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The Spectra of Conversion Electrons of the Neutron Deficient Thulium Isotopes

gives the test results with them; table 5 gives the comparison of the test value K/L with the theoretical one in the case of Z = 68 and $h\nu$ = 207,5 keV. A comparison was carried out of the test and the theoretical values of the half-decay period with regard to the γ-transition 207 keV (table 6). Table 7 and figure 6 record the same curves and values for group C. Table 8 shows the theoretical interactions $L_I : L_{II} : L_{III} : \gamma$ at various characteristics of the level 264,2 keV and table 9 records the calculated and the experimental data for determining the characteristic of the level 264,2 keV of Er^{167}, The possible scheme of the decay of Tu^{167} is represented by figure 7. Figure 8 and table 11 show the curves and the experimental data of the conversion electrons of Tu^{165}. Table 12 gives the relative intensities of the conversion transition lines $h\nu$= 77,4 keV, and in tables 13 and 14 the test relation K/L is compared with the theoretical one for various multi-fields. Figure 9 shows the possible scheme of the decay of Tu^{165}. Table 15 shows the intensity of the γ-rays and of the transitions in the decay of Tu^{165}. On figure 10 the conversion electron curves of Tu^{166} are represented: a) - first series of measurements, b) - second one

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after 24 hours and c) third series of measurements (after 48 hours) and on figure 11 the decay scheme of Tu^{166} is represented. Figure 12 shows the dependence on the time of the calculation speed upon the maximal values of all base lines of the thulium fraction. Table 16 records the relative productions of nuclei with various A during the reaction of the "deep separation". All these figures and tables are fully discussed and explained by the authors. There are 16 tables, 12 figures and 39 references 8 of which are Slavic.

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Громов, К. Я.

48-7-5/21

AUTHORS: Bobrov, Yu.G., Gromov, K.Ya., Dzhelepov, B.S., Preobrazhenskiy, B.K.

TITLE: The Spectra of Conversion Electrons of the Neutron Deficient Lutetium Isotopes (Spektry konversionnykh elektronov neytrono-defitsitnykh izotopov lyutetsiya)

PERIODICAL: Izvestiya Akad. Nauk SSSR, Ser. Fiz., 1957, Vol. 21, Nr 7, pp. 940 - 953 (USSR)

ABSTRACT: The spectra of the conversion electrons of two lutetium preparations were investigated. One of them was obtained from a tantalum target wall which had been irradiated by protons in the course of 3 months and the other one from a target which had been irradiated in the course of 1 1/2 hours. The measurements of the first preparation began weeks after the irradiation and lasted half a year, those of the second one began 3 hours after the separation and lasted 2 months. In the first case the chromatographic separation took place one week after the irradiation and in the second case 30 hours after irradiation. Lutetium possesses 2 stable isotopes: Lu^{175} and Lu^{176}. Table 1 shows the neutron deficient lutetium isotopes according to published data, where

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The Spectra of Conversion Electrons of the Neutron Deficient Lutetium Isotopes

the conversion electrons according to the half-decay periods are divided into 3 groups (150 - 200 days, 8 days and 2 days):
1.) Conversion electrons of lutetium isotopes with a half-decay period of 150 - 200 days.
On table 2 the authors represented their values of the energy and the relative intensities of the conversion lines of the first group and in figure 1 the spectrum of the conversion electrons. Table 3 records the comparison of the test relations K/L and $L_{III}/(L_{II} + L_I)$ with the theoretical ones for various multifields and table 4 records the comparison of the experimental data K-L with the theoretical ones for various Z. Figure 2 shows the possible scheme of the Lu^{174} decay and figure 3 shows the scheme of the Lu^{173} decay. Table 5 gives the comparison of the relative intensities of the γ-rays and the conversion electrons (α_K for the transition 78,7 keV is assumed as 5,7).
2.) Conversion electrons of lutetium isotopes with a half-decay period of 7 - 8 days.
The conversion lines of the 1 week isotopes were noticed in the spectrum of the preparation of a lasting as well as a short irradiation. Figure 4 represents the spectrum of the conversion electrons of the lutetium isotopes with $T \sim 8$ days. Table 6

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The Spectra of Conversion Electrons of the Neutron Deficient Lutetium Isotopes

gives the energy and the relative intensities of the conversion lines of the lutetium isotopes with T $\sim$ 8 days and table 7 gives a comparison of experimental and calculated relations K/L and $(L_I + L_{II})/L_{III}$.

3.) Conversion electrons of lutetium isotopes with a half-decay time of $\sim$ 2 days.

These conversion electrons were only observed in the spectrum of a shortly irradiated preparation. Table 8 shows a comparison of the energy and the relative intensities of the conversion lines observed in the lutetium preparation with the energies and the intensities of the lines γb^{169}. Figure 5 records the storing and the γb^{169}-decay in the lutetium preparation with short irradiation. On table 9 the authors state the conversion lines of the lutetium isotopes discovered by them with T $\sim$ 2 days and on table 10 they give a comparison of the test relations K/L and $L_I + L_{II} / L_{III}$ with the theoretical ones for the transition 84,3 keV. Table 11 records a comparison of the experimental data of the difference K - L with the X-ray values. There

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The Spectra of Conversion Electrons of the Neutron Deficient Lutetium Isotopes

are 10 table, 6 figures and 10 references, 5 of which are Slavic,

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GROMOV, K. YA.

AUTHORS: Gromov, K.,Ya., Dzhelepov, B. S., Dmitriyev,A.G. 48-12-3/15
Preobrazhenskiy, B. K.

TITLE: On the Decay-Scheme of Lu^{171} (O skheme raspada Lu^{171}).

PERIODICAL: Izvestiya AN SSSR,Seriya Fizicheskaya, 1957, Vol. 21, Nr 12, pp. 1573-1575 (USSR)

ABSTRACT: The spectrum of the conversion-electrons of a lutetium-preparation which was separated from hafnium obtained in the deep splitting off on tantalum was here investigated. Some conversion-lines whose intensity decreased during a period of 7-8 days were obtained. The obtained value of the half-decay period and the taking into consideration of the genetic connection between lutetium and hafnium permitted clearly to ascribe this conversion-lines to lutetium 171. The lutetium-preparation separated from hafnium was many times weaker than those directly separated from tantalum. Therefore the most intensive and most favorably situated conversion-lines were determined in the former. Thus it may be stated that the transitions with $h\nu$ = 75,8 and 9o,6 keV and the non-identified conversion-lines E_e = 56,6; 57,9; 62,3 keV, which were found in the spectrum of the lutetium separated from hafnium belong to lutetium 171. The inverse fact, however, may not be

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maintained: not discovered conversion-lines may either belong to lutetium 171 or to lutetium 172. Starting from the obtained data something can be said on the decay-scheme of Lu^{171}. The spin of the ground state of Yb171 was measured in reference 3 and is equal to 1/2. The Lu^{171}-nucleus has 71 protons and 1o neutrons, therefore (reference 4) its spin must be the same as in Lu^{175} (71 protons and 1o4 neutrons), i.e. 7/2. Thus an image is obtained which is very similar to the decay of Yb^{169} (spin 7/2) in Tu^{169} (spin 1/2). It would be justified to assume that the decay-scheme of Lu^{171} is also similar to that of the Yb^{169}-decay. In analogy with the decay-scheme of Yb^{169} a scheme of the rotation-band-levels of the ground state of Yb^{171} was set up. The experimental data are in very good agreement with this scheme. It is shown that the Lu^{171}-decay apparently is mainly spent on high excitation-states with a quantum-number $K > 1/2$ and that it is very probably that all or part of the γ-transitions and non-identified conversion-lines which are not connected with the ground-rotation-band of Yb^{171} are produced in the discharge of these excitation-states. The conversion-lines corresponding to the $h\nu$ = 11,3 (m-shell) and 26,2 keV (L-, M- and N-shells) were observed in the Lu^{171}-spectrum by

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On the Decay-Scheme of Lu^{171}

48-12-3/15

I.M.Rogachev (State University Leningrad) with the aid of a Pens-spectrometer. The M-11,3 line is badly visible, as it lies near the Auger-electron-lines L-MM and L-NN. There are 1 figure, 1 table, and 5 references, 4 of which are Slavic.

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AUTHORS: Gromov, K. Ya., Dzhelepov, B. S., Dmitriyev, A. G., Preobrazhenskiy, B. K.

TITLE: On the Decay of $Nd^{140} \rightarrow Pr^{140} \rightarrow Ce^{140}$ (O raspade $Nd^{140} \rightarrow Pr^{140} \rightarrow Ce^{140}$)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1959, Vol. 22, Nr 2, pp. 153 - 157 (USSR)

ABSTRACT: At first a survey on the data hitherto published is given and inconsistencies are pointed out. For this reason the investigations of the $Nd^{140} + Pr^{140}$-radiation were repeated. The neodymium fraction was here chromatographically separated from a tantalum target irradiated with fast protons (E_p=660 MeV). It was found that after 120 hours the preparation contains nothing but Nd^{140}. The electron radiation accompanying the decay of Nd^{140} and Pr^{140} was investigated by means of a magnetic β-spectrometer of the "ketron"-type. The positron-spectrum in the range of 0,4 ÷ 3 MeV and the electron spectrum in the range of 12 ÷ 150 keV were investigated. The activity of the preparation was not high. On the basis of the

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On the Decay of $Nd^{140} \rightarrow Pr^{140} \rightarrow Ce^{140}$

results in the investigation of the positron spectrum the Curie diagram was constructed. Above 750 keV the latter was linear. The limit energy of the positron spectrum is equal to 2470 keV. The Auger electron lines K-2L and K-LM were discovered in the electron spectrum. The half width of these groups of lines was 9 and 7 %. Other electron-lines were not observed. Under the same conditions as in the case of Nd^{140} the Tu- and Lu-isotopes were investigated here (Refs 11, 12). In some of the isotopes γ-transitions with about 80 keV were determined. The K-conversion lines of these transitions have an energy of about 20 keV. The K-line usually was widened by 1,5 - 2 %. The e_K/β^+-value here obtain for Nd^{140} Pr^{140} (error not above 30 %) can either be used for the determination of the emission of the K-series of Auger-electrons or for the determination of the β^+/K_Σ values. There are 4 figures, 1 table, and 12 references. 2 of which are Soviet.

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1. Neodymium-Decay-Determination 2. Praseodymium-Decay-Determination 3. Cerium-Decay-Determination

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SOV/48 22-7-2/26

AUTHORS: Gromov, K. Ya., Dzhelepov, B. S., Preobrazhenskiy, B. K.

