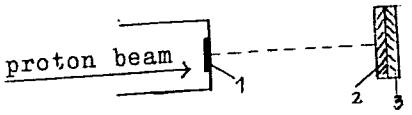
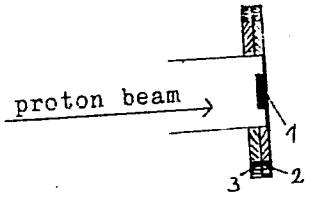
Measurement of the ...



Irradiation by neutrons with energies >300 kev



Irradiation by neutrons with energies <300 kev

The measurements below 0 and 100° with respect to the proton beam direction lead to an "overlapping" of neutron energies; the agreement of the cross sections in this region proved the measurements to be reliable. The effect of the neutrons scattered from the walls was less than 0.3% and was determined from the deviation from the $1/R^2$ law. Standard measurements with thermal neutrons were carried out at the thermal column of a fast reactor. Activation cross section of I^{127} by thermal neutrons was assumed to be 5.6±0.3 b (according to Ref. 8), U^{235} fission cross section to be 582±4 b (according to

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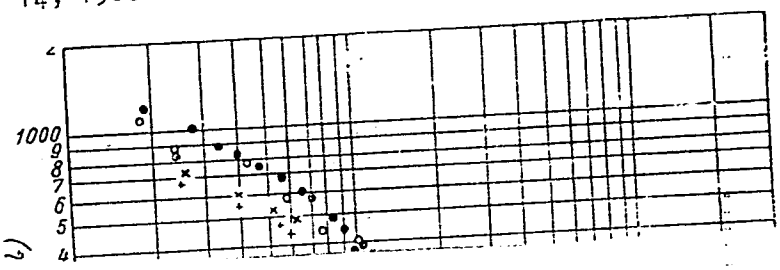
Measurement of the ...

Ref. 9). The error in the obtained value of the radiative capture cross section of I^{127} is, in essential, due to the U^{235} fission cross section error (12 - 25%). Fig. 2 shows a comparison between the results obtained by the present measurements (○) and those of other authors (⊙,○,×,△,□,▽,△). The σ curve drops monotonically with increasing E_n and may, within accuracy of measurement, be approximated through a $E^{-0.7}$ curve. In conclusion, the authors thank A. I. Leypunskiy, O. D. Kazachkovskiy, and V. S. Stavinskiy for their interest and discussions. There are 2 figures and 14 references: 5 Soviet-bloc and 9 non-Soviet-bloc.

SUBMITTED: July 14, 1960



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Measurement of the ...

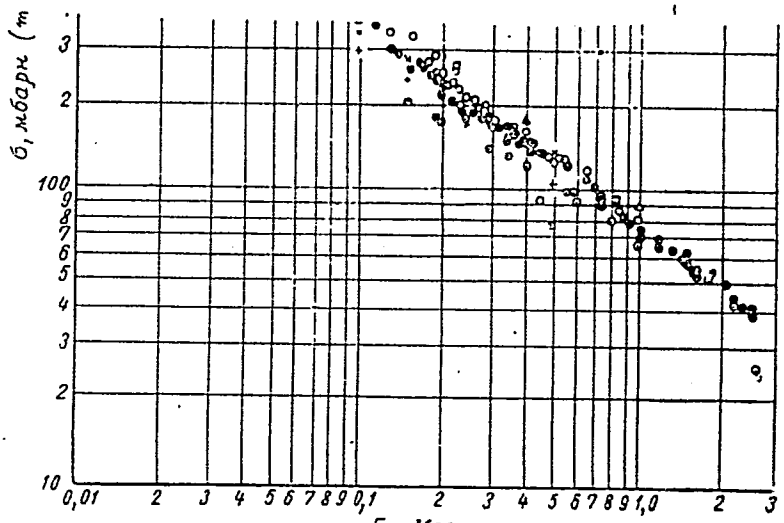

Fig. 2.

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B102/B205

26.2245

AUTHORS: Stavisskiy, Yu. Ya., Shapar', A. V.

TITLE: Fast-neutron capture cross section for niobium, nickel, and iron

PERIODICAL: Atomnaya energiya, v. 10, no. 3, 1961, 264-265

TEXT: The energy dependence of the radiative capture cross sections for fast neutrons in a natural isotopic mixture of niobium, nickel, and iron has been measured by recording the prompt gamma radiation. The reaction T(p, n) served as neutron source. The protons had been accelerated in a van de Graaff. The average spread of neutron energy was ±20 kev. A scintillation counter with a CaF_2 crystal was used as detector. The measurements were performed in annular geometry. Measuring technique and evaluation are described in Ref. 1 (Moscow report). The energy dependence of the radiative neutron capture cross section was obtained by a comparison with the course of the U^{235} cross section. The experimental error of a single point does not exceed 10% for Nb and 15% for Ni and Fe. The radiative capture cross section of 400-kev neutrons, which is 65 mb for Nb, 8.3 mb for Ni, and 5 mb

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B102/B205

Fast-neutron capture ...

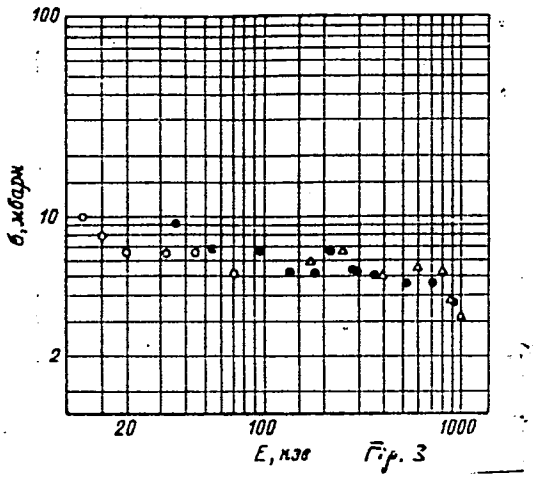
for Fe, has been used to determine the absolute cross section. The results of the authors' calculations are shown in Figs. 1-3 (full circles) [Abstracter's note: As the three figures are very similar, only Fig. 3 is presented] for Nb, Ni, and Fe, and compared with the results of Refs. 3-6. If the cross section for niobium is averaged over many overlapping levels, then the mean distances of the levels for nickel and iron are comparable to the energy resolution of the method. The diagrams indicate that in the range of 150-1000 kev, the radiative capture cross section depends only slightly on energy. This is primarily due to the capture of neutrons having a non-vanishing orbital momentum; another cause is the possible increase in the radiation width with an increase in energy. A. I. Leypunskiy and O. D. Kazachkovskiy are thanked for interest in the work. There are 3 figures and 7 references: 6 Soviet-bloc and 1 non-Soviet-bloc. [Abstracter's note: Essentially complete translation.]

