



International Atomic Energy Agency

INDC(NDS)-112/LNQ

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INTERNATIONAL NUCLEAR DATA COMMITTEE

Compilations and Evaluations
of Nuclear Structure and Decay Data

Issue No. 5

(This issue supersedes Issue No. 4)

Compiled by A. Lorenz
Nuclear Data Section
International Atomic Energy Agency
Vienna, Austria

IAEA NUCLEAR DATA SECTION, WAGRAMERSTRASSE 5, A-1400 VIENNA

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80-1839

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Foreword

This is the fifth issue of a report series on published and to-be-published compilations and evaluations of nuclear structure and decay (NSD) data. This compilation is published and distributed periodically by the IAEA Nuclear Data Section.

This compilation of compilations and evaluations is designed to keep the nuclear scientific community informed of the availability of compiled or evaluated NSD data, and contains references to laboratory reports, journal articles and books containing selected compilations and evaluations.

In order to keep the file up-to-date, new entries submitted by the readers are added as they are received, and old entries are deleted when they are superseded by newly published compilations. All new entries are marked by an asterisk.

The material contained in this compilation is sorted according to eight subject categories:

1. General Compilations
2. Basic Isotopic Properties
3. Nuclear Structure Properties
4. Nuclear Decay Processes: Half-lives, Energies and Spectra
5. Nuclear Decay Processes: Gamma-rays
6. Nuclear Decay Processes: Fission Products
7. Nuclear Decay Processes: (Others)
8. Atomic Processes.

All users of this report are encouraged to contribute to the next issue of this compilation, and to send in new contributions, or corrections to the published material in this issue.

GENERAL COMPILATIONS

Title	Author(s)	Pub. Date	Reference and Comments
Chart of the Nuclides (12th Edition)	F.W. Walker G.J. Kirouac F.M. Rourke	1978	Published by the Knolls Atomic Power Laboratory. (Chart is revised to April 1977). To be published every 4 years.
Chart of the Nuclides (Nuklidkarte)	W. Seelmann-Eggebert G. Pfennig, H. Muenzel	1974	Published by the Kernforschungszentrum Karlsruhe. Cycle time: 4 years.
Chart of the Nuclides (folding type)	Y. Yoshizawa, T. Horiguchi M. Yamada	1977	Contains abundances, measured half-lives, and estimated half-lives where no measurements have been done.
Tableau des Isotopes (wall chart)	R. Pannetier, P.L. Chevillon	1970	Published by Le Bi-Repertoire Nucleaire, Paris, France.
VADE-MECUM du Technicien	R. Pannetier		Published in two volumes by Ed. Maisonneuve F-57 Moulins-Metz, France.
* Table of the Isotopes	R.L. Heath	1979	Published in Handbook of Chemistry and Physics. Chemical Rubber Co. USA.
* Table of Isotopes (Seventh Edition)	C.M. Lederer, V.S. Shirley (Editors)	1978	Published by John Wiley and Sons, Inc.
Izotopy (Isotopes): Reference Tables for Z=1 to Z=105	I.P. Selinov	1970	Published as book in 3 Volumes by Publishing House NAUKA, Moscow.
* Quantum Radiation of Radioactive Nuclides. A Data Handbook.	N.G. Gusev, P.P. Dmitriev	1977	Translated edition published by Pergamon Press (1979).
Isotopic Composition of the Elements and their Variation in Nature: A Preliminary Report	N.E. Holden	1977	Published as report ENL-NCS-50605.
Table of Radionuclides	J. Legrand, J.P. Perolat, F. Lagoutine, Y. Le Gallic	1974	100 Radionuclides will be published. 30 are published. 20-30 will be published at the end of 1976. Manpower: 2 men/year. Cycle time: 4 years.
Table of Radioactive Nuclides Arranged in Ascending Order of Half-Life	N.R. Large, R.J. Bullock	1970	Published in NDT <u>A7</u> , 477.
Table of Isomeric States of Stable Nuclides	E.A. Uken, T.W. Steele	1966	Published as Report NIM-41 (National Institute of Metallurgy, Johannesburg, South Africa).
Isomeric States ($T_{sub}(1/2) \geq 10^{-10}$ s) Listed According to Increasing Half-Life	J. Kantele, O. Tannila	1968	Published in ND <u>A4</u> (1/2), 359-395.
Radioactive Atoms, Auger-Electrons, α , β , γ and x-Ray Data	M.J. Martin P.H. Blichert-Toft	1970	Published in NDT <u>A8</u> , 1.
Table of Calculated Nuclear Properties	P.A. Seeger, W.M. Howard	1974	Published as report LA-5750.
Radionuclide Decay Schemes and Nuclear Parameters for Use in Radiation-Dose Estimation	L.T. Dillman, F.C. Von der Lage	1975	Published as NM/MIRD Pamphlet No. 10 by the (US) Society of Nuclear Medicine.
* Nuclear Decay Data for Selected Radionuclides (as of July 1978)	M.J. Martin (Editor)	1978	Published as Appendix A in the Handbook of Radioactivity Measurements Procedures, NCRP Report No. 58. National Council on Radiation Protection and Measurement, Washington D.C., USA.
Evaluation of Gamma-Ray Intensities Nuclear Data for Safeguards Techniques	Y. Yoshizawa, H. Inone	1976	Published by the Faculty of Science of Hiroshima University (Japan) as an internal report. (Text in Japanese). Cycle time: 2 years.
Radioactive Nuclide Decay Data for ENDF/B	C.W. Reich, R.G. Helmer, M.H. Putmann	1974	Published as report ANCR-1157.
Evaluated Decay Scheme Data	R.G. Helmer, R.C. Greenwood	1975	Published in Nuclear Technology, <u>25</u> , 258-273.