TITLE: Conversion Electrons From Yb^{169} (Konversionnyye elektrony Yb^{169})

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol. 22, Nr 7, pp. 775-784 (USSR)

ABSTRACT: In this paper the spectrum of the conversion electrons of Yb^{169} obtained in a "thorough" (glubok) fission reaction from tantalum (Ref 5) was investigated. - On the basis of a comparison of the experimental data for the factors of internal conversion with theoretical values the following is stated:
1) The α_L-value for the 130,5 keV transition well agrees with the theoretical value for the transition of an E2 type.
2) The α_K-value obtained experimentally permits to maintain that the 118,2 keV transition is a pure E2 transition.
3) A comparison of the experimental and the theoretical value of α_L shows that the 63,1 keV transition is a pure E1 transition.
4) The experimental values of α_K and α_L of the 93,6 keV transition coincide best with the theoretical values for a transition of M1 type.

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5) The experimental values of the conversion factors in the 109,78 keV transition show an extremely good agreement with the theoretical values for a transition of the M1 type. The admixture of E2 apparently does not exceed 10 %.
6) No decision can be made between the M1 and E2 type in the 177 and 198 keV transitions with respect to the intensity of the lines of internal conversion at the K- and L-shells. Presumably it can be maintained that the admixture of E2 in these transitions is not below 20 %. The leading argument substantiating this assertion is the shape of the summary conversion lines at the L-shell (a conversion at the L_{III} sub-shell exists).
7) The value obtained experimentally for the factor of internal conversion at the K-shell for the 261,0 keV transition permits to establish the multipole order of the same E1.
8) The assumption made by the author of the existence of the γ-transition at 309,2 keV could not be substantiated by γ-rays. Hence the intensity of γ rays of 307,7 keV given in a paper by Du Mond (Dumond) can be considered to represent the summary intensity of the γ-rays with an energy of 307,7 and 309,2 keV.

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Conversion electrons from ^{166}Yb

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...) The total intensities of the corresponding γ-transitions are given in a table. - The data obtained for the conversion electrons of ^{166}Yb substantiate the decay scheme given in reference [illegible] and 4. As an attachment the testing of the calibration of the apparatus for the measurement of the energy is described. There are 7 figures, 3 tables, and 9 references, 5 of which are Soviet.

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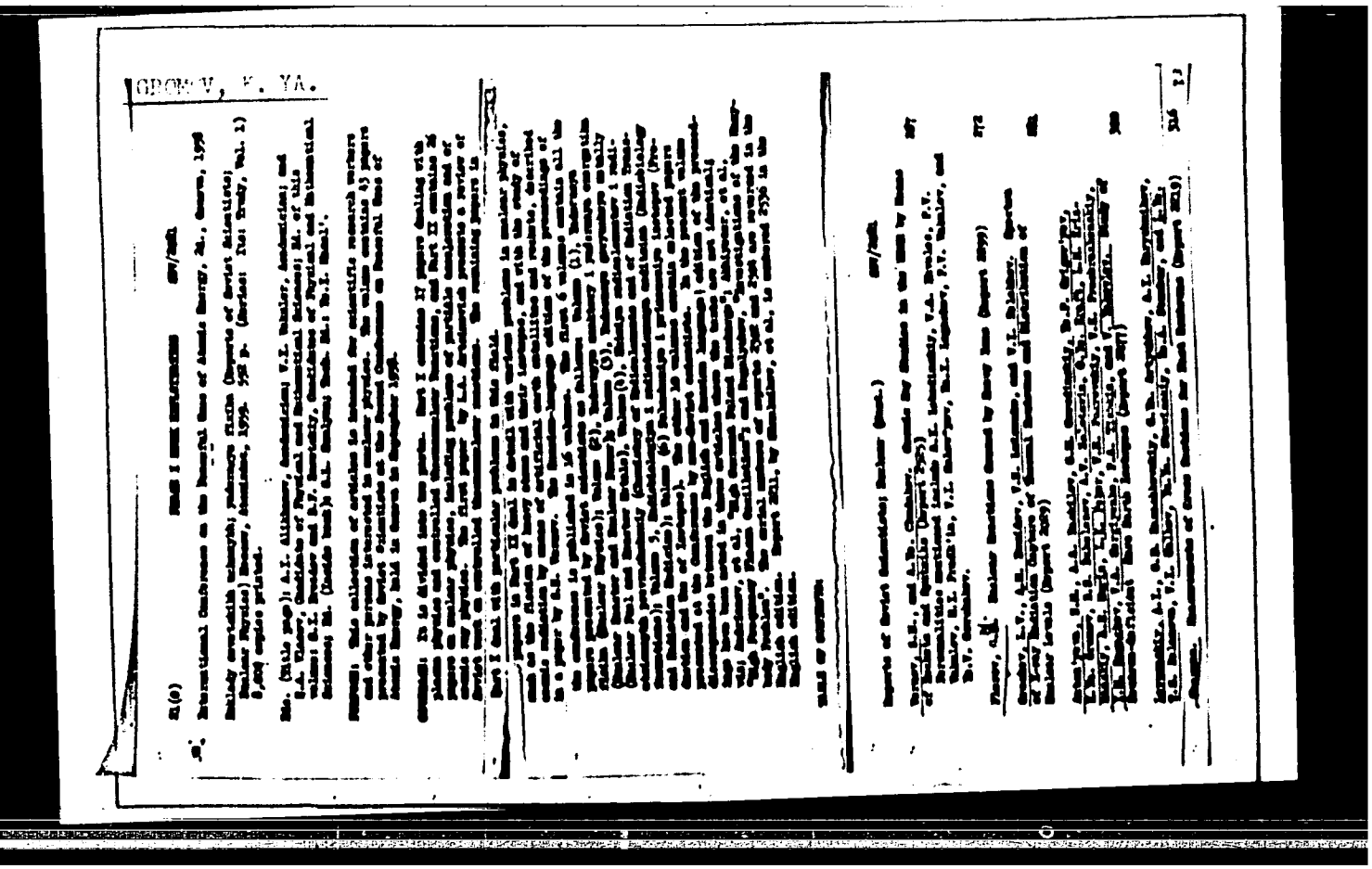

GROSSV, V. YA.

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24(5),21(7)
AUTHORS: Brabets, V., Gromov, K. Ya., Dzhelepov, B. S., Dmitriyev, A. G., Morozov, V. A.

SOV/48-23-7-4/31

TITLE: Conversion Electrons of Yb^{166} and Tu^{166} (Konversionnyye elektrony Yb^{166} i Tu^{166})

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 7, pp 812-818 (USSR)

ABSTRACT: The spectrum of the conversion electrons of the decay $Yb^{166} \xrightarrow[60 d]{K} Tu^{166} \xrightarrow[7,7 h]{K} Er^{166}$ (stable) was investigated by an improved magnetic β-spectrometer. The obtaining of the isotopes Yb^{166} and Tu^{166} carried out in Leningrad is described in short. The first part of this paper deals with the conversion electrons of Tu^{166}. As Tu^{166} has the daughter isotope Yb^{166}, three types of preparations were investigated: 1) The thulium fraction obtained by means of chromatographic separation from the rare earths. 2) The ytterbium fraction obtained by means of chromatographic separation from rare earth elements. 3) A thulium preparation separated from the ytterbium fraction

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20 hours after the chromatographic separation. The results of the measurements are compiled in table 1, and it becomes clear that the spectrum of the conversion electrons of Tu^{166} in most cases agrees with the ytterbium fraction. It is pointed out that the value of these results depends on the evaluation of the limiting intensity of the β-rays. Figure 1 shows the spectrum of the conversion electrons of the isotope Tu^{166} in the range of 10-185 kev of the thulium preparation separated from the ytterbium fraction. All intensities have a half-life of eight hours. Table 1 compares the experimentally determined ratios of the intensities of the K- and L-conversion lines with the theoretical ratios. The second part investigates the conversion electrons of the isotope Yb^{166}, and it is ascertained that the ratios of the intensities of the K- and L-conversion lines of the γ-transition of 80 kev strongly differ. The papers by V. N. Pokrovskiy (Ref 8) and Ye. P. Grigor'yev are mentioned here. Further it was ascertained that a γ-transition with the energy of 81.0 kev takes place in the decay $Yb^{166} \longrightarrow Tu^{166}$, and one with

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79.4 kev in the decay $Tu^{166} \rightarrow Er^{166}$. Finally, the intensity of the K-2L-Auger-electrons is investigated with the aid of the diagrams (Figs 1 and 4), and it is ascertained that the data obtained are in good agreement with the data known from publications. There are 4 figures, 3 tables, and 12 references, 5 of which are Soviet.

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24(5),21(7) SOV/48-23-7-6/31

AUTHORS: Gromov, K. Ya., Dzhelepov, B. S., Pokrovskiy, V. N.

TITLE: On the Scheme of the Decay of Tu^{166} (O skheme raspada Tu^{166})

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 7, pp 821-825 (USSR)

ABSTRACT: The first part of the present paper deals with the multipole transitions in Er^{166}, and discusses at first the experimental data of the emission accompanying the decay of Tu^{166}, which were obtained in the preceding papers of this issue. The identification of the energy of the α-transitions, and the relative intensity of the K-conversion electrons, are considered. The multipole transitions E1, E2, (M1 + E2), and M2 are then investigated, and the results are compiled in table 1. The second part investigates the absolute intensity of the γ- and conversion-lines, and calculates the number of captures of orbital electrons. The third part deals with two rotational bands of Er^{166}, the authors referring to previous papers. At first, the levels of the rotational band of the ground state, then the levels of the second rotational band, are investigated

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and explained with the help of a figure. The theory developed by A. S. Davydov on the rotational states of non-axial nuclei is mentioned which permits the energy of the rotational levels to be calculated. The intensity of the transitions in the bands studied here is then investigated, and the results are compiled in table 1. The fourth part investigates some other levels of the excitation of Er^{166}, and it is ascertained that for a clarification of these excited states of Er^{166} and their quantum characteristic, accurate measurements of the energy of the conversion electrons will have to be carried out. There are 1 figure, 3 tables, and 7 references, 5 of which are Soviet.

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S/048/60/024/03/03/019
B006/B014

AUTHORS: Gromov, K. Ya., Dzhelepov, B. S., Dmitriyev, A. G., Morozov, V. A., Yakovlev, K. I.