SUBMITTED: August 23, 1960

Card 2/3

Fast-neutron capture ...

Fig. 3



Фиг. 3

Card 3/3

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22873
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B102/B214

21.1910 21.4210
26.2200

AUTHORS: Blokhin, G. Ye., Blokhintsev, D. I., Blyumkina, Yu. A., Bondarenko, I. I. Deryagin, B. N., Zaymovskiy, A. S., Zinov'yev, V. P., Kazachkovskiy, O. D., Kim Khen Bon, Krasnoyarov, N. V., Leypunskiy, A. I., Malykh, V. A. Nazarov, P. M., Nikolayev, S. K., Stavisskiy, Ya. Ya., Ukraintsev, F. I., Frank, I. M., Shapiro, F. L., Yazvitskiy, Yu. S.

TITLE: A pulsed fast reactor

X

PERIODICAL: Atomnaya energiya, v. 10, no. 5, 1961, 437-446

TEXT: The present paper gives a description of the pulsed fast reactor of the Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) which became critical in June, 1960. This reactor, called ИБР (IBR) reactor, serves as pulsed fast neutron source (mean power ≈1 kw) for physical investigations, particularly for time-of-flight experiments. Its most distinguishing feature is the very small contribution (~10-4) of the delayed neutrons in its normal operation; it is about

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A pulsed fast reactor

one hundredth of that of the usual steady uranium reactor. The pulses appear because whenever the reactor becomes overcritical a burst of prompt neutrons results. The half width of these pulses is 36 μsec. The frequency with which the pulses are repeated can be varied between 0 and 80 pulses/sec. Fig. 2 shows the construction of this reactor. The periodic change in the reactivity is brought about by the displacement of the two U^{235} blocks placed in two disks that can be rotated. The main block is pressed in the form of a disk, 1100 mm in diameter, and can be rotated with a peripheral velocity of 276 m/sec (at 6000 rpm) during which it passes through the core center. The reactivity change obtainable from the motion of the main block is 7.4 %, that obtainable from the motion of the auxiliary block is 0.4 %. The stationary part of the core consists of plutonium lumps in steel jackets. The reactor is started by a rough regulator, in this case a movable part of the reflector. It gives a reactivity change at the rate of $13 \cdot 10^{-5} - 1.3 \cdot 10^{-5}$ sec^{-1}. The manually operated rod is also a part of the reflector. Two plutonium rods in electromagnetic suspension serve as scram. They can be separated from the core with an acceleration of 20 g. Their separation causes a reactivity

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B102/B214

A pulsed fast reactor

decrease of 2-1.1 %; the rough regulator allows a reactivity change of 2.4 %, the manual regulator 0.1 %, and the automatic regulator 0.036 %. The reactor possesses also a reactivity booster for the production of one intensive pulse. The control and shield system is an automatically functioning electronic arrangement with BF_3 counters and ionization chambers. The whole reactor is placed in a room of size 10·10·7 m whose concrete walls allow complete protection from radiation. The most important experimental arrangement consists of a 1000 m long neutron conductor, a metal tube, 400 mm in diameter in the first part and 800 mm in the second part in which a pressure of 0.1 mm Hg is maintained. This conductor connects a chain of socalled "intermediate pavilions" (at distances of 70, 250, 500, 750, and 1000 m from the reactor) in which experiments can be carried out. There is also an additional neutron conductor of 100 m length. The reactor chamber is joined to an experimental chamber in which four neutron beams of up to 800 mm diameter are available. There us such an experimental chamber also above the reactor chamber. Various experiments were carried out with the reactor and they are described in the present paper. These are experiments with stand

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A pulsed fast reactor

assemblies and slowly moving main block for the determination of the most important parameters of the reactor; experiments with a core assembly (unmoved), experiments with rotating (5000 rpm) main block and a Ra-α-Be source in the core for the investigation of the effect of the multiplication factor, etc. The most important results are represented graphically. For example, Fig. 8 shows the dependence of the half width θ of a pulse on the reactivity; the dashed line holds for the quasistationary case, the dot-dash line for the case of $\theta = K(\tau/\alpha)^{1/3} v^{-2/3}$, where v is the velocity of motion of the (rotating) main block; in the quasistationary case $\theta = 2\sqrt{\varepsilon_m/\alpha v^2}$, where ε_m is the reactivity at the maximal multiplication factor; $\varepsilon = \varepsilon_m - \alpha x^2$, where x is the displacement of the main block. The reactor has been actually used for the measurement of the total, scattering, capture, and fission cross sections by the time-of-flight method. Further experiments will be carried out with a view to obtaining increase of power and decrease of the pulse duration. There are 15 figures and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: J. Orndorf, Nucl. Sci. and Engng, 2, No. 4, 450 (1957).

Card 4/4

STAVISSKIY, Yu.Ya.; TOLSTIKOV, V.A.

Radiative capture cross-section of 0.03-2 Mev neutrons for the isotopes Mn^{55}, Cu^{65}, Ba^{138}, Th^{232}. Atom.energ. 10 no.5:508-511 My '61. (MIRA 14:5)

(Neutrons--Capture)

27178
S/057/61/031/009/018/019
B104/B102

26.2312

AUTHORS: Lebedev, S. Ya., Stavisskiy, Yu. Ya., and Shut'ko, Yu. V.