GENERAL COMPILATIONS (cont'd)

Title	Author(s)	Pub. Date	Reference and Comments
Nuclear Physics Constants of Gamma-emitting Isotopes in the Technological Environment of Reactors	B.V. Nesterov	1978	Published in Supplement to Volume 22 of Nuclear Constants by the Nuclear Data Centre of the USSR State Committee on the Utilization of Atomic Energy. English translation published as report INDC(CCP)-110/LNP (March 1978).
Nuclear Decay Data for Radionuclides occurring in Routine Releases from Nuclear Fuel Cycle Facilities	D.C. Kocher	1977	Published in ORNL report ORNL/NUREG/TM-102 (August 1977).
Radioactive Nuclide Decay Data for Reactor Calculations: Activation Products and Related Isotopes	A.L. Nichols	1977	Published as Harwell report AERE-R 8903.
Quantum Radiation of Radioactive Nuclides	N.G. Guser, P.P. Dmitriev	1977	Published as a book by Atomizdat (Moscow), 400 pages.
The Nuclear Properties of the Heavy Elements. Vol. 1: Systematics of Nuclear Structure and Radioactivity Vol. 2: Detailed Radioactivity Properties Vol. 3: Fission Phenomena	E.K. Hyde, I. Perlman G.T. Seaborg	1964	Published in Prentice Hall International Series in Chemistry, by Prentice Hall, Englewood Cliffs, N.Y.
Properties of Fission Isomers	H.C. Britt	1973	Published in ADNDT 12(5), 407-414.
Radioactive Decay and Nuclear Level Schemes for Heavy Elements ($Z \geq 90$)	Yu.S. Zamyatnin	1974	Published as Volume 14 of the "Nuclear Constants" report series by the Nuclear Data Centre of the USSR State Committee for the use of Atomic Energy. Original distributed as report INDC(CCP)-55/G (March 1975) by IAEA/NDS.
Basic Characteristics of the Isotopes of Heavy Elements	V.M. Gorbachev, Yu.S. Zamyatnin, A.A. Lbov	1975	Published as a book by Moscow Publishing House "Atomizdat".
Decay Data Libraries a) for 628 fission products b) for 1100 other isotopes	J. Blachot, C. Devillers, L. Fiche	1972	The F.P. file has been published in report CEA-N-1882. These libraries are living files and are updated continuously, partly using the ENSDF file.
An Isotope Catalogue for Instrumental Activation Analysis	I.M.H. Pagden, G.J. Pearson, J.M. Bowers	1971	Published in: Part I: J. Radioanal. Chem. 8 (1971), 127-188 Part II: J. Radioanal. Chem. 8 (1971), 373-479 Part III: J. Radioanal. Chem. 9 (1971), 101-189.
Radiation Spectra of Radionuclides	T.B. Metcalfe	1976	Report published by Noyes Data Corp., Park Ridge, N.J. (ISBN 0815506201).

BASIC ISOTOPIC PROPERTIES

Title	Author(s)	Pub. Date	Reference and Comments
A Mass Table for $50 < Z < 118$, and $130 < A < 311$ Derived from Nuclear Energy Systematics	V.E. Viola, J.A. Swant, J. Graber	Jan.74	Published in ADNDT <u>13</u> , 1, 35.
The 1977 Atomic Mass Evaluation in Four Parts: Atomic Mass Table, Nuclear Reaction and Separation Energies, and Systematics of Separation and Decay Energies.	A.H. Wapstra, K. Bos	1977	Published in ADNDT <u>19</u> , 175-297.
The 1977 Atomic Mass Evaluation. Part IV. Evaluation of Input Values; Adjustment Procedures.	A.H. Wapstra, K. Bos	1977	Published in ADNDT <u>20</u> , 1-126.
Q- Values	K.A. Keller, J. Lange H. Muenzel	1973	Published in Landolt Boernstein, Group I, Vol. 5, Part B, 499 (Springer-Verlag, Berlin)
Nuclear Separation and Pairing Energies, Decay Energies, and Atomic Masses for $68 \leq Z \leq 72$.	K.S. Sharma, et al.	1977	Published in Can. J. Phys. <u>55</u> , 1360 (1977).
Topographical Maps of the Nuclear Binding Energy Surface	V.A. Kravtsov, N.N. Skatchkov	1973	Published in ADNDT <u>12</u> , 143-157.
Table of Calculated Nuclear Properties	P.A. Seeger, W.M. Howard	1974	Published as report LA-5750.
Tables of the Nucleon Binding Energies and the Energies of α and β Decay of the Heavy Element Isotopes	N.N. Kolesnikov, A.G. Demin	1975	Published as report P6-9420 of the Joint Institute for Nuclear Research, Dubna. Translation published as UCRL-TRANS-11098 report.
Shell-independent Systematics S_n (Isotopic) and S_p (Isotopic)	N.B. Gove, M. Yamada	1968	Published in NDT <u>A4</u> , 237.
Nuclear Radii	L.R.B. Elton, R. Hofstadter, H.R. Collard	1967	Published in Landolt Bornstein, Vol. 2, Springer-Verlag, Berlin.
Shell Effects in RMS Charge Radii	I. Angeli, M. Csatlos	1978	Published as report ATOMKI Kozlemynek 20 (1978) 1-25.
Nuclear Charge and Magnetization-Density-Distribution Parameters from Elastic Electron Scattering	C.W. De Jager et al.	1974	ADNDT <u>14</u> , 479.
Charge-Distribution Parameters, Isotope Shifts, Isomer Shifts, and Magnetic Hyperfine Constants from Muonic Atoms	R. Engfer et al.	1974	ADNDT <u>14</u> , 509.
Changes of Mean-Square Nuclear Charge Radii from Isotope Shifts of Electronic K-X-Rays	F. Boehm, P.L. Lee	1974	ADNDT <u>14</u> , 605.
Changes in Mean-Square Nuclear Charge Radii from Optical Isotope Shifts	K. Heilig, A. Steudel	1974	ADNDT <u>14</u> , 613.
Changes in Mean-Square Nuclear Charge Radii from Moessbauer Isomer Shifts	G.M. Kalvius, G.K. Shenoy	1974	ADNDT <u>14</u> , 639.
The 1973 Least-Squares Adjustment of the Fundamental Constants	E.R. Cohen, B.N. Taylor	1973	Published in J. of Phys. and Chem. Data <u>2</u> , 4, 663.
Review of Particle Properties	N. Barash-Schmidt et al.	1974	Published in Phys. Letters, <u>50B</u> , No. 1 Cycle time: 1 year.
Experimental Coulomb Displacement Energies between Analog Energy Levels of Isobaric Nuclei with A=3 to A=238	W.J. Courtney, J.D. Fox	1975	Published in ADNDT <u>15</u> , 141-187.