TITLE: Conversion Electrons and Gamma Rays of Tu^{165} 79 79

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 3, pp. 272-277

TEXT: The article under review was read at the Tenth All-Union Conference on Nuclear Spectroscopy (Moscow, January 19 - 27, 1960). The authors studied the spectrum of the conversion electrons of Tu^{165} by means of a magnetic spectrometer of the type "Ketron". The relative half-width of the lines was 0.4 per cent, the light intensity of the instrument was 0.4 per cent. The γ-ray spectrum was taken by means of a γ-scintillation spectrometer. The half-width of the 661-kev Cs^{137} line was 12 per cent. In order to obtain Tu^{165} tantalum was bombarded with 660-Mev protons for 4 hours on the synchrocyclotron of the Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) at Dubna Then, the V/B

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Conversion Electrons and Gamma Rays of Tu^{165}

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resulting elements were separated chromatographically. The conversion-electron spectrum was studied in the range 85 - 1,200 kev. The spectra obtained are illustrated in Figs. 1 - 3. Each spectral region was taken three times every 25 - 35 hours. Thus, it was possible to distinguish the lines of Tu^{165} from the lines of other isotopes. The intensity of the lines was measured relative to the K-243 intensity. The resulting data permitted the identification of the following new γ-transitions: 279.0, 312.1, 366.0, (378.4), 389.4, 457.2, 460.4, 471.6, 488.2, (543.5), 566.0, 807.1, 1,133, 1,179, and 1,187 kev. Table 1 lists all data on the conversion-electron spectrum (E_e, H_ρ, relative intensity, identification, E_γ). The γ-spectrum obtained is shown in Fig. 4. The following γ-lines were recorded: (219÷240), 296, 350, 450, 540, 810, and 1,170 kev. The relative intensities of these lines are compiled in Table 2. There are 4 figures, 2 tables, and 12 references, 6 of which are Soviet.

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24.6720

AUTHORS: Abdurazakov, A. A., Gromov, K. Ya., Dzhelepov, B. S., Norseyev, Yu. V., Umarov, G. Ya., Chumin, V. G.

TITLE: The 75-minute Activity of Yb 79

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 3, pp. 278-282

TEXT: The article under review was read at the Tenth All-Union Conference on Nuclear Spectroscopy (Moscow, January 19 - 27, 1960). The authors analyzed the spectra of electrons and positrons arising in the decay of the 75-minute Yb isotope by means of a magnetic β-spectrometer with a homogeneous magnetic field. The half-width of the Cs^{137} K-line amounted to 0.8%. Electrons were recorded by an electron counter of the type MST-17. An analysis of the positron spectrum (Fig. 1) revealed that it corresponded to a half-life of 75±2 min as to intensity in all its parts. Fig. 3 shows one of the decay curves of the positron spectrum; its analysis by means of the Fermi method (Fig. 2) showed that in the range

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of 1,300 - 2,940 kev there occurred no deviations from the shape which is characteristic of allowed β-transitions. The energy limit of the β-spectrum is found at 2,940±20 kev. A deviation of the spectrum from the Fermi shape was observed at energies below 1,300 kev. If this deviation is assumed to be related to a second component of the β-spectrum, its energy limit should then be at 1300±100 kev. L- and M-lines of the 91.5-kev transition and K- and L-lines of the 211-kev transition were found in the spectrum of conversion electrons. Data on conversion lines are compiled in Table 1. The mass number of this 75-min isotope has not yet been safely ascertained, but a number of authors believe it to be 167. The opinions of various authors are cited in this connection, among them B. S. Dzhelepov and L. K. Peker, A. V. Kalyamin and A. Abdurazakov. To conclude from the investigation results obtained by the authors of the present paper (Table 2) it does not seem possible to ascribe the mass numbers 167 and 165 to the 75-minute isotope. Results likewise exclude 163 and 161. The only possible numbers left are 162 and 164. Considerations indicate 164 as the most probable mass number. Fig. 4 shows the possible decay scheme. To check this assumption, the authors analyzed

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the conversion electron spectrum with a view to determining the Z of that nucleus in which the 91.5-kev transition, excited in the decay of 75-min Yb, occurs. Respective data are given in Table 3. It was thus proven that the 75-min activity is actually to be ascribed to the mass number 164. There are 4 figures, 3 tables, and 12 references, 7 of which are Soviet.

ASSOCIATION: Laboratoriya yadernykh problem Ob"yedinennogo instituta yadernykh issledovaniy (Laboratory of Nuclear Problems of the Joint Institute of Nuclear Research) Sredneaziatskiy politekhnicheskiy institut ((Soviet) Central Asia Polytechnic Institute)

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S/048/60/024/007/013/032/XX
B019/B056

24.6720

AUTHORS: Basina, A. S., Gromov, K. Ya., and Dzhelepov, B. S.

TITLE: The Conversion Electron Spectrum of the Dysprosium Fraction 21

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 7, pp. 811-816

TEXT: This paper was read at the 10th All-Union Conference on Nuclear Spectroscopy, which took place from January 19 to January 27, 1960 at Moscow. The investigations described here were carried out by means of a β-spectrometer having a resolution of roughly 1.9%. The dysprosium fraction was chromatographically separated from rare earths. The rare earths had been obtained by irradiation of a Ta-target (15-20 minutes) with fast protons. Separation of the dysprosium fraction took place 2 hours after the irradiation of the target. Measurements began roughly 1 hour after the fraction separation. The preparation was produced by previous evaporation of dysprosium lactate and following transfer of the activity by means of a weak acetic solution upon an Al foil. The source had a diameter of 3 mm.

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

The Conversion Electron Spectrum of the Dysprosium Fraction

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The emission of the following isotopes was observed: Dy^{152}, Dy^{153}, Dy^{155}, and Dy^{157}. Dy^{154} and Dy^{159} were not observed. During the first 30 hours, the conversion electron spectrum was measured continuously, and in the course of the following days it was measured once in each case. In this spectrum lines having the halflife of 6, 8 - 11, and roughly 20 hours, as well as several days were observed. Besides it was found that the intensity of a number of lines at first grew with a period of 2.5 hours, after which it decreased within a period of roughly 20 hours. The known data make it possible to assign the halflife of 8-11 hours to the Dy^{155}- and Dy^{157}- isotopes, and the longer periods to the Tb-daughter activities. The assignment of the halflives of roughly 6, 2.5, and 20 hours is further discussed. On the basis of known data, the spectra of Dy^{157} and Dy^{155} are discussed, and it was found that the L-82 and M-82 lines do not belong to Dy^{157}, and that no lines could be observed that might be assigned to Dy^{154} or Tb^{154}. Furthermore, the authors were able to prove that Dy^{153} was present in the preparation under investigation. In Table 1 the values for the conversion electrons of Dy^{153} are given. In the first column,

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The Conversion Electron Spectrum of the Dysprosium Fraction

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the energy of the conversion electrons, in the second the energies of γ-transitions, in the third the periods, in the fourth the relative intensities, and in the fifth column the identifications are given. From those lines whose intensity at first grows with a period of 2.5 hours, after which it falls, the authors conclude that the following decay exists: $Dy^{152} \xrightarrow{2.5\ h} Tb^{152} \xrightarrow{20\ h} Gd^{152}$. Thus, the three Tb^{151}, Tb^{152}, and Tb^{154} probably exist with a halflife of 18 hours. In Table 2, the values of the conversion electrons of Tb^{152} are given together. In the first column, the energies of the conversion electrons, in the second the energy of the γ-transitions, in the third the relative intensities, and in column four the identifications are given. The results obtained indicate the $Tb^{152} \rightarrow Gd^{152}$ decay scheme shown in Fig. 3. N. N. Anton'yeva, A. A. Bashilov, A. N. Dobronravova, I. N. Rogachev, and I. Zvol'skiy are mentioned. The authors thank V. A. Morozov and G. A. Mironov for their help in measurements, and also I. A. Yutlandov and V. A. Khalkin for carrying out chemical work. There are 3 figures, 2 tables, and 15 references: 9 Soviet, and 6 US.

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

The Conversion Electron Spectrum of the Dysprosium Fraction

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B019/B056

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut, Leningradskogo gos. universiteta im. A. A. Zhdanova (Physical Scientific Research Institute of Leningrad State University imeni A. A. Zhdanov). Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

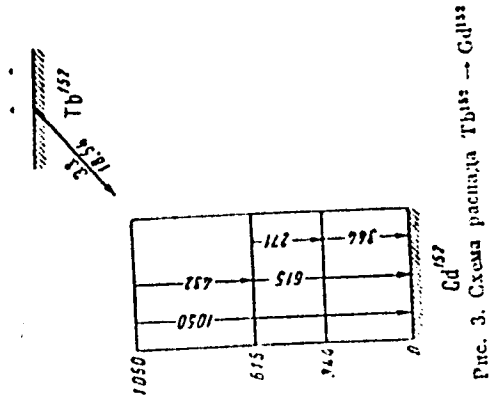

Рис. 3. Схема распада $Tb^{157} \rightarrow Gd^{157}$

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

Таблица 1

Конверсионные электроны Dy^{149}

1) E_{e^-}, keV	2) E_γ, keV	3) T, час	4) Относит. интенсивн. (эксп.)	5) Идентификация
28,8	80,8	7±2		*K*-81
47,4	99,4	7,5±1,0	200±60	*K*-99
72,8	81,1	8,5±1,5	200±60	*L*-81
79,9	81,9	8,5±1,5	70±20	*M*-81
90,7	99,4	8±2	50±15	*L*-99
95,7	97,7	8±2	40±10	*M*-99 и *K*-147?
138,4	147	6±1	25±6	*L*-147?
191,9	244	6±1	40±6	*K*-244
203,1	255	5±1	100	*K*-255
237,4	245	6±2	4±2	*L*-244
246,8	255	6±1	13±3	*L*-255

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Таблица 2

Конверсионные электроны Tb^{151}

E_{e^-}	E_γ	Относит. интенсивн. (эксп.)	Идентификация
313,7	344	100	*K*-344*
336,2	344	30±3	*L*-344*
[illegible]	412	4±2	*K*-412
382	432	23±5	*K*-432*
404	412	Оч. слаб.	*L*-412
425	433	4±2	*L*-432
536	586	8±2	*K*-586*
563	615	40±5	*K*-615*
609	617	7±2	*L*-615
1000	1050	Оч. слаб.	*K*-1050?

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

83671

S/048/60/024/009/004/015
B013/B063

24.6720

AUTHORS: Baranov, V. I., Gromov, K. Ya., Dzhelepov, B. S., Zyong Chong Bay, Malysheva, T. V., Morozov, V. A., Khotin, B. A., Chumin, V. G.