TITLE: Surface ionization of cesium during diffusion of its vapors through porous molybdenum

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 9, 1961, 1148-1149

TEXT: The authors studied the temperature dependence of the surface ionization of cesium during diffusion of its vapors through porous molybdenum plates (thickness 1 mm, porosity 30%, dimension of pores 1 μ). The temperature of the ionized surface was controlled with a thermocouple. The temperature dependence of the ion current density was studied for current densities of 0.015 - 16 ma/cm^2. Figs. 1 and 2 show the results. Results reveal that practically full ionization takes place during diffusion of cesium vapor through porous molybdenum of porous tungsten. Full ionization is achieved in molybdenum at much lower temperatures than in tungsten. With an ion current density of 15 ma/cm^2, this temperature

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Surface ionization of cesium...

difference is about 20°C. It is explained by a difference in the evaporation heats of cesium from tungsten and cesium surfaces and different mean lifetimes of cesium atoms on the ionized surface. The authors thank A. I. Leypunskiy, Academician of the AS UkrSSR, I. I. Bondarenko, and N. I. Ionov, for discussions. Further, they thank Yu. A. Eyduk who supplied the porous materials. There are 2 figures and 2 references: 1 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: W. B. Nottingham, Cesium plasma diode as a heat-to-electrical power transducer. Uppsala, August, 1959.

SUBMITTED: March 20, 1961

Fig.1. Dependence of the ion current on the temperature of the porous molybdenum surface.
Fig.2. Dependence of the saturation temperature on the current density. Legend: (1) Calculated by a formula for smooth tungsten suggested by Nottingham, (2) values measured by the authors for porous molybdenum, (3a) values measured by the authors for porous tungsten, (3b) values measured by Yu. Ya. Stavisskiy and S. Ya. Lebedev (ZhTF, XXX, no. 10, 1960).

24.2120 (1163, 1532, 1538)
10.2000
26.7330

29773

S/057/61/031/010/006/015
B104/B125

AUTHORS: Lebedev, S. Ya., Stavisskiy, Yu. Ya., Bondarenko, I. I., Mayev, S. A., Stakhanov, I. P., and Stumbur, E. A.

TITLE: Plasma oscillations in ion-beam neutralization

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 10, 1961, 1202-1208

TEXT: The consequences of the condition that the total ion current in a plasma vanishes have been studied. Electrons and ions are assumed to be emitted orthogonally from a conductor surface at the velocities v_{10} and v_{20}. Equations of motion and continuity for electrons and ions are studied. For the potential φ in the interval $0 \leqslant x \leqslant \infty$, the condition that electrons and ions do not reverse the direction of their motion reads: $d\varphi/dx = 0$. (The conductor surface lies in the $x = 0$ plane.) The inequality $v_{10} \leqslant 2v_{20}$ holds for the velocities. If $d\varphi/dx \neq 0$ on the conductor surface, the admissible velocity range, in which no reversal of the direction of motion will occur, is smaller. If the electron and ion currents in plasma do not compensate each other, a steady, periodically distributed

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Plasma oscillations in...

charge will occur in the plasma. The period of charge distribution, the velocity and the acceleration of electrons in this spatially periodic charge are studied. Theoretical results were experimentally verified by measuring the electromagnetic radiation emitted by the electrons while traveling through the periodic charge. The experimental setup is shown in Fig. 2. Positive cesium ions reach the operating part from the incandescent tungsten plate 5. Grid 3 accelerates the ions and simultaneously emits electrons that neutralize the positive ions. The potential of the ion source relative to the earth ranged between 0 and 10 kv. Grid 3 had a zero potential. The emission of electromagnetic waves was measured with a radiotechnical installation. Very high-frequency oscillations were produced between 80 and 120 Mc/sec, and between 126 and 200 Mc/sec as dependent on the current density and ion energy. Experimental results are in good agreement with theoretical data. Professor A. I. Leypunskiy is thanked for his interest, and S. I. Chubarov for advice. There are 4 figures and 11 references: 6 Soviet and 5 non-Soviet. The three most important references to English-language publications read as follows: J. Feinstein et al., Phys. Rev., 83, 405, 1951; H. K. Sen, Phys. Rev., 99, 849, 1955; P. L. Auer et al., J. Appl. Phys., 30, no. 2, 161, 1959.

Card 2/3

S/903/62/000/000/044/044
B102/B234

AUTHORS: Stavisskiy, Yu. Ya., Tolstikov, V. A.

TITLE: Measurement of the fast neutron radiative capture cross section of the isotopes $_{23}V^{51}$, $_{25}Mn^{55}$, $_{41}Nb^{93}$, $_{2}Mo^{100}$, $_{74}W^{186}$, $_{81}Tl^{205}$, and $_{90}Th^{232}$

SOURCE: Yadernyye reaktsii pri malykh i srednikh energiyakh; trudy Vtoroy Vsesoyuznoy konferentsii, iyul' 1960 g. Ed. by A. S. Davydov and others. Moscow, Izd-vo AN SSSR, 1962, 562-571

TEXT: The radiative neutron capture cross sections of a series of isotopes were determined by the method of comparison measurements using $_{53}I^{127}$ as reference standard. The fast neutrons were obtained from $T(p,n)He^3$ reactions, the thermal neutrons from the thermal column of a fast reactor. The targets were ring-shaped in the case of $E_n < 300$ kev and in the form of discs for $E_n > 300$ kev, so arranged that in the first case the neutrons hit the target surface at an angle between 5 and 25° and in the second at 90°. In order to

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prevent activation by scattered neutrons the target was coated by 0.5 mm Cd. In no case was the target thickness greater than 1/50 of the thermal neutron mean free path. The purity was verified by spectroscopic and lifetime analyses. The results, represented in the form of $\sigma(E_n)$ plots, are compared with those reported by others (e.g. Phys. Rev. 116, 927, 1959; 91, 1423, 1953, Atomnaya energiya, 5, 564, 1958; J. Nucl. Energy, 8, 197, 1959). The r.m.s. error was 2-3%, for Nb it reached 5-10% and was due to the weak activation attained. The maximum neutron energy spread was ±12 kev for neutrons up to 200 kev and ±30 kev for higher energies. The agreement with the experimental results of others is good. Comparison with theoretical considerations on the basis of the black-nucleus model yield partly better results (e.g. for W^{186}) than with the optical model. There are 9 figures.