NUCLEAR STRUCTURE PROPERTIES

Title	Author(s)	Pub. Date	Reference and Comments
* Energy Levels of Light Nuclei $A=3$	S. Fiarman, S.S. Hanna	1975	Published in Nucl. Physics <u>A251</u> , 1.
$A=4$	S. Fiarman, S.S. Hanna	1973	Published in Nucl. Physics <u>A206</u> , 1.
$A=5-10$	F. Ajzenberg-Selove	1979	Published in Nucl. Physics <u>A320</u> , 1.
$A=11-12$	F. Ajzenberg-Selove	1975	Published in Nucl. Physics <u>A248</u> , 1.
$A=13-15$	F. Ajzenberg-Selove	1976	Published in Nucl. Physics <u>A268</u> , 1.
$A=16-17$	F. Ajzenberg-Selove	1977	Published in Nucl. Physics <u>A281</u> , 1.
$A=18-20$	F. Ajzenberg-Selove	1978	Published in Nucl. Physics <u>A300</u> , 1.
* Energy Levels of $A=21-44$ Nuclei	P.M. Endt, C. van der Leun	1978	Published in Nucl. Physics <u>A310</u> , 1-752.
Nuclear Data Sheets ($A=45-\infty$)	W.B. Ewbank (Editor)		Nucl. Data Sheets four year cycle, (updated listing in each issue of Nuclear Data Sheets)
Radiative Processes in Atomic Nuclei	R.B. Begzhanov, V.M. Belonkij, S.R. Abdurakhmanov, V.K. Usharov	1973	Published as a book by Publishing House "FAN" of the Uzbek SSR in Tashkent for the Academy of Sciences of the Uzbek SSR.
Decay Schemes of Radioactive Nuclei $A=70$ to $A=79$	B.S. Dzhelepov (Editor)	1974	Published by Leningrad Branch of Publishing House NAUKA for the USSR Academy of Sciences.
Level Schemes for Some Fission Product Nuclides (Comparison of Level Schemes)	Z. Matumoto, T. Murata, R. Nakasima	1978	Published as report JAERI-M 7734 (also distributed as NEANDC(J)-55/AL and INDC(JAP)-41/G)
Strengths of Gamma-Ray Transitions between Bound States of $A=21-44$ Nuclei	P.M. Endt and C. van der Leun	1974	Published in ADNDT <u>13</u> , 1, 67-88.
Strengths of Electromagnetic Transitions for $A \leq 45$	P.M. Endt, C. van der Leun	1974	Published in Nucl. Phys. <u>A235</u> , 27.
* Strengths of Gamma-Ray Transitions in $A=6-44$ Nuclei (III)	P.M. Endt	1979	Published in ADNDT <u>23</u> , 3-62.
Gamma-ray Transition Strengths in $A=45-90$ Nuclei	F. le Page C. van der Leun		In preparation.
Gamma-ray Transition Probabilities in Deformed Nuclei ($150 \leq A < 190$)	W. Andrejtscheff K.D. Schilling, P. Manfrass	1975	Published in ADNDT <u>16</u> , 6.
Tables of Radiative Transition Probabilities from Resonance Levels of Light Nuclei	V.Ya. Kostin, E.T. Kopanetz, A.A. Koval and S.P. Tsitko	1978	Published in report Kh FTI 78-24 of the Kharkov Fiziko-Technical Institute of the Ukrainian Academy of Sciences (in Russian).
Table of Lifetimes of Nuclear Levels	Eh.E. Berlovich, L.A. Vajshnena, I.A. Kondurov, Yu.N. Novikov, and Yu.V. Sergeenkov	1975	Published originally as report LIJaF-145. English translation published as report INDC(CCP)-89/N by IAEA/NDS (April 1976).
Tables of Nuclear Level Density Parameters	A. Chatterjee, S.K. Ghosh, H. Majumdar	1976	Published as report INDC(IND)-20/U by IAEA/NDS.
Tables of Nuclear Moments	V.S. Shirley, C.M. Lederer	1974	Published as report LBL-3450, and as Appendix to 7th Edition of Table of Isotopes.
Nuclear Spins and Moments	Gladys H. Fuller	1976	Published in Journal of Physical and Chemical Reference Data, Vol. 5, No. 4, pp. 835-1092.
* Nuclear Moments of Ground and Excited States	M.P. Avotima, A.V. Zolotavin	1979	Published in two volumes in Russian by Atomizdat. Limited distribution as INDC(CCP)-141/G.
Spectroscopic Factors for Single-Nucleon Transfer in the $A=21-44$ Region	P.M. Endt	1977	Published in ADNDT <u>19</u> , 23-62.
Nuclear Moments and Moment Ratios as Determined by Mössbauer Spectroscopy	J.G. Stevens, B.D. Dunlap	1976	Published in Journal of Physical and Chemical Reference Data, Vol. 5, No. 4, pp. 1093-1119.
Table of Electromagnetic M1 Reduced Transition-Probability Matrix Elements between Nilsson States in Odd-A Nuclei	E. Browne, F.R. Femenia	1971	Published in Nucl. Data Tables 10, 81.