TITLE: The New Isotopes Ir^{184} and Pt^{187}

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 9, pp. 1079 - 1082

TEXT: The spectrum of the conversion electrons of the iridium fraction was analyzed by means of a β-spectrometer of the type Danish. This fraction is formed during the disintegration of gold bombarded with 660-Mev protons. Radiochemically pure iridium without carriers was separated from a bombarded gold plate weighing 1 ÷ 2 g (Ref. 1). The spectrum of the Ir conversion electrons showed some lines with a half-life of 3.1 ± 0.3 hours. These were identified as L-120; M-120; K-264; L-264; M-264; K-391 and L-391 transitions. Experimental data on these lines are collected in Table 1. The measured iridium spectrum (Series I) is shown in Fig. 1a, part of which is shown in a higher resolution in Fig. 1b. In addition, the L-, M-, and N-lines of the

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83671

The New Isotopes Ir^{184} and Pt^{187}

S/048/60/024/009/004/015
B013/B063

120-kev gamma transition were studied by means of a β-spectrometer with double focusing (of the type $\pi\sqrt{2}$) and increased resolution (Ref. 2). The data obtained are given in Table 2. They indicate that the observed gamma transitions take place in the even-even osmium nucleus (Figs. 2 and 3). On the strength of the data obtained, the authors suggest a decay scheme for Ir^{184} (Fig. 4). In addition to the above-mentioned lines, the iridium fraction contained numerous lines that belonged to other Ir isotopes: Ir^{186}, Ir^{185}, and Ir^{188}. Next, the determination of the half-life of Pt^{187} is described. The half-life of this isotope was found to be 2.0 ± 0.4 hours. For comparison, the half-life of the well-known isotope Pt^{186} was determined. Its half-life of 2.5 ± 0.3 hours is in good agreement with the results of Ref. 7. There are 4 figures, 2 tables, and 7 references: 3 Soviet.

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83671

The New Isotopes Ir^{184} and Pt^{187}

S/048/60/024/009/004/015
B013/B063

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo Akademii nauk SSSR (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy of the Academy of Sciences USSR)
Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

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ABDURAZAKOV, A. A.; GROMOV, K.Ya.; DZHELEPOV, B.S.; UMAROV, G.Ya.

Spectrum of conversion electrons of a dysprosium fraction.
Izv.AN SSSR.Ser.fiz. 24 no.9:1126-1134 S '60. (MIRA 13:9)

1. Sredne-Aziatskiy politekhnicheskiy institut i Ob"yedinennyy institut yadernykh issledovaniy.
(Dysprosium--Isotopes) (Electrons--Spectra)

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B108/B138

24.6210

AUTHORS: Abdurazakov, A. A., Gromov, K. Ya., Dzhelepov, B. S., Umarov, G. Ya., Yutlandov, I. A.

TITLE: Conversion electron spectra of neutron-deficient thulium isotopes

SOURCE: Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy. v. 1. Tashkent, 1961, 259-262

TEXT: A study was made of the conversion electron spectra of thulium obtained by 660-Mev proton bombardment of tantalum. The spectra were recorded on a beta-spectrograph in uniform magnetic field. The three exposure times were 9 hrs, 14.5 hrs, and 20 hrs. Conversion lines of Tu^{165}, Tu^{166}, and Tu^{167} were observed. Besides this a number of new lines were found (Table 2) which are due to a thulium isotope with a half-life of less than 7 hrs. According to Mihelich et al. (Refs. 2, 3, see below) this isotope might be Tu^{163} with a half-life of 2 hrs. Preliminary experiments on a magnetic spectrometer with a Geiger counter seem to

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Conversion electron spectra ...

confirm this assumption since several of the conversion electron lines observed (156, 203.4, 94.7, 98.4, 102.4, and 133 kev) are appropriate for a half-life of 2 hrs. V. G. Chumin, I. S. Dneprovskiy, L. N. Ignatyuk, and A. A. Balishev are thanked for help and advice. There are 1 figure, 2 tables, and 3 references: 1 Soviet and 2 non-Soviet. The reference to the English-language publications read as follows: Ref. 2: Mihelich I. W. et al. Phys. Rev., 108, 967, 1957; Ref. 3: Mihelich I. W. et al. Paps, 3, 358, 1958.

ASSOCIATION: Sredneaziatskiy politekhnicheskiy institut (Soviet Central Asia Polytechnic Institute)

Table 2. New conversion electron lines from thulium isotopes. Legend: (1) conversion lines; gamma transition energies whose identification is not completely reliable are given in parentheses.

Линии конверсионных электронов (1)	E_γ	$h\nu$
K 101,38	46,90	747,0
(K 116,15)	58,67	840,0
L 64,8	75,01	957,0
—	80,74	995,5
M 84,8	82,34	1008,0
L_I 104,38	94,94	1086,5
L_{II} 104,38	55,36	1089,0
—	98,61	1109,0
M 104,38	102,57	1133,0
(L 116,15)	107,33	1161,5
(K 190,43)	132,95	1307,3
K 213,45	155,97	1439,5
L 190,43	162,37	1563,5
K 241,47	183,99	1571,5
—	202,34	1650,5
K 213,45	203,49	1666,0
—	217,88	1734,0
L_I 241,47	231,69	1798,0
L_{II} 241,47	232,89	1803,5

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

ABDURAZAKOV, A.A.; ABDURAZAKOVA, F.M.; GROMOV, K.Ya.; DZHELEPOV, B.S.; UMAROV, G.Ya.

Studying the spectrum of conversion electrons in neutron-deficient lutecium isotopes. Izv. AN Uz.SSR. Ser. fiz.-mat. nauk 3:53-60 '61. (MIRA 14:8)

1. Sredneaziatskiy politekhnicheskiy institut i Ob"yedinennyy institut yadernykh issledovaniy.
(Lutecium--Isotopes) (Electrons--Spectra)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

BASINA, A.S.; GROMOV, K.Ya.; DZHELEPOV, B.S.; MOROZOV, V.A.

Spectrum of the conversion electrons of the holmium fraction in the reaction Ta + p. Izv. AN SSSR. Ser. fiz. 25 no.2:194-198 F '61. (MIRA 14:3)

(Holmium--Isotopes)
(Tantalum)
(Nuclear reactions)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

GROMOV, K.Ya.; DZHELEPOV, B.S.; ZHELEV, Zh.T.; KUDRYAVTSEVA, A.V.

Study of β^+-spectra and conversion electron spectra in Tb^{152}.
Izv. AN SSSR. Ser. fiz. 25 no.9:1084-1087 '61. (MIRA 14:8)

1. Ob"yedinennyy institut yadernykh issledovaniy i Leningradskiy gosudarstvennyy universitet im. A.A. Zhdanova.
(Terbium—Spectra)
(Internal conversion(Nuclear physics))

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

GAN MEN-KHUA [Kang Meng-hua]; GROMOV, K.Ya.; DZHELEPOV, B.S.; ZVOL'SKA, V.; ZVOLSKIY, I.

Conversion electrons from Tu^{165}. Izv. AN SSSR. Ser. fiz. 25 no.9:1092-1095 '61. (MIRA 14:8)
(Thulium—Isotopes)
(Internal conversion(Nuclear physics))

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

ABDURAZAKOV, A.A.; GROMOV, K.Ya.; DZHELEPOV, B.S.; KHALKIN, V.A.

Conversion electrons from erbium fractions. Izv. AN SSSR. Ser. fiz. 25 no.9:1096-1100 '61. (MIRA 14:8)

1. Sredneaziatskiy politekhnicheskiy institut i Ob"yedinennyy institut yadernykh issledovaniy.
(Erbium—Isotopes)
(Internal conversion(Nuclear physics))

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

VIZI, I.; GROMOV, K.; DZHELEPOV, B.; YAZVITSKIY, Yu.

Decay mode of Eu^{147}. Izv. AN SSSR. Ser. fiz. 25 no.9:1101-1104 '61. (MIRA 14:8)

1. Ob"yedinennyy institut yadernykh issledovaniy i Radiyevyy institut im. V.G. Khlopina AN SSSR.
(Europium—Decay)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

GROMOV, K.Ya.; DNEPROVSKIY, I.S.

Study of conversion electron spectra of neutron-deficient erbium and holmium isotopes. Izv. AN SSSR. Ser. fiz. 25 no.9:1105-1114 '61. (MIRA 14:8)

1. Ob"yedinennyy institut yadernykh issledovaniy i Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR.

(Internal conversion(Nuclear physics))
(Erbium--Isotopes)
(Holmium--Isotopes)

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

GRIGOR'YEV, Ye.P.; GROMOV, K.Ya.; DZHELEPOV, B.S.; ZHELEV, Zh.T.; ZVOL'SKA, V.; ZVOL'SKIY, I.

Decay of $Yb^{166} \rightarrow Tu^{166} \rightarrow Er^{166}$. Izv AN SSSR.Ser.fiz. 25 no.10:1217-1227 O '61. (MIRA 14:10)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova, Ob"yedinennyy institut yadernykh issledovaniy.
(Ytterbium--Decay) (Thulium--Decay) (Erbium--Decay)

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

S/056/61/041/006/007/054
B108/B138

24.6210

AUTHORS: Abdurazakov, A. A., Abdurazakova, F. M., Gromov, K. Ya., Umarov, G. Ya.

TITLE: A new isotope Er^{159}

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 6(12), 1961, 1729-1732

TEXT: The authors studied the spectrum of the conversion electrons of E^{159} with the aid of a β-spectrograph in a constant magnetic field. The isotope was obtained by irradiating tantalum for two hours with 660-Mev protons from the synchrocyclotron of the Joint Institute of Nuclear Research (see Association entry). The experimental data indicate that the erbium isotope obtained in the irradiation process has the mass number 159 and a half-life of about one hour. The lines observed (Table) go back to the decay chain $Er^{159} \xrightarrow[K]{1\ hour} Ho^{159} \xrightarrow[K]{33\ min} Dy^{159}$. The decay scheme is shown in the Fig. The authors thank B. S. Dzhelepov for his interest, and V. A. Khalkin and Wang Fu-chün for having prepared the specimens

Card 1/

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

31768
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B108/B138

A new isotope Er^{159}

K. Ya. Gromov, I. S. Dneprovskiy (Izv. AN SSSR, seriya fiz., 25, 1105, 1961) and B. Dalkhsuren et al. (Materialy tret'yego soveshchaniya po neytronodefitsitnym izotopam, Dubna, 1961) are mentioned. There are 1 figure, 1 table, and 7 references: 6 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: K. S. Toth Inorg. and Nucl. chemistry, 7, 1, 1958.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research). Tashkentskiy politekhnicheskiy institut (Tashkent Polytechnical Institute)

SUBMITTED: June 20, 1961

Legend to the Table: (1) identification of the lines, (2) atomic number of the element in which the transition takes place, (3) basis of identification, (4) decay scheme.