ASSOCIATION: Fiziko-energeticheskiy institut Gosudarstvennogo komiteta Soveta Ministrov SSSR po ispol'zovaniyu atomnoy energii (Physics and Power Engineering Institute of the State Committee of the Council of Ministers of USSR on the Utilization of Atomic Energy)

35708

S/120/62/000/001/034/061
E032/E314

26.2312
11.4100

AUTHORS: Lebedev, S.Ya. and Stavisskiy, Yu.Ya.

TITLE: Measurement of the vapour pressure of alkali metals in the range 10^{-5} - 10^{-2} mm Hg

PERIODICAL: Pribory i tekhnika eksperimenta, no. 1, 1962, 142 - 144

TEXT: The usual method of measuring the vapour pressure of alkali metals is based on the well-known relation between the vapour pressure and the temperature. However, this method suffers from the disadvantage that it can only be used under the conditions of thermodynamic equilibrium and, moreover, it has considerable inertia so that it cannot be used for continuous measurements. The authors describe a different method in which the vapour pressure can be measured with the aid of the phenomenon of surface ionization of alkali metals on tungsten. This phenomenon is described by the well-known Saha-Langmuir formula, giving the surface-ionization coefficient in terms of the ionization potential of the atoms and the work function of the

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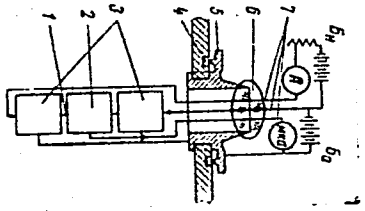
Measurement of ....

tungsten surface. The device now described is illustrated in Fig. 2. It is found that the ion current is a linear function of the vapour pressure and is in agreement with theoretical considerations. There are 3 figures.

SUBMITTED: May 26, 1961

Legend to Fig. 2: 1 - tungsten anode; 2 - measuring part of the cathode; 3 - cathode guard rings; 4 - vacuum seal; 5 - kovar ring; 6 - glass-to-metal seal; 7 - kovar holders; B_H - battery supplying the tungsten anode; A - ammeter for measuring the filament current; B_a - battery supplying potential difference between the tungsten wire and the outer cylinders.

Fig. 2:



Card 2/2

41445

S/120/62/000/005/030/036
E039/E420

21.6000

AUTHORS: Stavisskiy, Yu.Ya., Shapar', A.V.

TITLE: A scintillation counter with a CaF_2 crystal

PERIODICAL: Pribory i tekhnika eksperimenta, no.5, 1962, 177-178

TEXT: The merit of scintillation counters with CaF_2 crystals is that they enable recording of γ rays in the presence of a large flux of neutrons. CaF_2 crystals have the following properties: density 3.18 g/cm^3; melting point 1300°C; maximum spectral emission 2500 Å; refractive index 1.434; CaF_2 is chemically inert and large crystals can be grown. The phosphorescence decay time as measured by the authors is $(0.5 \pm 0.1) \times 10^{-6}$ sec while previous workers found 0.2×10^{-6} sec. It is shown that the pulse height from CaF_2 can be increased from 0.05 to 0.12 relative to NaI(Tl) by the application of a longwave converter. Comparison is made using a ФЭУ-29 (FEU-29) photomultiplier. Pulse height can also be increased by the addition of an activator such as cerium or europium. A natural crystal was prepared from a selected sample of CaF_2 by grinding on a rotating cast iron plate with corundum powder, subsequently lapping with micro-corundum

Card 1/2

A scintillation counter ...

paper and polishing with chamois leather and ГОИ (GOI) paste until a surface of optical quality was obtained. An artificial single crystal was grown (height 3 cm and diameter 3.5 cm) without the addition of an activator. The wavelength converter is applied as a coating consisting of a solid solution of p-terphenyl in polystyrene dissolved in toluene. This solution is brushed on the degreased crystal and dried at room temperature. Coatings are applied until the optimum quantity of 4 mg/cm^2 is obtained. Aluminium foil reflectors are used. The absence of a converter on the crystal face adjacent to the photocathode of the FEU decreases the pulse height by 15%.

SUBMITTED: December 2, 1961

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3845

S/089/62/012/006/008/019
B102/B104

AUTHORS: Stavisskiy, Yu. Ya., Shapar', A. V.

TITLE: Fast-neutron capture cross section for chromium

PERIODICAL: Atomnaya energiya, v. 12, no. 6, 1962, 514

TEXT: The energy dependence of the radiative fast-neutron capture cross section in chromium was measured by recording the prompt gamma emission. T(p,n)-reactions at the target of a Van de Graaff accelerator were used for neutron production. Neutron energy scattering was found at ± 20 kev. A scintillation counter with a CaF_2 crystal was used as detector. The radiative capture cross section in the range 50-1000 kev was found to depend only slightly on the energy. There is 1 figure.

SUBMITTED: December 6, 1961

Card 1/1

STAVISSKIY, Yu.Ya.; SHAPAR', A.V.

Fast neutron capture cross sections for copper and zirconium. Atom. energ. 15 no.4:323 O '63. (MIRA 16:10)

TOLSTIKOV, V.A.; SHERMAN, L.Ye.; STAVISSKIY, Yu.Ya.

Measuring the capture cross sections of 5-200 Kev. neutrons for U^{238} and Th^{232}. Atom. energ. 15 no.5:414-415 N '63. (MIRA 16:12)

STAVISSKIY, Yu.Ya.; ABRAMOV, A.I.; BELANOVA, T.S.; VAN'KOV, A.A.; KOROLEVA, V.P.

Photoneutron laboratory for research involving high-activity sources. Atom. energ. 15 no.6:489-493 D '63. (MIRA 17:1)

STAVISSKIY, Yu. Ya.; KOLESOV, V. Ye. et al

"Radiative capture of fast monoenergetic neutrons."

report submitted for IAEA Intl Nuclear Data Sci Working Group Mtg, Vienna, 9-13 Nov 64.