NUCLEAR STRUCTURE PROPERTIES (cont'd)

Title	Author(s)	Pub. Date	Reference and Comments
Matrix Element for Penetration Factor in M1 Transitions between Nilsson States in odd-A Nuclei	D.K. Krpic, I.A. Anicin, R.B. Vulkanovic	1973	Published in NDT <u>11</u> , 553-568.
E2 Transition Probabilities between Nilsson States in odd-A Nuclei	D.K. Krpic, I.M. Slavic, I.V. Anicin	1976	Published in ADNDT <u>18</u> , 509-520.
Internal Pair Formation and Multipolarity of Nuclear Transitions	R.J. Lombard, C.F. Perdrisat, J.H. Brunner	1968	Published in Nucl. Phys. <u>A110</u> , 41.
E0 Transitions in Atomic Nuclei	A.V. Aldushenkov, N.A. Voinova	1973	Published in NDT, A11, 299-325.
Electroexcitation of Nuclear Magnetic Dipole Transitions	L.W. Fagg	1975	Rev. Mod. Phys., <u>47</u> , 683-711.
The O^+ States and Electric Monopole Transition in Even-Even Atomic Nuclei	N.A. Voinova	1976	Published as report LIYaF-230 (in russian) English translation published by IAEA/NDS as report INDC(GCP)-93/N (July 1976).
Superaligned $O^+ \rightarrow O^+$ and Isospin-Forbidden $J^\pi \rightarrow J^\pi$ Fermi	S. Raman, T.A. Walkiewicz, H. Behrens	1975	Published in ADNDT <u>16</u> , 5.
* Mixed Fermi and Gamow-Teller β -Transitions and Isoscalar Magnetic Moments	S. Raman, C.A. Houser, T.A. Walkiewicz, I.S. Towner	1978	Published in ADNDT <u>21</u> , 567-620.
A Survey of Nonrotational States of Deformed Odd-A Nuclei ($150 \leq A \leq 190$)	M.E. Bunker, G.W. Reich	1971 1972	Published in Rev.Mod.Phys. <u>43</u> , 348 and in Rev.Mod.Phys. <u>44</u> , 126.
Rotational and Quasi-rotational Bands in Even-Even Nuclei	R.B. Begzhanov, V.M. Belen'ki j, S.R. Abdourakhmanov, V.Sh. Vinarski j	1977	Published in Bulletin No. 5 of the LIYaF Data Centre, Leningrad (June 1977).
Rotational Bands of Odd-Odd Nuclei ($150 \leq A \leq 190$)	V.G. Dubro	1977	Published in Bulletin No. 4 of the LIYaF Data Centre, Leningrad (Feb. 1977).
Quasi-Ground, Quasi-Beta, and Quasi-Gamma Bands	M. Sakai, A.C. Rester	1977	Published in ADNDT <u>20</u> , 441-474.
Nuclear Intrinsic Quadrupole Moments and Deformation Parameters	K.E.G. Loebner, M. Vetter, V. Honig	1970	Published in NDT <u>A7</u> , 495.
Quadrupole Moments of Nuclear Excited States Measured by the Reorientation Effect in Coulomb Excitation	A. Christy, O. Haeusser	1972	Published in NDT, A11, 281-298.
Orientation Parameters for Low-Temperature Nuclear Orientation	K.S. Krane	1973	Published in NDT <u>11</u> , 407-431.
E2, M1 Multipole Mixing Ratios in Even-Even Nuclei, $A \geq 152$	K.S. Krane	1975	Published in ADNDT <u>16</u> , 383.
E2, M1 Multipole Mixing Ratios in Odd-Mass Nuclei, $A \geq 150$	K.S. Krane	1976	Published in ADNDT <u>18</u> , 137.
E2, M1 Multipole Ratios in Odd-Mass Nuclei, $59 \leq A \leq 149$	K.S. Krane	1977	Published in ADNDT <u>19</u> , 363-416.
E2, M1 Multipole Mixing Ratios in Even-Even Nuclei, $58 \leq A \leq 150$	K.S. Krane	1977	Published in ADNDT <u>20</u> , 211-240.
* E2, M1 Multipole Mixing Ratios in Nuclei with $A \leq 57$	K.S. Krane	1978	Published in ADNDT <u>22</u> , 269-328.
Tables of the Clebsch-Gordan Coefficients	I.V. Nikitina, Yu.I. Kharitonov	1975	Published as report LIYaF-138.
Table of Hyperfine Fields	E. Matthias, D.A. Shirley	1968	Published in Hyperfine Structure and Nuclear Radiation, North-Holland Publ., Amsterdam.