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

S/020/61/136/002/014/034
B019/B056

AUTHORS: Grigor'yev, Ye. P., Gromov, K. Ya., Dzhelepov, B. S., Corresponding Member of the AS USSR, Zvol'ska, V., Zolotavin, A. V., Veys, M., and Van Yun-yuy

TITLE: The Decay of the Two-hour Isotope Lu^{168}

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 2, pp. 325-328

TEXT: In the lutetium fraction forming in the course of an irradiation of tantalum with 660-Mev protons, conversion lines were discovered, which had a period of two hours. The authors investigated the lutetium isotope to which these lines belong. For this purpose they used a β-spectrometer with double focusing, the magnetic field was measured by means of proton resonance, and calibration was carried out according to exactly known lines. Recording was carried out by means of two Geiger-Müller counters. Three conversion lines with a period of (2.15 ± 0.20) hours were discovered; closer details are given in Table 1. By comparing the energy differences between these three lines with X-ray data, it was found that the Lu-isotope goes over into an ytterbium isotope. From the close study

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

The Decay of the Two-hour Isotope Lu^{168}

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of the known Lu-isotopes, of their decays, and their spectra, the authors come to the conclusion that the required isotope with a period of 2.15 hours must be $_{71}Lu^{168}$, which has an odd-odd deformed nucleus. Fig. 3 shows the decay scheme of this isotope. There are 3 figures, 3 tables, and 5 references: 4 Soviet and 1 US.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)
Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: October 6, 1960

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

The Decay of the Two-hour Isotope Lu^{168}

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Таблица 1

Конверсионные линии 2-часового лютеция

1 H_ρ, гаусс·см	2 E_γ, кэв	3 Идентификация	4 Энергия перехода, кэв	
974,1	77,54	L_{II}	87,52	87,54± ±0,04*
981,4	78,64	L_{III}	87,58	
1030,5	87,03	N_I	87,52	

* Учтена возможная систематическая погрешность.

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

The Decay of the Two-hour Isotope Lu^{168}

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B019/B056

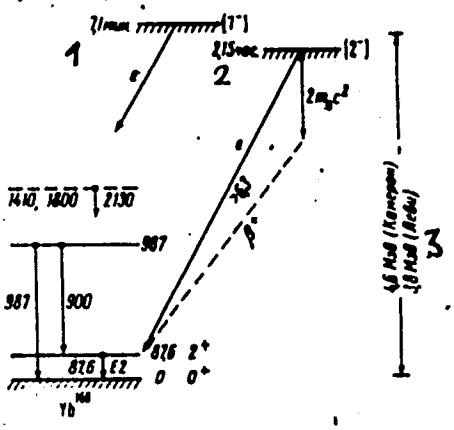

Рис. 3. Схема распада Lu^{168}

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

The Decay of the Two-hour Isotope Lu^{168}

S/020/61/136/002/014/034
B019/B056

Legend to Table 1: Conversion lines of the two-hours isotope: 1) H_ρ in gauss.cm. 2) Energy of the lines, kev. 3) Identification. 4) Transition energy, kev.
Legend to Fig. 3: Decay scheme of Lu^{168}: 1) 7.1 minutes. 2) 2.15 hours. 3) 4.6 Mev (according to Cameron), 3.8 Mev (according to Levi).

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

S/048/62/026/001/011/018
B125/B102

AUTHORS: Wang Fu-chün, Vizi I., Gromov, K., Dzhelepov, B., Zhelev, Zh., Kudryavtseva, A., and Yazvitskiy, Yu.

TITLE: Eu^{149} decay scheme

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 1, 1962, 114 - 119

TEXT: The authors continued to study the spectrum of Eu^{149} conversion electrons ($T_{1/2}$ = 90 days) by means of a β-spectrometer with triple focusing of the beam (B. S. Dzhelepov et al., Preprint OIYaI, P-587 Dubna, 1960). The europium preparation was separated from a target irradiated by 660-Mev protons on the synchrocyclotron of the OIYaI. Three months after the irradiation the lines Eu^{147} ($T_{1/2}$ = 25 days), Eu^{148} (58 days), Eu^{149} (~90 days), Gd^{146} (45 days), Gd^{151} (120 days), and Gd^{153} (240 days) were observed. The specimens contained a small amount of gadolinium impurities. Besides an intense X-ray line the Eu^{149} spectrum

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

Eu^{149} decay scheme

shows the groups with 256 - 279, 330 - 352, and 508 - 550 kev with a half life of (90 ± 20) days. The strong conversion line with ~20 kev has a half life of ~100 days. It is mainly due to Eu^{149} and to a lesser degree to gadolinium impurities. A measurement made with a single counter after purifying the europium preparation from gadolinium showed that the relative intensity of the above lines with 20.2 kev, and the relative intensities of the additional 14.3-kev and K279 lines of Eu^{149} were the same as before the purification. This proves that the 14.3- and 20.2-kev lines (L- and M-lines of the 22-kev transition) belong to Eu^{149}. The parameters of the Eu^{149} conversion electrons are given in the Table. Fig. 2 shows the Eu^{149} decay scheme suggested by the presence of three 22-kev transitions and that of a γ-transition with 22 kev. It was verified by studying the γ-spectrum and some spectra of the γ-coincidences on Eu^{149} decay by means of a scintillation γ-spectrometer. This instrument is based on the fast-slow recording of the coincidences with summation. The coincidence circuit БДС-1 (BDS-1) operates at close

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Eu^{149} decay scheme

quantum energies in the cascade to be studied when the time resolution is $2 \cdot 10^{-7}$ sec and with a considerable difference of the quantum energies when the time resolution is $6 \cdot 10^{-7}$ sec. The 180- and 350-kev γ-rays observed with a time resolution of $2 \cdot 10^{-7}$ sec in the γγ-coincidences spectrum and the lacking of coincidences of 256- and 279-kev γ-rays confirm the decay scheme shown in Fig. 2. No cascade was found to start from 352 kev. In some experiments with reduced time resolution of $6 \cdot 10^{-7}$ sec the 509 - 530, 330 - 352, 250 - 279 and 178-kev γ-rays coincide with X-rays. Besides, a coincidence of 22-kev γ-rays with X-rays was observed. Owing to the observed coincidences with the X-rays the lifetime of the excited Sm^{149} levels shown in Fig. 2 is less than 10^{-6} sec. There are 8 figures, 1 table, and 3 Soviet references.

Fig. 2. Eu^{149} decay scheme.

Table. Data on Eu^{149} conversion lines.
Legend: (1) Conversion line observed; (2) relative intensity of conversion line; (3) results obtained by the authors.

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Eu^{149} decay scheme

S/048/62/026/001/011/018
B125/B102

(1) Наблюдённая конверсионная линия	Относительные интенсивности конверсионных линий (2)	
	по нашим измерениям (3)	[2]
L22	>6600	—
M22	≥3500	—
K256	25±6	20±2
K279	100	100
K330	72±7	80±8

(1) Наблюдённая конверсионная линия	Относительные интенсивности конверсионных линий (2)	
	по нашим измерениям (3)	[2]
L330	10,3±1,3	—
K352	4,1±1,5	—
K508	2,3±0,5	—
K530	1,7±0,4	—

Table

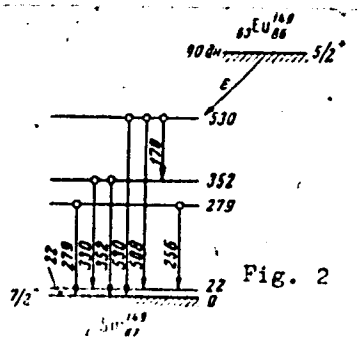

Fig. 2

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

S/048/62/026/002/009/032
B101/B102

AUTHORS: Bakhmat, A., Belogurov, V., Gromov, K., Zhelev, Zh., [illegible] Pelekis, L.

TITLE: Study of the Eu^{148} gamma spectrum

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 2, 1962, 217 - 220

TEXT: Eu^{148} was chromatographically separated from the rare earths obtained by bombarding a tantalum target with 660-Mev protons in the Dubna synchrocyclotron. The measurements were made with a scintillation coincidence spectrometer and a 50-channel analyzer. The following relative intensities were found:

Gamma-energy, kev	Relative intensity	Gamma-energy, kev	Relative intensity
1600	15 ± 5	~830*	12 ± 6
~1450*	4	725	22 ± 7
1330	8 ± 3	630	100 ± 20
~1200*	2	550	100
1030	14 ± 5	415	9 ± 4
920	20 ± 7		

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

S/048/62/026/002/009/032
B101/B102

Study of the Eu^{148} gamma spectrum

* was found by spectrum analysis. The 830-kev line may be due to a Eu^{147} impurity. From the equal relative intensities of 550- and 630-kev gamma rays in the single spectrum and on coincidence with 725-, 920-, 1030-, 1330-, and 1600-kev rays it is concluded that the 415-, 725-, 920-, 1030-, 1330-, and 1600-kev gamma quanta are in a cascade with the 550- and 630-kev quanta, and that there occur no transitions to the 550-kev level with intensities comparable to those of the transitions mentioned above, except the 630-kev transition. The recording of summated spectra (summation on coincidence) indicated a distinct peak of the sum 630 + 550 = 1180 kev, and confirmed that the cascade contained 630 and 550-kev gamma quanta. The coincidence measurements suggest that levels with ~2510 and ~2780 kev are excited in the Eu^{148} decay (Fig. 4). There are 4 figures, 3 tables, and 6 references: 3 Soviet and 3 non-Soviet. The three references to English-language publications read as follows: Schwerdtfeger, C. F., Funk, E. G., Mihelich, J. W., BAPS, 5, 425 (1960); Bhattacherjee, S. K., Baldev Sahai, Baba, C. V. K., Nucl. Phys., 12, no. 4, 356 (1959); Eldridge, I. S., Lyon, W. S., Nucl. Phys., 24, no. 1, 131 (1961).

Card 2/3

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

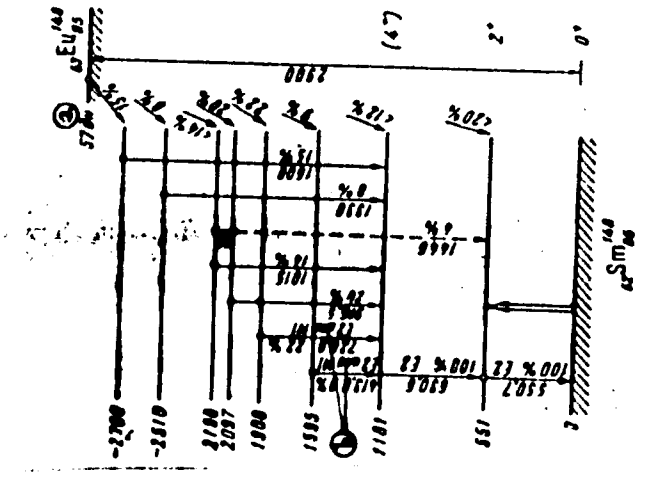
Study of the Eu^{148} gamma spectrum

S/048/62/026/002/009/032
B101/B102

ASSOCIATION: Institut fiziki Akademii nauk LatvSSR (Institute of Physics of the Academy of Sciences LatvSSR). Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

Fig. 4. Eu^{148} decay.

Fig. 4



Legend: (a) days; (b) or.