L 8687-65 EWT(m) SSD/AFWL MLK

ACCESSION NR: AT4048201 S/0000/64/000/000/0001/0004

AUTHOR: Stavisskiy, Yu. Ya.; Kolesov, V. Ye.; Maly*shev, A. V.; Tolstikov, V. A.; Shapar', A. V. B

TITLE: Radiative capture of fast monoenergetic neutrons

SOURCE: Radiatsionny*y zakhvat by*stry*kh monoenergeticheskikh neytronov

TOPIC TAGS: radiative capture, neutron capture, capture cross section, energy dependence

ABSTRACT: The authors report briefly on their recent measurements of the cross section for the radiative capture of several activating isotopes and natural isotope mixtures. The energy dependence of the radiative capture cross section was measured for the most part by the activation method, whereas measurements with non-activating iso- the captured gamma radiation with a

L 8687-65

ACCESSION NR: AT4048281

scintillation counter (CaF_2 crystal). The accuracy of the activation method was within 5% and that of the gamma-ray method within 15%. The monochromatic neutrons were obtained with a Van de Graaff generator using the reactions T(p, n) and Li(p, n), which yielded neutrons with energies from 50 keV to 2.5 MeV and from 5 keV to 200 keV, respectively. The standard reactions used for comparison were the fission of U^{235}, the B^{10}(n, α) reaction, and I^{127} capture. The values obtained for the cross sections were compared with those calculated from the statistical theory. The good agreement between theory and practice for the case of iron and Cu^{65} confirms the systematics proposed for the parameters of the radiative capture cross sections by one of the authors (A. V. Maly*shev, ZhETF v. 45, 316, 1963). Orig. art. has: 2 figures and 1 formula.

ASSOCIATION: None

ENCL: 00

SUBMITTED: 00

OTHER: 004

SUB CODE: NP

NR REF SOV: 002

Card 2/2

L 13557-65 EWT(1)/EWG(k)/EPA(sp)-2/EPF(n)-2/EPA(w)-2/T/EWA Pz-6/Pab-10/
Pu-4 IJP(c)/AFWL/ASD(d)/AS(mp)-2/SSD/ASD(f)-2/ASD(m)-3/AFMDC/ASD(a)-5/ESD(gs)/
ESD(t) AT
ACCESSION NR: AP4045308 S/0048/64/028/009/1499/1503

AUTHOR: Lebedev, S. Ya; Stavisskiy, Yu. Ya.

TITLE: Thermionic emission of certain materials in cesium vapor [Report, Tenth Conference on Cathode Electronics held in Kiev from 11 to 18 Nov 1963]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 28, no. 9, 1964, 1499-1503

TOPIC TAGS: thermionic emission, work function, cesium, tungsten, molybdenum, titanium, tantalum, rhenium, carbon, nickel, hafnium, zirconium, steel

ABSTRACT: The available data on thermionic (thermoelectronic) emission of various materials in cesium vapor are scanty; actually fairly comprehensive data have been published only for tungsten (J. B. Taylor and I. Langmuir, Phys. Rev. 44, 423, 1933) and somewhat less extensive data on molybdenum (P. M. Marchuk, Trudy* In-ta fiz. AN USSR, No. 7, 3, 1956; R. L. Aamodt, L. J. Brown and B. D.

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L 13557-65
ACCESSION NR: AP4045308

Nichols, J. Appl. Phys. 33, 2080, 1962). Accordingly, the present work deals with the emission of W, Mo, Ta, Ti, C, Re, Ni, Nb, Zr, Hf, and 1Kh18N9T steel in cesium vapor. The measurements were performed by using a special tube with a cylindrical three-section anode; the PtRh-Pt thermocouple employed precluded aging at temperatures above 1700C, which possibly did not ensure adequate surface cleanliness of the high-melting materials. The inside of the measurement tube was heated to 300-350C, the temperature of the evaporator branch with the cesium was varied from 18 to 150C (equivalent Cs pressures of 10^{-6} to 10^{-2} mm Hg). The temperature of the test emitters was varied over the range from 18 to 1000C. Some of the above listed materials have work function values exceeding the ionization potential. The values of the work function and the constant A for the tested materials are tabulated. The experimental results are presented by plotting log i versus 1/T curves for different Cs vapor pressures. Finally, the ranges of the work function, evaluated on the assumption that A = 120, and the values of the heat of evaporation of Cs from the different surfaces, evaluated from the temperature dependences of the thermionic emission are tabulated. The last

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L 13557-65
ACCESSION NR: AP4045308

disagree with the values available in the literature. "In conclusion, the authors express their gratitude to L. N. Dobretsov for valuable suggestions made in discussing the results of the work." Orig. art. has: 7 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 00 ATD PRESS: 3131 ENCL: 00

SUB CODE: MM, EM NO REF SOV: 004 OTHER: 008

Card 3/3

L 12043-65 EWT(l)/EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPR/EPA(w)-2/EEC(t)/T/EWP(t)/EWP(b)/EWA(m)-2 Pr-4/Ps-4/Pt-10/Pu-4/Pab-10/Pad IJP(c)/ASD(m)-3/ASD(a)-5/ASD(d)/AS(mp)-2/ASD(f)-2/ESD(gs) JD/WW/HW/JG

ACCESSION NR: AP4045314 S/0048/64/028/009/1527/1529

AUTHOR: Lebedev, S.Ya.; Stavissakiy, Yu.Ya.