NUCLEAR DECAY PROCESSES: HALF-LIVES, ENERGIES, SPECTRA

Title	Author(s)	Pub. Date	Reference and Comments
Specific Activities and Half-lives of Common Radionuclides	G. Goldstein, S.A. Reynolds	1966	Published in ND <u>A1</u> (1-6), 435-452.
Half-lives of the Most Used Radionuclides	F. Lagoutine B. Grinberg	1976	100 radionuclides.
Half-lives of Some Actinide	R. Vaninbrouckx	1974	Published in Report EUR-5194 e.
Half-lives T_{α} and T_{β} of Transuranium Element Isotopes	N.N. Kolesnikov A.G. Demin	1975	Published as report P6-9421 of the Joint Institute for Nuclear Research Dubna.
Catalogue of Recommended Alpha Energy and Intensity Values	A. Rytz	1973	Published in ADNDT <u>12</u> , 479-498.
A Listing of Alpha Particle Energies and Intensities Arranged by Nuclides in Ascending Order of Z and A, and in Order of Energy	F.J.G. Rogers	1976	Published as Report AERE-R 8005.
Table of α -emitting Nuclides According to α -energy	J.C. Post	1967	Published in Actinides Revue <u>1</u> , 55-69.
Table of α - Particle Energies (for 116 radionuclides with half-lives longer than 30 minutes)	R. Czarwinski, V. Lössnet	1978	Published as report SAAS-228 of the Staatliches Amt für Atomsicherheit und Strahlenschutz of the German Democratic Republic.
Characteristics of Alpha Activities for Neutron Deficient Nuclei with $65 \leq Z \leq 91$	H. Gauvin, Y. Le Beyec, J. Livet, J.L. Reyss	1975	Ann. Phys. (Paris) <u>9</u> , 5, 241-270.
Beta-decay Half-lives Calculated on the Gross Theory	K. Takahashi, M. Yamada, T. Kondoh	1973	Published in ADNDT <u>12</u> , 101-142.
Systematical Study of Beta delayed Proton Emission Energies	K. Bos, N.B. Gove, A.H. Wapstra	1974	Published in Z. Phys. <u>271</u> , 115-127.
Log-f Tables for Beta Decay	N.B. Gove, M.J. Martin	1971	Published in NDT, <u>A10</u> , 205.
Tables of the Analysis of Beta Spectra	(Anonymous)	1952	Published as Report: Nat. Bur. Stand., Appl. Math. Ser. Vol. 13 by US NBS.
Numerical Tables for Beta-decay and Electron Capture	H. Behrens	1969	Published in Landolt-Börnstein. New Series Group 1. Nuclear Physics and Technology, K.H. Hellwege (Editor). Springer Verlag, Berlin.
The Beta-Ray Spectrum and the Average Beta Energy of Several Isotopes of Interest in Medicine and Biology	J. Mantel	1972	Published in Int. J. Appl. Radiat. Isot. <u>23</u> , 407-413.
Shapes of Beta Spectra	H. Behrens, L. Szybisz	1976	Contains all measured shape factors for allowed and forbidden β -transition in parametrized form. Published as ZAED report 6-1 1976.
Systematics of Beta Decays of Odd-A Nuclides with $160 < A < 180$	B.J. Meijer	1976	Published in Z. Physik <u>A278</u> , 365-372.
Half-Life Systematics of the Radioactive Nuclides. Part 2. The Diagrams	L. Sarkadi, I. Torok	1977	Published in report ATOMKI Kozlem <u>19</u> , 283 (1977).
Energy Spectra and Yield of Light Nuclei which originate in Ternary Fission	I.A. Kondurov, A.M. Nikitin D.M. Seliverstov	1977	Published in Bulletin No.6 of the LIYaF Data Centre, Leningrad (September 1977).

NUCLEAR DECAY PROCESSES: GAMMA-RAYS

Title	Author(s)	Publ. Date	Reference and Comments
Compendium of Thermal-Neutron Capture γ -Ray Measurements Part I : Z = 46, Part II: Z = 47-67 Part III : Z = 68-94	G.A. Bartholomew et al, and L.V. Groshev et al	1967 1968 1969	Published in: ND Section A, <u>3</u> , 367-650 Published in: ND Section A, <u>5</u> , 1-242 Published in: ND Section A, <u>8</u> , 243-431.
Gamma-Ray Spectra and Sensitivities for 14 MeV-Neutron Activation Analysis	M. Cuypers, I. Cuypers	1968	Published in J. Radionucl. Chem. <u>1</u> , 243.
Analytical Sensitivities and Energies of Thermal Neutron Capture Gamma Rays	D. Duffy, A. El-Kady, F.E. Senftle	1970	Published in Nucl. Instr. and Methods <u>80</u> , 149-171.
Analytical Sensitivities and Energies of Thermal Neutron Capture Gamma Rays II	F.E. Senftle, et al.	1971	Published in Nucl. Instr. and Methods <u>93</u> , 425-459.
Compilation of KeV Neutron-Capture Gamma-Ray Spectra	J.R. Bird, B.J. Allen, I. Bergquist, J.A. Biggerstaff	1973	Published in NDT, <u>A11</u> , 433.
Gamma-Ray Spectrum Catalogue for Ge(Li) and Si(Li) Spectrometry	R.L. Heath	1974	Third edition published as report ANCR-1000.
Catalogue of Ge(Li)- γ Spectra	G. Zaddach	1973 and 1974	Published as Report Juell-914-DE plus Supplement by the Kernforschungsanlage Juulich.
Atlas of Gamma-Ray Spectra from the Inelastic Scattering of Reactor Fast Neutrons	A.M. Demidov et al	1978	Published as a book by Atomizdat (Moscow) (328 p.).
Tables of γ -Rays from (n, γ)-Produced Nuclides	R.A. Creig, R.E.J. Porritt, S.J. Bone	1971	Published as report AAEC/TM 585.
Spectra of Electromagnetic Transitions and Level Schemes following Thermal Neutron Capture by Nuclides with A=143-193	P.T. Prokofiev et al	1973	Published as a book by Publishing House "Zinatne", Riga.
List of Recommended γ -Ray Energy Calibration Standards	R.G. Helmer, P. van Assche, C. van der Leun		Task-group of the IUPAP committees on atomic masses and fundamental constants. (To be published).
Gamma-Ray Calibration Energies	J.B. Marion	1968	Published in NDT <u>A4</u> , 301.
Table of Specific Gamma Ray Constants	D. Nachtigall, W. Hanle, M. Pollermann	1969	Published as Pocketbook by Thiemig Taschenbuecher, Munich.
Catalogue of γ -Rays Emitted by Radionuclides	M.A. Wakat	1971	Published in NDT <u>A8</u> , 445.
Radioactive Decay Gammas (ordered by energy and nuclide)	W.W. Bowman K.W. MacMurdo	1974	Published in ADNDT <u>13</u> , 89-292.
Compilation of Gamma-Transition Energies of Radionuclides Produced by Reactor Irradiation	R. Dams and F. Adams	1971	Published in J. of Radioanal. Chem. <u>7</u> , 127-160.
Two-Dimensional ($T_{1/2}$, E_{γ}) Mapping of Short-Lived Nuclides	A.Z. Nagy, A. Csoeke, E. Szabo	1971	Published in J. of Radioanal. Chem. <u>7</u> , 181-365.
Gamma Decay of Analogue Resonances	Yu.V. Naumov, O.E. Kraft	1975	Published in EhChAYA (Elementary Particles and the Atomic Nucleus?).
Die γ -Linien der Radionukliden (The γ -ray Lines of Radionuclides)	G. Erdtmann W. Soyka	1973	Published by Kernforschungsanlage Juulich in report JUL-1003-AC in three volumes. Data also available on tape. Cycle time: 4 years.
Gammaenergien (Gamma-ray Energies)	Chr. Meixner	1974	Published by Kernforschungsanlage Juulich in report JUL-1087-RX in two volumes. (Effort discontinued).
The Gamma-ray Lines of Radionuclides ordered by Atomic and Mass Number: Part 1: Z=2-57 (Helium-Lanthanum) Part 2: Z=58-100 (Cerium-Fermium)	G. Erdtmann, W. Soyka	1975	Published in J. Radioanal. Chem., Part 1 in Volume <u>26</u> , 375-495 Part 2 in Volume <u>27</u> , 137-286.