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

40091
S/048/62/026/008/001/028
B141/B108

26.2541

AUTHORS: Bonch-Osmolovskaya, N. A., Gromov, K. Ya., Dzhelepov, B. S., Kraft, O. Ye., Malysheva, T. V., Nikityuk, L. N., Khotin, B. A., Chou Yüch-wa, and Chumin, V. G.

TITLE: The predicted isomer Ir^{186}

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 8, 1962, 975-976

TEXT: Positrons with an intensity decrease of $T_{1/2} \sim 2$ hrs were discovered in a spectrometric investigation of an iridium fraction obtained from a gold target irradiated by 660-Mev protons. The positron spectrum consisted of five components (end-point energies 3400, 2600, 1930, 1300, ~800 kev; relative intensities 1, 20, 44, 12, 22). The conversion electron spectrum of the same Ir fraction had two lines (M 137, N 137). The I(t) of these lines curve could not be attributed to a single halflife. M 137 consists of two components, one with $T_{1/2} = 15 \pm 1$ hrs and one with 1.7 ± 0.2 (Ir^{186}) which is, within the limits of error, equal to the

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

The predicted isomer Ir^{186}

S/048/62/026/008/001/028
B141/B108

$T_{1/2}$ = 2.0 ± 0.3 of the positron spectrum. As no positron-active Ir isotope with $T_{1/2}$ ~2 hrs is known so far, the authors assume that this halflife pertains to a new isomer Ir^{186}. There is 1 figure.

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

40098
S/048/62/026/008/009/028
B104/B102

24.6300

AUTHORS: Gromov, K. Ya., Dzhelepov, B. S., Zvol'ska, V., Zvol'skiy, I., Lebedev, N. A., and Urbanets, Ya.

TITLE: The Tu^{167} decay scheme

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 8, 1962, 1019 - 1026

TEXT: To improve the decay scheme of Tu^{167}, the γ-spectrum was studied with a single-crystal scintillation spectrometer having a 100-channel pulse-height analyzer, and the spectrum of the conversion electrons of Tu^{167} with a double focusing β-spectrometer. The latter had a device for measuring the electric field by the proton resonance method for electron energies >56 kev; whereas for E_e <56 kev the magnetic field was measured with a probe. The Tu preparation was separated chromatographically from Ta which had been irradiated with 660-Mev protons. The results (Tables 1 and 2) deviate considerably from those of other authors and are considered to be the most accurate. After thoroughly studying the multiplicity of

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

S/048/62/026/008/009/028
B104/B102

The Tu^{167} decay scheme

transitions in the Er^{167} nucleus, the decay scheme was plotted as in Fig. 5. There are 5 figures and 5 tables.

Table 1. Relative intensities of Tu^{167} γ-rays.

(1) E_γ, kev	(2)	(3)	(4)
207,0	100	100	100
531,8	3,6±0,5	3,2±0,5	5,6
700	≤0,15	(~0,8)	—
790	≤0,15	2,3±1	—
880	≤0,1	~1,1	—

Legend: (1) E_γ, kev, (2) results, (3) K. Gromov, et al., Materialy III. Soveshchaniya po yadernoy spektroskopii. Preprint no. 613, Dubna, 1960, (4) H. Narasimhaian, M. L. Pool, Nucl. Phys., 21, 340 (1960).

Card 2/

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

ABDURAZAKOV, A.A.; ABDURAZAKOVA, F.M.; GROMOV, K.Ya.; DZHELEPOV, B.S.; UMAROV, G.Ya.

Conversion electron spectra of neutron-deficient erbium isotopes. Izv. AN Uz. SSR. Ser. fiz.-mat. nauk 6 no.5:69-76 '62. (MIRA 15:11)

1. Tashkentskiy politekhnicheskiy institut i Ob"yedinennyy institut yadernykh issledovaniy.
(Erbium—Isotopes) (Electrons—Spectra)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

GROMOV, K.Ya.; DZHELEPOV, B.S.; ZVOL'SKA, V.; ZVOL'SKIY, I.; KALINNIKOV, V.G.

Decay of Tu^{163}. Izv.AN SSSR.Ser.fiz. 27 no.2:182-194 F '63. (MIRA 16:2)

(Thulium isotopes--Decay)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

S/048/63/027/002/005/023
B104/B180

AUTHORS: Gromov, K. Ya., Dzhelepov, B. S., Zvol'ska, V., Zvol'skiy, I., Zolotavin, A. V., Pelekis, L. L., and Pelekis, Z. E.

TITLE: The Tu^{165} decay scheme

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 27, no. 2, 1963, 195-199

TEXT: The decay scheme of Tu^{165} suggested in a previous work by the authors (Izv. AN SSR, Ser. fiz., 25, 1092 (1961)) was checked by $\gamma\gamma$-coincidence tests and by determining the multipole orders in the Er^{165} transitions. The spectrum of the conversion electrons was taken with a double focusing β-spectrometer in the range 5-60 kev. From the intensity ratios the multipole order for most transitions with energies be low 400 kev could be determined. The $\gamma\gamma$-coincidences were determined on a 50-channel analyzer. The decay scheme shown in the figure was constructed from the results. It is identical with that of the previous

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

S/048/63/027/002/005/023
B104/B180

The Tu^{165} decay scheme

paper. There are 1 figure and 3 tables.

Fig. Tu^{165} decay scheme.
Legend: (1) 29 hours; (2) 10 hours.

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

GROMOV, K.Ya.; DANAGULYAN, A.S.; STRIGACHEV, A.T.; SHPINEL', V.S.

Isomeric state of Nd^{139}. Izv. AN SSSR. Ser. fiz. 27 no.10: 1357-1359 O '63. (MIRA 16:10)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

ABDUMALIKOV, A.A.; ABDURAZAKOV, A.A.; GROMOV, K.Ya.; [illegible]; UMAROV, G.Ya.

Conversion electron spectra of erbium and holmium isotopes with $T_{1/2} \leq 18$ ksec. Izv. AN Uz. SSR. Ser. fiz.-mat.nauk 8 no.2:42-49 '64. (MIRA 17:9)

1. Tashkentskiy politekhnicheskiy institut i Ob"yedinennyy institut yadernykh issledovaniy.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

ABDUMALIKOV, A. A.; ABDURAZAKOV, A. A.; GROMOV, K. Ya.

"The Decay Sheme of Tm^{161}."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

Tash. PI (Tashkent Polytechnical Inst)
OIYaI (Joint Inst Nuclear Res)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

[redacted], A. A.; ABDURAZAKOV, A. A.; GROMOV, K. Ya.

"New Data Concerning Conversion Electrons of Yb^{164}, Tm^{164} and Tm^{162}."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

Tash. PI, OIYaI (Tashkent Polytechnical Inst; Joint Inst Nuclear Res)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

GROMOV, K. Ya.; DZHELEPOV, B. S.; ZHELEV, Zh. T.; KALINNIKOV, B. G.; KUDRYAVTSEVA, A. V.; LEBEDEV, N. A.

"Positrons from the Decay of Ho^{160}."

"Concerning the Decay of Er^{161}."

reports submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

OIYaI, LGU (Joint Inst Nuclear Res; Leningrad State Univ)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

GROMOV, K. Ya.; DZHELEPOV, B. S.; YENCHEV, D. A.; ZHELEV, Zh. T.; KALINNIKOV, V. G.; KUDRYAVTSEVA, A. V.

"Investigations of Spectra of Conversion Electrons and Spectra of Positrons of the Europium Fraction."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

OIYaI, LGU (Joint Inst Nuclear Res; Leningrad State Univ)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

V, A. A.; ABDURAZAKOV, A. A.; GNATOVICH, V.; GROMOV, K. Ya.; DZHELEPOV, .. .

New Data Concerning the Decay of Tm^{166}."

Report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

OIYaI, Tash. PI, LGU (Joint Inst Nuclear Res; Tashkent Polytechnical Inst; Leningrad State Univ)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

GROMOV, K. Ya.; DANAGULYAN, A. S.; MURAV'YEVA, V. V.; NIKITYUK, L. N.; SOROKIN, A. A. SHTAL', M. Z.

"Investigations of the Decay of Nd^{139m} ($t_{1/2}$ = 5.5. hr.)."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

OIYaI (Joint Inst Nuclear Res)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

[redacted]OV, A. A.; ABDURAZAKOV, A. A.; GNATOVICH, V. : GROMOV, K. Ya.; UMAROV, G. Ya.

[redacted]onversion Electrons of Lu^{163}."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

Tashkent Polytechnical Inst; Joint Inst Nuclear Res.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

BASTIA, A. S.; BEDIKE, T.; GROMOV, K. Ya.; DZHELEPOV, B. S.; I.E.EDEV, N. A.; MOROZOV, V. A., NOVGORODOV, A. F.

"Concerning the Decay of Pr^{138}."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

OIYaI (Joint Inst Nuclear Res)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

GROMOV, K. Ya.; DZHELEPOV, B. S.; ZHELEV, Zh. T.; KUDRYAVTSEVA, A. V.; LEBEDEV, N. A.

"Investigations of the Positron Decay of Tm^{163}."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

OIYaI, LGU (Joint Inst Nuclear Res; Leningrad State Univ)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

. A.; GROMOV, K. Ya.; DZHELEPOV, B. S.; ZHELEV, Zh. T.; KALINNIKOV, B. S.;
. VA, A. V.

"Investigations of the Positron Spectra of Lu^{167}, Lu^{169}, and Lu^{170}."

Report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

OIYaI, LGU (Joint Inst Nuclear Res; Leningrad State Univ)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

ACCESSION NR: AP4038419 S/0166/64/000/002/0042/0049

AUTHOR: Abdumalikov, A. A.; Abdurazakov, A. A.; Gromov, K. Ya.; Mukhtasimov, F. N.; Umarov, G. Ya.

TITLE: Investigation of the spectrum of conversion electrons of erbium and holmium isotopes with $T_{1/2}$ is equal to or less than 18 kiloseconds

SOURCE: AN UzSSR. Izv. Seriya fiziko-metematicheskikh nauk, no.2, 1964, 42-49

TOPIC TAGS: erbium, holmium, isotope, conversion electron, multipole order

ABSTRACT: Using a β - spectrograph with a constant magnetic field and photographic electron registration the authors studied the spectrum of conversion electrons of erbium and holmium fractions obtained by radiating a tantalum target with 600 MeV protons on the synchrocyclotron of the Ob"yedinenny*y institut yaderny*kh issledovaniy (United Institute of Nuclear Research). The β spectrograph sources were prepared electrolytically. The authors compared experimental and theoretical relationships for different multipole orders of γ transitions. In the spectrum of conversion electrons of the holmium fraction the authors observed lines, the intensity of which decreases with a half life period of less than two hours. These lines were not observed in the spectrum of the erbium fraction. Weak conversion lines were observed in the spectrum of conversion electrons of the holmium fraction. The authors did

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

ACCESSION NR: AP4038419

not succeed in their attempt to determine to which known isotope these lines belong. Orig. art. has: 7 tables and 1 diagram.