TITLE: Surface ionization of cesium incident to diffusion of the vapor through porous diaphragms of molybdenum, tungsten, nickel and rhenium /Report, Tenth Conference on Cathode Electronics held in Kiev, 11-18 Nov 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.9,1964, 1527-1529

TOPIC TAGS: surface ionization, cesium, tungsten, nickel, rhenium, adsorption energy

ABSTRACT: The surface ionization of cesium vapor seeping through porous diaphragms of molybdenum, tungsten, nickel and rhenium was investigated. The authors have described their apparatus elsewhere(Zhur.tekh.fiz.33,12,1963). Cesium vapor from an oven was conducted thro gh a porous diaphragm of the metal under investigation (porosity, 30%; grain and pore size, 1 micron), and the ions issuing from the diaphragm were collected in a Faraday cup. The diaphragm was heated indirectly; thermocouples served to measure its temperature and to assure the absence of any radial temperature gradient. The potential difference between the diaphragm and the Faraday cup was so chosen with the aid of auxiliary experiments as to avoid space charge

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2

effects. The Faraday cup was provided with a negatively charged grid to suppress secondary electron emission, and it was sufficiently cooled as to condense the neutral cesium atoms that entered it. To perform a measurement, the cesium vapor flux was held constant and the ion current was plotted against the diaphragm temperature. The curve thus obtained showed a rapid rise of ion current with increasing temperature, followed by sudden onset of saturation. The saturation ion current was regarded as the surface ionization current corresponding to the temperature for onset of saturation for a clean surface. This procedure was repeated for different flow rates, and thus the relation between ionization current and temperature was obtained. The logarithm of the ionization current was a linear function of the reciprocal of the temperature. The activation energy defined by this linear relation is regarded as the energy of adsorption on a clean surface. The adsorption energies thus obtained were 2.65 eV for the molybdenum, 2,92 eV for the tungsten, 3.04 eV for the nickel, and 3.22 eV for the rhenium diaphragm. "In conclusion, the authors express their gratitude to N.I.Ionov and E.Ya.Zandberg for valuable discussions." Orig.art. has: 2 formulas, 2 figures and 1 table.

L 12043-65
ACCESSION NR: AP4045314

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00

SUB CODE: EM, MM NR REF SOV: 003 OTHER: 000

3/3

L 24246-65 EWA(h)/EWT(m) DM

ACCESSION NR: AP5001274 S/0089/64/017/006/0505/0508

AUTHOR: Tolstikov, V. A.; Kolesov, V. Ye.; Dovbenko, A. G.; Stavisskiy, Yu. Ya.

TITLE: Radiation capture of neutrons by the copper and moblydenum nuclei

SOURCE: Atomnaya energiya, v. 17, no. 6, 1964, 505-508

TOPIC TAGS: radiation neutron capture, neutron capture cross section, copper 65, molybdenum 100

ABSTRACT: The experimental results are given for the cross sections of the radiation capture of neutrons of energies between 5 and 200 kev by the isotopes Cu^{65} and Mo^{100} as a function of neutron energy. The neutron source was the reaction Li(p,n) produced with a Van de Graaff accelerator. The method was described in Atomnaya Energiya 10, 508 (1961). The results are compared with the computed values for the cross sections of Cu^{63}, Cu^{65}, and Mo^{100}, on the basis of the simplified theory (see B. Margulis, Phys. Rev. 88, 327 (1952)), which assumes that the capture of neutrons proceeds through the formation of a compound

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L 24246-65
ACCESSION NR: AP5001274

nucleus. The experimental results agree with the theory in spite of the incompleteness of the latter which does not take into consideration the spin-orbital interaction, the distribution of the neutron level widths, and the dependence of the levels density on spin. Orig. art. has: 4 figures

ASSOCIATION: None

SUBMITTED: 10Oct63 ENCL: 00 SUB CODE: NP

NR REF SOV: 007 OTHER: 011

Card 2/2

L 24245-65 EWT(m)/EWA(h) DM

ACCESSION NR: AP5001275 S/0089/64/017/006/0508/0509

AUTHOR: Malyshev, A. V.; Stavisskiy, Yu. Ya.; Shapar', A. V. 14 B

TITLE: Cross sections for radiation capture of fast neutrons in iron

SOURCE: Atomnaya energiya, v. 17, no. 6, 1964, 508-509

TOPIC TAGS: radiation neutron capture, neutron capture cross section, fast neutron, iron

ABSTRACT: It is known that the inelastic neutron scattering can greatly affect the dependence of the radioactive capture cross section of fast neutrons on energy. In order to elucidate this dependence for large neutron energies, σ_γ was measured for the natural iron isotopes mixture, for neutrons of 1, 1.2, and 1.4 Mev. The experimental method was described in Atomnaya Energiya 10, 264 (1961). It was found that for neutron energy over 900 kev, the capture cross section decreases. At 1.2 and 1.4 Mev, σ_γ is about 2 mbarn. The measured values are in good agreement with the theoretical computations by V. E. Kolesov et al (Neutron Physics, Moscow, 1961 p. 910) Orig. art. has: 1 figure

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L 24245-65

ACCESSION NR: AP5001275

ASSOCIATION: None

SUBMITTED: 28Dec63 ENCL: 00 SUB CODE: NP

NR REF SOV: 005 OTHER: 004

Card 2/2

ACCESSION NR: AP4040316 S/0057/64/034/006/1101/1104

AUTHOR: Lebedev. S.Ya.; Stavisskiy, Yu.Ya.; Shut'ko, Yu.V.

TITLE: Cathode sputtering by cesium ions

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.6, 1964, 1101-1104

TOPIC TAGS: cathode sputtering, ion bombardment, cesium, nickel, titanium, niobium, platinum, carbon, molybdenum, rhenium, tungsten, tantalum, iron

ABSTRACT: The cathode sputtering coeffficients under cesium ion bombardment were measured by the weight method for Ni, Ti, Nb, Pt, C, Mo, Re, W, Ta, and Fe and the results are tabulated for cesium ion energies from 2 to 10 keV and target temperatures from 700 to 1100°C. The ions were formed by passing cesium vapor through a 20 mm diameter 1 mm thick heated disc of porous tungsten; this ion source has been described elsewhere (Yu.Ya.Stavisskiy and S.Ya.Lebedev, ZhTF 30, No.10, 1960). The 10 x x 1 x 0.05 mm samples (all 10 at once) were fastened to the central portion of the plane cathode target, which was heated by a tungsten filament. The ion current could not be determined by simply measuring the cathode current because of secondary and thermal electron emission. The apparatus was therefore operated under such condi-