NUCLEAR DECAY PROCESSES: GAMMA-RAYS (cont'd)

Title	Author(s)	Publ. Date	Reference and Comments
* The Gamma-Rays of the Radionuclides: Tables of Applied Gamma-Ray Spectrometry	G. Erdtmann, W. Soyka	1979	Published as a book by Verlag Chemie, Weinheim, New York.
* Gamma-Ray Catalog Part I : Compilation of gamma-rays originating from radioactive decay, listed in order of increasing energy Part II: A Listing of properties of stable and radioactive nuclides, ordered by mass/atomic numbers	U. Reus, W. Westmeier, I. Warnecke	1979	Published by the Gesellschaft fuer Schwerionenforschung, Darmstadt, Federal Republic of Germany as GSI report 79-2. Compilation also available on tape from the IAEA Nuclear Data Section.
Evaluation of Gamma-Ray Intensities	Y. Yoshizawa et al	1978	Published as report JAERI-M 7567 (also distributed as NEANDC(J)-54/AL and INDC(JAP)-40/G.
Tables of Specific Activities of the Nuclides with $Z=88$ to $Z=104$	W. Schirmer, N. Waechter	1967	Published in Actinides Rev. <u>1</u> , 125-134.
Low-Energy Gamma-Rays from Isotopes Produced by (n,γ) Reactions	M. de Bruin, P.J.M. Korthoven	1972	Published in J. Radioanal. Chem. <u>10</u> , 125.
Semiconductor Gamma-Ray Spectra for Neutron Activation Analysis	H. Vogg	1971	Published as Vol. 6 of the Atomkernenergie Book Series, by Thiemeig, Munich.
Gamma-Ray Quanta of Isotopes used in Neutron Activation Analysis	B.S. Dzhelapov S.F. Koksharova	1974	Published as a soft-cover booklet by Atomizdat (Moscow).
Neutron Activation Analysis Tables - Analyse par Activation	J.C. Leclerc, A. Cornu (and A. Ginier-Gillet)	1974	Published as book by Heyden (London, New York, Rheine).
Neutron Activation Tables	G. Erdtmann	1976	Published as book by Verlag Chemie, D-6940 Weinheim.
* Neutron Activation Analysis. Tabulation of Cross-Sections, Q-Values, Decay Characteristics and Sensitivities	B.T. Kerma, P.E. Harrison	1976	Published as Sandia Laboratory (Albuquerque, New Mexico, USA) Report SAND-76-0254.
Tables for Reaction Gamma-Ray Spectroscopy. Part I. $A=6$ to $A=20$	R.J. De Meijer, H.S. Plendl and R. Holub	1974	Published in ADNDT <u>13</u> , 1-33.
Tables for Reaction Gamma-Ray Spectroscopy. Part II $A=21-32$	R.J. Meijer, A.G. Drentje, and H.S. Plendl	1975	Published in ADNDT <u>15</u> , 391-442.
Tables for Reaction Gamma-Ray Spectroscopy. Part III. $A=33$ to $A=44$	R.J. De Meijer, A.G. Drentje	1976	Published in ADNDT <u>17</u> , 211.
Tables of Coefficients for Angular Distribution Analysis	W.T. Sharp et al	1954	Published as Reports AECL-97 and CRT-556 by the Atomic Energy of Canada Ltd. at Chalk River, Ontario.
Tables of Directional Correlation Attenuation Coefficients for Combined Magnetic Dipole and Randomly Oriented Electric Quadrupole Interactions: Part 1: Spin of Intermediate Nuclear State $I=1$ and $I=2$ Part 2: Spin of Intermediate Nuclear State $I=3/2$ and $5/2$	R.M. Steffen, E. Matthias, W. Schneider	1962	Published in Report by USAEC.
Angular Distributions of Gamma-Rays in Terms of Phase-Defined Reduced Matrix Elements	H.J. Rose, D.M. Brink	1967	Published in Rev. Mod. Phys. <u>39</u> , 306.
Tables of Coefficients for Angular Distributions of Gamma-Rays from Aligned Nuclei	T. Yamazaki	1967	Published in Nucl. Data <u>3A</u> , 1.
Tables of Coefficients for Angular Correlations of Radiative Transitions from Aligned Nuclei	D.D. Watson, G.I. Harris	1967	Published in Nucl. Data <u>3A</u> , 25.

NUCLEAR DECAY PROCESSES: GAMMA-RAYS (cont'd)