ASSOCIATION: TAShPI Ob"yedinenny*y institut yaderny*kh issledovaniy (TAShPI United Institute of Nuclear Research)

SUBMITTED: 19Aug63	DATE ACQ: 05Jun64	ENCL: 00
SUB CODE: NP	NO REF SOV: 008	OTHER: 003

Card 2/2

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

ACCESSION NR: AP4024046 S/0048/64/028/002/0252/0256

AUTHOR: Wang,Ch'uan-p'eng, Gromov,K.Ya.; Zhelev,Zh.; Kuznetsov,V.V.; Ik, Ma Kho; Muziol', G; Novgorodov, A.F.; Han, Shu-jun; Khalkin, V.A.

TITLE: Positrons in decay of Yb^{167} /Report, Fourteenth Annual Conference on Nuclear Spectroscopy held in Tbilisi 14 to 22 Feb 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.2, 1964, 252-256

TOPIC TAGS: positron spectrum, positron decay, γ-ray spectrum, log ft, transition matrix element, superfluid nuclear model, deformed nucleus, Yb^{167}, Tm^{167}

ABSTRACT: The principal purpose of the present study was to determine the log ft value for the decay of Yb^{167} to the 202.7 keV level of Tm^{167}. The log ft value calculated by other investigators for the transition from the $5/2^-[523]$ (ground state) of Yb^{167} to the $7/2^-[523]$ state of Tm^{167} on the basis of the Yb^{167}-Tm^{167} mass difference is about 3.8, which is significantly lower than the usually observed log ft values. It is of particular interest to obtain the precise experimental value of log ft for this transition in view of the fact that the experimental values of the matrix elements for transitions of this type can serve for verification of the so-

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ACCESSION NR: AP4024046

called superfluid model of deformed nuclei. The Yb^{167} for the measurements was separated from the lutetium fraction obtained by separation of the rare earth extracted from a tantalum target bombarded with 660 MeV protons for 2 hours in the internal proton beam of the Joint Institute for Nuclear Research synchrocyclotron. In view of the repeated rapid separation procedure employed, the source consisted primarily of Yb^{167} with a small admixture of Yb^{169}; this last could not significantly affect the results in view of its longer lifetime and different mode of decay. In addition to the positron spectrum, there was also investigated the γ-ray spectrum of Yb^{167}; a number of lines not previously detected were observed, but in the main, the spectrum agrees with that published by R.G.Wilson and M.Pool (Phys.Rev.120,1296, 1960). The Kurie plot of the β-spectrum is nearly a straight line showing an endpoint energy of 650 keV. The log ft value for the transitiion of interest was calculated on the basis of decay period (17.3 ± 0.2 min), the disintegration energy (1670 ± 30 keV), and the branching ratio. The value obtained for log ft is $4.74^{+0.07}_{-0.05}$. This value is consistent with the log ft values for analogous transition in odd deformed nuclei; actually the accurate experimental value is known for only one other decay; the others are only approximate. The decay scheme for Yb^{167} is shown. Orig.art.has: 3 figures and 3 tables.

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

ACCESSION NR: AP4034946

ASSOCIATION: none

SUBMITTED: 00Aug63 DATE ACQ: 08Apr64 ENCL: 00

SUB CODE: NS NR REF SOV: 006 OTHER: 004

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

L 16095-65 EWT(m) DIAAP/ESD(t)/ESD(gs)/SSD/AFWL
ACCESSION NR: AP5000308 S/0056/64/047/005/1644/1652

AUTHORS: Gromov, K. Ya.; Danagulyan, A. S.; Nikityuk, L. N.; Murav'yeva, V. V.; Sorokin, A. A.; Shtal', M. Z.; Shpinel', V. S. B

TITLE: Investigation of the decay of neutron-deficient isotopes of neodymium. New isotope Nd-138 19

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 5, 1964, 1644-1652

TOPIC TAGS: neodymium, isotope, level scheme, conversion electron spectrum, gamma gamma coincidence, gamma transition

ABSTRACT: This is a continuation of earlier work by a group headed by one of the authors (Gromov, Izv. AN SSSR ser. fiz. v. 27, 1357, 1963) on the decay of Nd^{139m}. Neutron deficient neodymium isotopes were obtained by bombarding tantalum or erbium-oxide targets with 660 MeV protons in the synchrocyclotron of the OIYaI. The

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L 16095-65
ACCESSION NR: AP5000308

spectra of the conversion electrons, γ rays, and $\gamma\gamma$ coincidences were investigated for the 5.5-hr activity of Nd with a double focusing β spectrometer ($\pi\sqrt{2}$ angle). The results show that most γ transitions observed in this activity belong to Pr^{139} excited during the decay of Nd^{139m}. A decay scheme for the Nd^{139}--Pr^{139} system is deduced from the experimental results and is shown in Fig. 1 of the enclosure. In addition, experimental proof of the existence of the isotope Nd^{138}, with a half life of approximately 5 hours, is deduced from the presence in the conversion-electron spectrum of an EO transition line in the Ce^{138}--Pr^{139}--Ce^{138} decay. The decay scheme of the latter chain is shown in Fig. 2 of the enclosure. "The authors thank L. N. Kryukova for help and to the group of chemists of LYaP OIYaI for separating the neodymium fraction." Orig. art. has: 5 figures and 3 tables.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Nuclear Physics Institute, Moscow State University)

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L 16095-65
ACCESSION NR: AP5000308

ENCL: 02

SUBMITTED: 30Apr64

SUB CODE: MP NR REF SOV: 006 OTHER: 004

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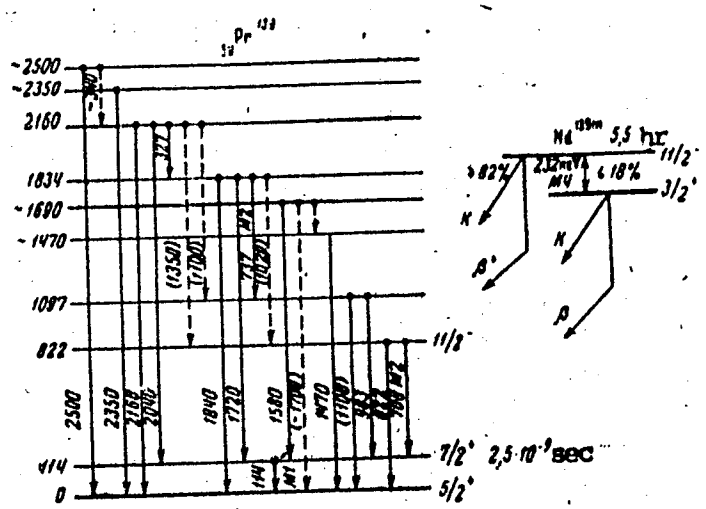
"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

L 16095-65
ACCESSION NR: AP5000308

ENCLOSURE: 01

Fig.1. Decay scheme of Nd^{139m}



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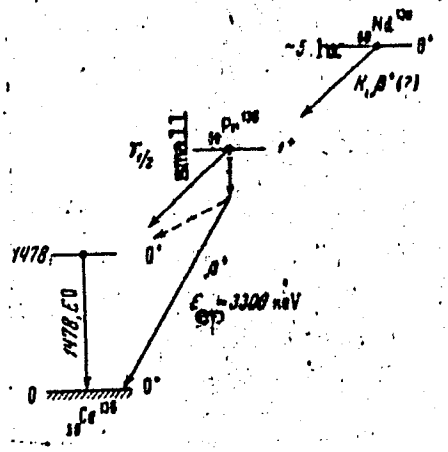
"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

L 16095-65
ACCESSION NR: AP5000308

ENCLOSURE: 02

Fig. 2. Decay scheme of the $Nd^{138} \rightarrow Pr^{138} \rightarrow Ce^{138}$ chain



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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

L 45795-65 EWT(m) Peb DIAAP

ACCESSION NR: AP5011213 UR/0367/65/001/003/0389/0399

AUTHOR: Gromov, K. Ya.; Danagulyan, A. S.; Strigachev, A. T.; Shpinel', V. S.

TITLE: Investigation of the $Lu^{167} \rightarrow Tu^{167}$ decay chain

SOURCE: Yadernaya fizika, v. 1, no. 3, 1965, 389-399

TOPIC TAGS: radioactive series, nuclear physics, decay scheme, isotope

ABSTRACT: The authors continued the study of the conversion electron spectra of lutecium isotopes produced by irradiation of a tantalum target with 660 Mev protons from the Dubna synchrotron. Results of the study of Yb^{167} conversion electrons are compared with the work and data of Harmatz et al. (Harmatz, B., Handley, T., Michelich, J., *Phys. Rev.*, 114, 1082, 1959) in table 1 of the Enclosure. Only the *M*-line of the 25.6 kev transitions was observed. The *L*-line did not fall within this energy range. The data on the relative intensities of the conversion lines given in this article are somewhat more complete than those previously available (see reference above on Harmatz et al.). Thus the authors were able to determine the multipolarities of seven transitions out of ten. Conversion line intensity ratios are compared with the theoretical values for various multipoles (L. A. Sliv,

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L 45795-65
ACCESSION NR: AP5011213

I. M. Band, "Internal Conversion Coefficients, Part 1, the *K*-shell," *Izd. AN SSSR,* 1956, "Part 2, the *L*-shell," *Izd. AN SSSR,* 1958) in table 2 of the Enclosure. Experimental results of study of Lu conversion electrons are given in table 3 of the Enclosure (the arrangement is as in table 1). As is evident from table 3, the results obtained make it possible to identify 13 new transitions which follow the decay of Lu^{167}. Data on the multipolarities of the transitions are given in table 4 of the Enclosure. Probably most or all of the unidentified conversions follow Lu^{167} decay. Experimental data completely confirm the energy level diagram for Tu^{167} given by Harmatz et al. (see reference above). The results of experiments on $\gamma\gamma$-coincidence do not contradict the decay diagram given in fig. 1 of the Enclosure. The authors find the evidence adequate to ascribe Nillson quantum characteristics of $1/2^{+}[411]$ to the ground state of Tu^{167}. Using the intensities obtained for the conversion electrons, the authors compute the intensity balance for γ-transitions in the Yb^{167} decay scheme. Almost all cases of Yb^{167} decay terminate at the 292.7 kev energy level in Tu^{167}. There is a strong similarity between the level diagrams for Tu^{167} and Tu^{169}. The decay diagram for Lu^{167} is given in fig. 2 of the Enclosure. From the results of study of the positrons and the conversion electron spectra, it follows that Lu^{167} decay terminates at a high Yb^{167} level in 50% of the cases. An analysis of Lu^{167} decay indicates that existing data are contradictory