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ACCESSION NR: AP4040316

tions that the ion current was space charge limited, and the ion current was calculated from the anode potential, the electrode spacing, and the atomic weight of cesium by the $E^{3/2}$ law. The electron current was of the order of one-third the ion current; the contribution of the electrons to the space charge was therefore negligible because of their high velocity. Each measurement was repeated three times. The cathode sputtering coefficients ranged from 0.14 atom/ion for Re at 2 keV and 700°C to 5.90 atom/ion for Fe at 10 keV and 1100°C. The coefficients increased with increasing cesium ion energy. This increase was rapid at first but approached saturation toward the upper end of the energy range investigated. The cathode sputtering coefficients also increased somewhat with temperature (from 30 to 75% over the range from 700 to 1100°C), and they decreased rapidly with increasing heat of sublimation of the materials. "In conclusion, the authors thank A.I.Leypunskiy, Member of the Academy of Sciences of the Ukrainian SSR, and Professors M.A.Yeremeyev and N.I.Ionov for valuable discussions.: Orig.art.has: 1 formula, 4 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 25Jun63 DATE ACQ: 19Jun64 ENCL: 00

SUB CODE: EM,NP NR REF SOV: 001 OTHER: 001

Card 2/2

LEBEDEV, S.Ya.; STAVISSKIY, Yu.Ya.; SHUT'KO, Yu.V.

Cathode sputtering by bombardment with accelerated cesium ions. Izv. AN SSSR. Ser. fiz. 28 no.9:1488-1490 S '64.
(MIRA 17:10)

LEBEDEV, S.Ya.; STAVISSKIY, Ya.Ya.

Thermionic emission from certain materials in cesium vapors. Izv. AN SSSR. Ser. fiz. 25 no.9[1499-1503 S '61. (MIRA 17:10)

LEBEDEV, S.Ya.; STAVISSKII, Yu.Ya.

Surface ionization of cesium by diffusion of its vaport through porous partitions from molybdenum, tungsten, nickel and rhenium. Izv. AN SSSR. Ser. fiz. 28 no.9:1527-1529 S '64. (MIRA 17:10)

TOLSTIKOV, V.A.; KOLESOV, V. Ye.; DOVBENKO, A.G.; STAVISSKIY, Yu.Ya.

Radiative neutron capture by copper and molybdenum nuclei.
Atom. energ. 17 no.6:505 D '64 (MIRA 18:1)

MALYSHEV, A.V., STAVISSKIY, Yu.Ya.; SHAPAR', A.V.

Cross sections of radiative capture of fast neutrons for iron.
Atom. energ. 17 no.6:506 D '64 (MIRA 18:1)

BELANOVA, T.S.; VAN'KOV, A.A.; MIKHAYLUS, F.F.; STAVISSKIY, Yu.Ya.

Absolute measurements of the absorption cross sections for 24 Kev. neutrons. Atom. energ. 19 no.1:3-7 Jl '65. (MIRA 18:7)

L 2345-66 EWT(m)/EPF(n)-2/EWA(h)
ACCESSION NR: AT5022112 UR/3158/65/000/003/0001/0015

AUTHORS: Belanova, T. S.; Van'kov, A. A.; Mikhaylus, F. F.; Stavisskiy, Yu. Ya.

TITLE: Absolute determination of absorption cross section for 24 Kev neutrons

SOURCE: Obninsk. Fiziko-energeticheskiy institut. /Doklady/, no. 3, 1965. Absolyutnyye izmereniya secheniy pogloshcheniya neytronov s energiyey 24 kev, 1-15

TOPIC TAGS: neutron absorber, neutron cross section, neutron absorption, neutron capture, neutron counter, neutron detector, Monte Carlo method

ABSTRACT: The influence of a particular experimental method used in the determination of neutron absorption cross section on the magnitude of the cross section was studied, and neutron absorption cross sections for 18 different metals for 24 Kev electrons were determined. The data obtained were compared with those reported in the literature. The neutron source was (Sb - Be). The cross sections were determined by the spherical geometry transmission method. The measurements were carried out using two different counting arrangements, viz: an all-wave long counter and a water tank equipped with a system of dividing chambers. An experimental procedure similar to that of H. W. Schmitt and C. W. Cook (Nucl. Phys. 20, 202, 1960) was used. The effect of resonance blocking on the cross section magnitude was also investigated. All experimental results were treated according to the Monte Carlo

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L 2345-66
ACCESSION NR: AT5022112

2/

method and are presented in Table 1 on the Enclosure. It is concluded that, with the exception of lead, the data obtained are in good agreement with those of Schmitt and Cook (see reference above). The authors thank A. I. Leypunskiy and O. D. Kazachkovskiy for their interest in this work and N. A. Artemov, V. V. Piskunov, Yu. M. Nikitin, and L. Ye. Fedorov for the help received in setting up the apparatus. Orig. art. has: 2 tables and 4 equations.

ASSOCIATION: Fiziko-energeticheskiy institut, Obninsk (Physics and Power Institute, Obninsk)

SUBMITTED: 00 ENCL: 01 SUB CODE: NP

NO REF SOV: 005 OTHER: 008

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L 2345-66
ACCESSION NR: AT5022112

ENCLOSURE: 01
0

Table 1
Experimental results

NN	Z	σ_0, m. barn
1.	Ca	10 ± 4
2.	Cd	88 ± 8
3.	Zn	64 ± 7
4.	Zr	19 ± 6
5.	Nb	270 ± 15
6.	Mo	192 ± 12
7.	Ag	680 ± 60
8.	Cd	384 ± 20
9.	In	776 ± 68
10.	Sn	128 ± 9
11.	Sb	880 ± 75
12.	W	300 ± 25
13.	Au	670 ± 50
14.	Hg	388 ± 30
15.	Pb	48 ± 7
16.	Bi	9 ± 8
17.	Th	815 ± 20
18.	U^{238}	412 ± 18

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L 6448-66 EWT(m)/EPF(n)-2/EWA(h) DM

ACCESSION NR: AP5019802 UR/0089/65/019/001/0003/0007
539.17.02.:539.172.4

AUTHOR: Belanova, T. S.; Ban'kov, A. A.; Mikhaylus, F. F.; Stavisskiy, Yu. Ya.