Title	Author(s)	Publ. Date	Reference and Comments
Numerical Tables for Angular Correlation Computation in α -, β - and γ -Spectroscopy: $3j$ -, $6j$ -, $9j$ -Symbols, F - and Gamma-Coefficients	H. Appel	1969	Published in Landolt-Börnstein. New Series Group 1. Nuclear Physics and Technology, K.H. Hellwege (Editor). Springer Verlag, Berlin.
Tables of the $3-j$, $6-j$, $F_{\text{sub}}(k)$ -, $A_{\text{sub}}(k)$ - and $A_{\text{sub}}(kk)$ -Coefficients for Angular Correlation Measurements Involving Half Integer Spins up to $15/2$ and Transitions up to $L=3$	H.H. Gueven, B. Kardon, H. Seyfarth	1975	Published as Report JUEL-1217 by the Kernforschungsanlage Juelich, Institut of Nuclear Physics.
Table of Angular Distribution Coefficients for (Gamma-Particle) and (Particle-Gamma) Reactions	R.W. Carr, J.E.E. Baglin	1972	Published in Nucl. Data Tables <u>10</u> , 143.
Angular Correlation Methods in Gamma-Ray Spectroscopy	A.J. Ferguson	1965	Published by North-Holland Publ., Amsterdam.
A Tabulation of Gamma-Gamma Directional Correlation Coefficients	H.W. Taylor, B. Singh, F.S. Prato, R. McPherson	1971	Published in Nucl. Data Tables <u>9</u> , 1.
A Tabulation of Gamma-Gamma Directional Correlation Coefficients for States of High Angular Momenta	P.E. Haustein, H.W. Taylor, R. McPherson, R. Fairchild	1972	Published in Nucl. Data Tables <u>10</u> , 321.
Directional Correlation of Gamma Radiations Emitted from Nuclear States Oriented by Nuclear Reactions or Cryogenic Methods	K.S. Krane, R.M. Steffen, R.M. Wheeler	1973	Published in NDT, <u>11</u> , 351-406.
Extended Table of Angular Distribution Coefficients for (gamma-particle) and (particle-gamma) Reactions	R.E. Maute, D.P. D'Amato, S.L. Blatt	1974	Published in ADNDT <u>13</u> , 499-624.
Tables of X -Coefficients and Λ -Factors for Triple Angular Correlation Analysis	J.J. Singh, C. Cross	1964	Published as Report NASA-TN-D-2454 by NASA, Langley Station, Va.
Tables of Coefficients for the Analysis of Triple Angular Correlations from Aligned Nuclei	G. Kaye, E.J.O. Read, J.C. Willmott	1968	Published by the Chadwick Phys. Lab., Univ. of Liverpool, England.
β - γ (CP)-asymmetry Coefficients in Isospin Forbidden Allowed Mixed β -Transitions	H. Behrens	1970	Proceedings of "International Conference on Angular Correlation in Nuclear Disintegration", Delft, Netherlands (August 1970).

NUCLEAR DECAY PROCESSES: FISSION PRODUCTS

Title	Author(s)	Pub. Date	Reference and Comments
Fission Product Chain Yields from Experiments in Thermal Reactors	E.A.C. Crouch	1973	Published in report AERE-R-7209. Next round of evaluations to be completed by June 1976. Cycle time: 2 years.
Fission Product Chain Yields from Experiments in Reactors and Accelerators Producing Fast Neutrons of Energies up to 14 MeV	E.A.C. Crouch	1973	Published in report AERE-R-7394. Next round of evaluations to be completed by June 1976. Cycle time: 2 years.
Fission Yields to Obey Conservation Laws	E.A.C. Crouch	1976	Chain and independent fission product yields adjusted to conform with physical conservation laws. Part 1 published in report AERE-R-7785, Feb. 1975. Part 2 published in report AERE-R-8152.
Fission-Product Yields from Neutron-Induced Fission	E.A.C. Crouch	1977	Published in ADNDT <u>19</u> , 417-532.
Compilation of Fission Product Yields	B.F. Rider	1978	Available from the General Electric Company, P.O. Box 460, Pleasanton Calif. 94566 as report NEDO-12154-2E.
Radiation Characteristics of Fission Products	N.G. Gusev, P.M. Rubtsov, V.V. Kovalenko, V.M.M. Kolobashkin	1974	Published by Atomizdat, Moscow (224 pages).
Evaluation of Important Fission Product Nuclides	S. Iijima et al.		(To be published in 1978).
ENDF/B-IV Fission Product Files: Summary of Major Nuclide Data	T.R. England R.E. Shenter	Oct. 75	Published as report La-6116-MS.
ENDF/B Fission Product Decay Data	P.F. Rose, T.W. Burrows	1976	Published as report BNL-NCS-50545, ENDF-243 (in press).
An Ordered Table of Gamma Radiation Derived from an ENDF/B-IV Fission Product File	A. Tobias	1977	Published as UK report RD/B/N4053 (May 1977).
Gamma-Ray and Half-Life Data for the Fission Products	J. Blachot, C. Fiche	1977	Published in ADNDT <u>20</u> , 241-310.
Fission Product Yield and Decay Data Library	C. Devillers, et al.		Continuously updated file on magnetic tape in ENDF/B format. (See also under Section on General Compilations).
Estimation of Decay Data for Short-lived Fission Products	T. Yoshida	1975	Theoretical data compared to preliminary experimental results. Published in report NEACRP-A-241 (also JAERI-M-6313).
Estimation of Nuclear Decay Heat for Short-lived Fission Products	T. Yoshida	1977	Published in Nucl. Sci. Eng. <u>63</u> , 376.