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L 45795-65 2
ACCESSION NR: AP5011213

and that more accurate work is needed. "The authors express their thanks to the radiochemists of the OIYaI Nuclear Spectroscopy Department for separating the lutecium fractions." Orig. art. has: 2 figures, 8 tables.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute for Nuclear Research); Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics, Moscow State University)

SUBMITTED: 18Sep64 ENCL: 06 SUB CODE: NP

NO REF SOV: 013 OTHER: 008

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

L 51469-65 EWT(m) Peb DIAAP

ACCESSION NR: AP5013108 UR/0367/65/001/004/0562/0572

AUTHOR: Gromov, K. Ya.; Yenchev, D. A.; Zhelev, Zh. T.; Zvol'skiy, I.; Kalinnikov, V.G.; Kuznetsov, V.V.; Ma Kho Ik; Muziol', G.; Han, Shu-jun

23
16
B

TITLE: An investigation of the decay scheme of Tb^{152}

19

SOURCE: Yadernaya fizika, v. 1, no. 4, 1965, 562-572

TOPIC TAGS: terbium isotope, conversion electrical spectrum, coincidence spectrum, positron spectrum, level scheme

ABSTRACT: The authors continue earlier investigations of the conversion electron spectrum and of the positron spectrum of Tb^{152} (Programma i tezisy dokladov XII Ezhegodnogo soveshchaniya po yadernoy spektroskopii [Program and Abstracts of the 12th Annual Conference on Nuclear Spectroscopy], Leningrad, Izd. AN SSSR, 1962) since their results, as well as those of others, show that the conversion electron spectrum of Tb^{152} is highly complicated and that separation of Tb^{152} from the other Tb isotopes is made difficult by the near-equality of the half-lives of these isotopes. Part of the experimental results was already reported at the 12th Annual Conference on Nuclear Spectroscopy. The authors investigated also the γ spectrum and the $\gamma\gamma$ and $\beta^+\gamma$ coincidence spectra of Tb^{152}. The Tb^{152} isotope was obtained

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L 51469-65

ACCESSION NR: AP5013108 7

by chromatographic separation of the rare-earths from tantalum irradiated by 660-MeV protons. The spectrum of the conversion electrons was measured with the aid of a triple-focusing β spectrometer, and the data on the conversion electron spectrum in the energy region up to 1800 keV were refined with a double-focusing spectrometer. The results are comparid with the published data. The existence of states of Gd^{152} with energies 1110, 1606.7, 1863, 1942, 2137, 2248, 2412, 2457, 2526, 2667, 2714, 2803, and 3160 keV is deduced on the basis of the energy balance, the intensity balance, the γ-ray spectra, the γγ coincidences, and the $\beta^+\gamma$ coincidences. A decay scheme of Tb^{152} is proposed on the basis of the experimental data. "In conclusion the authors are sincerely grateful to N. A. Lebedev, Yu. V. Norseyev, and A. F. Novgorodov for preparing the Tb^{152} solutions, and to A. V. Dudryavtseva, M. Iliyeshu, G. M. Vorob'yev, and Ye. T. Kondrat for help with the measurements and data reduction." Orig. art. has: 7 figures and 4 tables.

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

SUBMITTED: 20Oct64 ENCL: 00 SUB CODE: NP

NR REF SOV: 012 OTHER: 005

Card 2/2 pb

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

ABDURAZAKOV, A.A.; GROMOV, K.Ya.; KUZNETSOV, V.V.; MA KHO IK; MUZIOL', G.; MOLNAR, F.; MOLNAR, A.; MUKHTASIMOV, F.; KHAN' SHU-ZHUN' [Han Shu-jun]

Decay of Ho^{161}. IAd. fiz. 1 no.6:951-957 Je '65. (MIRA 18:6)

1. Ob"yedinennyy institut yadernykh issledovaniy i Tashkentskiy politekhnicheskiy institut.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

L 2743-66 EWT(m)/EWP(t)/EWP(b) DIAAP/ESD(c) JD/JG UR/0367/65/002/002/0204/0210
ACCESSION NR: AP5024328

AUTHOR: Basina, A. S.; Bedike, T. ; Gromov, K. Ya.; Dzhelepov, B. S.; Morozov, V. A.; Novgorodov, A. F.

TITLE: γ-Rays from Tu^{164}. The 0^+-level in Er^{164}

SOURCE: Yadernaya fizika, v. 2, no. 2, 1965, 204-210

TOPIC TAGS: thulium, erbium, radioisotope, gamma ray, radioactive decay scheme

ABSTRACT: The coefficients of internal conversion are found for several transitions in Er^{164} by comparison of the experimentally determined relative intensities of γ-rays from Tu^{164} with the intensities of conversion lines given in the literature. The method of isotope separation is briefly described. A γ-scintillation spectrometer with a 40 × 40 mm thallium-activated sodium iodide crystal was used for measuring the γ-spectrum. The measurements were begun approximately six minutes after separation of the Tu. The spectrum was graphically analyzed to determine the relative intensities of the γ-rays. The results are tabulated for energies from 500 to 2500 kev and compared with data in the literature on the spectrum of conversion electrons in this energy region. The decay scheme for Tu^{164} is

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ACCESSION NR: AP5024328

briefly discussed (see fig. 1 of the Enclosure). The experiment shows that the multipole order of the 773 kev transition is *E2* with possibly a slight admixture of *M1* (no more than 20% *M1*). It is assumed that the 1248 kev transition belongs to the 0^+-0^+ category. In this case, the 1157 kev transition from the 1248 kev level to the first excitation level of the ground state rotational band should be an *E2* transition. It is found that the γ-vibrational level (2^+) in Er^{164} has an energy of 862 kev. The 0^+ level observed at 1248 kev may be the first level in the β--vibrational band in Er^{164}. This value agrees well with the theoretically calculated value of ~1.3 Mev. Orig. art. has: 3 figures, 3 tables.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research); Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 12Mar65 ENCL: 01 SUB CODE: NP

NO REF SOV: 007 OTHER: 002

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

L 2743-66
ACCESSION NR: AP5024328

ENCLOSURE: 01

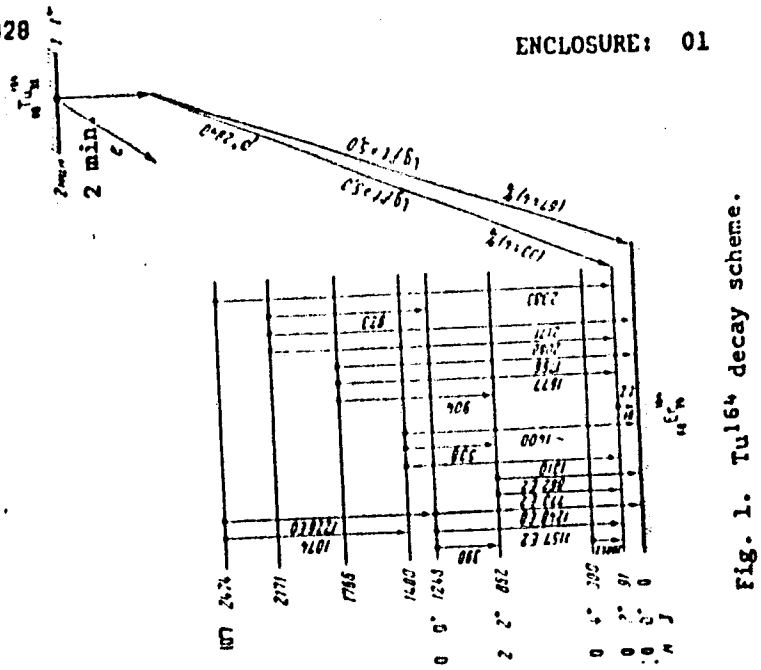

Fig. 1. Tu^{164} decay scheme.

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

L 33615-65 EWT(m)/EWP(b)/EWP(t) Peb DIAAP/IJP(c) JD/JG

ACCESSION NR: AP5005939 S/0048/65/029/002/0194/0199

AUTHOR: Gromov, K.Ya.; Makhunka, I.; Makhunka, M.; Fenesh, T.

TITLE: Investigation of the alpha spectrum of terbium isotopes /Report, 14th Annual Conference on Nuclear Spectroscopy held in Tbilisi, 14-22 Feb 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.29, no.2, 1965, 194-199

TOPIC TAGS: alpha spectrum, terbium

ABSTRACT: The α spectrum of the terbium fraction extracted from a tantalum target bombarded with 660 MeV protons was investigated with a spectrometer employing a semiconductor detector and a 128-channel pulse analyzer, and having a resolution of 0.3% at 6 MeV. The pulse analyzing system was calibrated after each half-hour run with a standard pulse generator which in turn was calibrated against a standard cell. The spectrometer was calibrated over the range from 3 to 6 MeV with α particles of known energies. The rare earth fraction from the target was separated chromatographically and the terbium was electrolytically deposited on a polished platinum plate. Four α lines were observed, of which one, ascribed to Tb^{150} because of its 4.3 hour half-life, is new. This α-particle group had an energy of 3.649 MeV,

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

L 33615-65

ACCESSION NR: AP5005939

and the partial half life of Tb^{150} with respect to this α decay was found to be 28 ± 15 years. Fine structure in the Tb^{151} α spectrum was sought in the energy range from 2.5 to 3.28 MeV, and none was found; if such fine structure lines exist their intensity must be less than 1.6×10^{-3} that of the principal Tb^{151} line. "The authors express their deep gratitude to Professor A.Salai, director of the Institute of Nuclear Research of the Hungarian Academy of Sciences for his support of the work, to V.A.Khalkin, N.A.Lebedev, F.Molnar and other collaborators of the Radiochemistry Section of the LYaP OIYal for separating the Tb fraction, and to T.Kishsalai for assistance in operating the multi-channel analyzer." Orig.art. has: 4 figures and 1 table.

ASSOCIATION: Laboratoriya yadernykh problem Ob"yedinennogo instituta Yadernykh issledovaniy (Nuclear Problems Laboratory, Joint Institute for Nuclear Research)

SUBMITTED: 00 ENCL: 00 SUB CODE: NP

NR REF SOV: 006 OTHER: 012

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702

GROMOV, K.Ya.; DEMETER, I.; NADZHAKOV, Ye.

The $\gamma\gamma$-angular correlations in $Pr^{138} \rightarrow Ce^{138}$ decay. Izv. AN SSSR. Ser. fiz. 29 no.7:1093-1097 Jl '65. (MIRA 18:7)

1. Ob"yedinennyy institut yadernykh issledovaniy.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051702(