TITLE: Absolute measurements of the absorption cross sections of 24-kev neutrons

SOURCE: Atomnaya energiya, v. 19, no. 1, 1965, 3-7

TOPIC TAGS: neutron cross section, neutron absorption, measuring apparatus

ABSTRACT: Inasmuch as the published cross section values were obtained by methods sensitive to the softening of the incident neutrons, the authors made their measurements by the transmission method and with a spherical geometry, using an all-wave detector whose efficiency does not depend on the neutron energy in the investigated region. An Sb-Be neutron source, with outside diameter 30 mm and with beryllium cladding 2, 4, and 6 mm, was used. The source intensity was 10^8 neut/sec. The all-wave neutron detector comprised a long counter and an independent water tank with a system of integrating fission chambers. The measurement setup is shown in Fig. 1 of the Enclosure. The measured samples were made in the form of spherical layers with the neutron source placed inside. Some elements were in pure form, and others included a lead-bismuth alloy as a scatterer to improve the accuracy. The errors are analyzed and the data reduction method is discussed in detail. The

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L 6448-66

ACCESSION NR: AP5019802 6

obtained cross sections are listed in Table 1 of the Enclosure. The results agree with the data of Schmitt and Cook (Nucl. Phys. v. 20, 202, 1960) if their correction for resonance blocking is disregarded. Some discrepancies with results by others are mentioned. "The authors thank A. A. Leypunskiy and O. D. Kazachkovskiy for continuous interest in the work, and N. A. Artemov, V. V. Piskunova, Yu. M. Nikitin, and L. Ye. Fedorov for help with the adjustment of the apparatus, the measurements, and the data reduction." Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 09Nov64 ENCL: 02 SUB CODE: NP

NR REF SOV: 005 OTHER: 008

Card 2/4

L 6448-66

ACCESSION NR: AP5019802

ENCLOSURE: 01

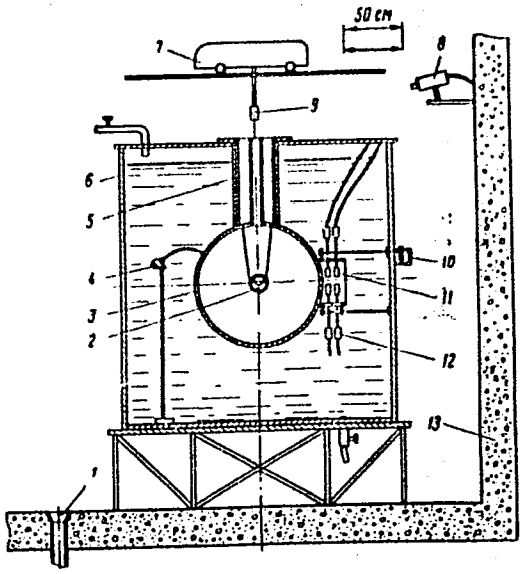

Fig. 1. Diagram of measurement setup (water tank).

1 - Well (source storage), 2 - sample, 3 - aluminum sphere, 4 - integrating fission chamber, 5 - neck of sphere with water "stopper," 6 - tank body, 7 - transporter for source, 8 - television camera, 9 - magnetic clamp for extraction of source, 10 - drive of moving system of flat fission chambers, 11 - flat fission chamb: 12 - cathode follower jacket, 13 - concrete shield.

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ACCESSION NR: AP5019802

ENCLOSURE: 02

Table 1. Averaged 24-kev neutron absorption cross sections

Element	σ_a, mb	Element	σ_a, mb
Cr	10±4	Sn	128±9
Cu	59±8	Sb	580±73
Zn	64±7	W	300±25
Zr	19±5	Au	570±30
Nb	270±15	Hg	233±30
Mo	192±12	Pb	43±7
Ag	980±60	Bi	3±3
Cd	384±20	Th	615±25
In	776±66	U^{238}	412±18

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L 6473-66 EWT(m)/EPF(n)-2/EWP(t)/EWP(b)/EWA(h) IJP(c) JD/WW/JG/DM
ACCESSION NR: AP5019810 UR/0089/65/019/001/0041/0042
539.173.84

AUTHOR: Van'kov, A. A.; Stavisskiy, Yu. Ya.

TITLE: Measurement of the average number of fission neutrons emitted in each act of capture of 24-kev neutrons for U^{235} and Pu^{239}

SOURCE: Atomnaya energiya, v. 19, no. 1, 1965, 41-42

TOPIC TAGS: nuclear fission, uranium, plutonium, neutron capture, neutron absorption

ABSTRACT: The source neutrons were separated from the fission neutrons on the basis of the difference between their absorption lengths in water. The detector was a water tank with spherical cavity of 1 meter diameter. An Sb-Ne photoneutron source was placed in the center of the cavity. The change in the count caused by surrounding the source with a layer of fissionable material was measured by a system of small fission chambers located in the water. The details of the measurements and data reduction are described briefly. Values 1.79 ± 0.06 and 2.15 ± 0.06 respectively were obtained for the number of secondary fission neutrons per absorption even in U^{235} and Pu^{239}. The corresponding ratios of the absorption to fission cross sections were 0.352 ± 0.040 and 0.349 ± 0.040. The results agree with those obtained by others. "The authors thank A. I. Leypunskiy and O. D. Kazachkovskiy

Card 1/2

L 6473-66
ACCESSION NR: AP5019810

for interest in the work and collaboration, A. I. Abramov and V. N. Andreyev for interesting discussions, F. F. Mikhaylus for programming the neutron-kinetics calculations, and Yu. M. Nikitin, V. V. Piskunova, and L. Ye. Fedorov for participation in the measurements." Orig. art. has: 1 figure, 2 formulas, and 1 table.

ASSOCIATION: none

SUBMITTED: 09Nov64 ENCL: 00 SUB CODE: NP

NR REF SOV: 004 OTHER: 001

nw
Card 2/2