NUCLEAR DECAY PROCESSES

Title	Author(s)	Publ. Date	Reference and Comments
Tables of Internal Conversion Coefficients	L.A. Sliv, I.M. Band	1965	Published in book "Alpha-, Beta- and Gamma-Spectroscopy", Volume 2, edited by K. Siegbahn, North Holland Publ. Co. (1965). Reprinted from book "Gamma-Rays" (Acad. Sci. USSR, Moscow-Leningrad, 1961).
Tables of the Conversion Matrix Elements and Phases	I.M. Band, M.A. Listengarten, L.A. Sliv	1965	Published in book "Alpha-, Beta- and Gamma-Spectroscopy", Volume 2, edited by K. Siegbahn, North Holland Publ. Co. (1965).
Particle Parameters for Angular Correlations of Conversion Electrons	I.M. Band, M.A. Listengarten, I.A. Sliv, J.E. Thun	1965	Published in book "Alpha-, Beta- and Gamma-Spectroscopy", Volume 2, edited by K. Siegbahn, North Holland Publ. Co. (1965).
Tables of Integral Conversion Coefficients and Particle Parameters	H.C. Pauli	1967	Published as Report C00-1420-137, USAEC Chicago Operations Office, Ill.
Internal Conversion Tables:			
<u>Part I</u> : K-, L-, M-Shell Conversion Coefficients for $Z=30$ to $Z=103$	R.S. Hager, E.C. Seltzer	1968	Published in NDT <u>A4</u> , 1-235.
<u>Part II</u> : Directional and Polarization Particle Parameters for $Z=30$ to $Z=103$	R.S. Hager, E.C. Seltzer	1968	Published in NDT <u>A4</u> , 397-641.
<u>Part III</u> : Coefficients for Analysis of Penetration Effects in Internal Conversion and E_0 Internal Conversion	R.S. Hager, E.C. Seltzer	1969	Published in NDT <u>A6</u> , 1.
Internal Conversion Coefficients for Atomic Numbers $Z \leq 30$	I.M. Band et al.	1976	Published as report I.YaF-235 (in Russian), English translation published by IAEA/NDS as report INDC(CEP)-92/N (July 76) and in ADNDT <u>18</u> , 433-458.
* Internal Conversion Coefficients for all Atomic Shells. <u>Part I</u> : ICC Values for $Z=30-67$ <u>Part II</u> : ICC Values for $Z=68-104$	F. Rösler, H.M. Fries, K. Alder, H.C. Pauli	1978	Published in ADNDT <u>21</u> , 91-289. Published in ADNDT <u>21</u> , 292-513.
* Internal Conversion Coefficients for E5 and M5 Nuclear Transitions, $30 \leq Z \leq 104$	I.M. Band, M.B. Trzhaskovskaya, M.A. Listengarten	1978	Published in ADNDT <u>21</u> , 1-48.
* The Internal Conversion Coefficients of the 2^+-0^+ , E2 Nuclear Transitions in Even-Even Nuclei	M. Mladjenovic, M. Zupancic, R. Vukanovic	1978	Published in ADNDT <u>22</u> , 109-124.
A Survey on Internal Conversion	H. Hansen, B. Martin, et al.		This work is just starting, and will be published as a ZAED report.
Contribution of Outer Atomic Shells to Internal Conversion Coefficients	O. Dragoun, Z. Flajner and F. Schmutzler	1971	Published in NDT <u>A9</u> , 119.
Tables of Internal Conversion Coefficients for N-Subshell Electrons	O. Dragoun, H.C. Pauli, F. Schmutzler	1969	Published in NDT <u>A6</u> , 235.
Tables of Approximate Internal Conversion Coefficients for N_6-N_7 , O_1-O_7 , P_1-P_5 and Q_1 Atomic Subshells	O. Dragoun, Z. Flajner and F. Schmutzler	1969	Published as report MPIH-1969-V5, of the Max-Planck-Institut fuer Kernphysik, Heidelberg.
Internal Conversion Coefficients for High-Energy Transitions	V.F. Trusov	1972	Published in NDT <u>10</u> , 477-510.
Contributions of (M+N...) Shells to Total Internal Conversion Coefficients for Transition Energies above 500 KeV	O. Dragoun, V. Brabec	1975	Published in ADNDT <u>15</u> , 49-56.
Orbital Electron Capture by the Nucleus	W. Bambynek, H. Behrens et al.	1977	Published in Rev. Mod. Phys. <u>49</u> , 77-221.

ATOMIC PROCESSES

Title	Author(s)	Pub. Date	Reference and Comments
* Recommended Atomic Electron Binding Energies, 1s to 6p _{3/2} for the Heavy Elements, Z= 84 to 103	F.T. Porter, M.S. Freedman	1978	Published in J. Phys.Chem.Ref. Data Vol. 7, No. 4, 1978.
X-Ray Wavelengths	J.A. Bearden	1967	Published in Rev. Mod. Phys. <u>39</u> , 78.
X-Ray Atomic Energy Levels	J.A. Bearden, A.F. Burr	1967	Published in Rev. Mod. Phys. <u>39</u> , 125.
K X-Ray Transition Probabilities	G.C. Nelson, B.C. Saunders, S.I. Salem	1970	Published in At. Data <u>1</u> , 377.
L X-Ray Transition Probabilities	S.I. Salem, C.W. Schultz	1971	Published in At. Data <u>3</u> , 215.
Experimental Widths of K and L X-Ray Lines	S.I. Salem and P.L. Lee	1976	Published in ADNDT <u>18</u> , 233-242.
Calculation of K and L X-Rays for Elements of Z=95 to 130	T.A. Carlson, C.W. Nestor, Jr.	1977	Published in ADNDT <u>19</u> , 153-173.
Theoretical L-Shell Coster-Kronig Energies $11 \leq Z \leq 103$	M.H. Chen, B. Crasemann, K.N. Huang, M. Ayoyagi, H. Mark	1977	Published in ADNDT <u>19</u> , 97-151.
X-Ray Fluorescence Yields, Auger and Coster-Kronig Transition Probabilities	W. Bambynek et al.	1972	Published in Rev. Mod. Physics <u>44</u> , 716 (1972). Will be updated, especially for the L-shell fluorescence, this work is just starting, and will be published as ZAED report.
Auger Catalog: Calculated Transition Energies listed by Energy and Element	W.A. Coghlan, R.E. Clausing	1973	Published in AD <u>5</u> , 317-469.
Directory to Auger Electron Data - 1973		1973	Published in AD <u>5</u> , 471.
Non-relativistic K-shell Auger Rates and Matrix Elements for $4 \leq Z \leq 54$	D.L. Walters, C.P. Bhalla	1971	Published in AD <u>3</u> , 301.
Calculated K Auger-Electron and K X-Ray Transition Energies for the Multiply Ionized Neon Atom	D.L. Mathews, B.M. Johnson and C.F. Moore	1975	Published in ADNDT <u>15</u> , 41.
Semi Empirical Auger-Electron Energies for Elements $10 \leq Z \leq 100$	F.P. Larkins	1977	Published in ADNDT <u>20</u> , 131-387.