THE AUSTRALIAN NATIONAL UNIVERSITY

ENSDF related activities (2019-2022)

Tibor Kibèdi (ANU)

Men power & ENSDF evaluations

TK retired in Nov 2020, Continue nuclear data related work at ANU (office, access to Library)

Jackson Dowie: completed PhD in 2021 expressed interest in BrIcc, NNDC contract to work on XUNDL

Bryan Tee: completed PhD in 2022, currently at CSRIO, working on NS_RadList

Mass chain evaluations:

172	B. Singh, T. Kibèdi	Review completed (Dec 2018) Final revision in progress (BS)
173	T. Kibèdi	In preparation
174	E. Browne, J.K. Tuli, T. Kibèdi	Z=66-69 (EB, JKT, submitted for review) Z=70-80 (TK in progress)

Mass Chain review:

- A=162 (Nica, 2022)

Decay Data for Monitoring Applications:

Evaluations

- ^{137}Cs β^- completed (Aug 2022)
- ^{136}Cs β^- in preparation
- ^{131}I β^- in preparation

Review

- ^{105}Sb to be completed 15-Nov-2022, ^{127}Sb β^-, ^{143}Ce β^-

Horizontal evaluations

Table of electronic factors for E0 electron and electron-positron pair conversion transitions (2020Do01)

- Ω_{CE} (E0), Z=5-126, based on modified version of CATAR (Pauli et al. 1975Pa26)
- Ω_{IPF} (E0), Z=4-100), based on Wilkinson 1969Wi29
- All atomic shells, fully compatible with BrIcc

Contents lists available at ScienceDirect

Atomic Data and Nuclear Data Tables

journal homepage: www.elsevier.com/locate/adt

Table of electronic factors for E0 electron and electron–positron pair conversion transitions

J.T.H. Dowie, T. Kibédi *, T.K. Eriksen [1], A.E. Stuchbery

Department of Nuclear Physics, Research School of Physics and Engineering, The Australian National University, Canberra, ACT 2601, Australia

Electric monopole transitions in nuclei (2022Ki03)

- Update of 2005Ki02;
  187 pure E0
- Evaluation of E0+E2+M1 between J>0 states
  95 mixed E0+E2+M1
- Analysis based on MC
- $\Omega_{CE,IPF}$(E0) from Dowie et al. 2020Do01

Progress in Particle and Nuclear Physics 123 (2022) 103930

Contents lists available at ScienceDirect

Progress in Particle and Nuclear Physics

journal homepage: www.elsevier.com/locate/ppnp

Review

Electric monopole transitions in nuclei

T. Kibédi [a,*], A.B. Garnsworthy [b], J.L. Wood [c]

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[b] *TRIUMF, 4004 Wesbrook Mall, Vancouver, BC, V6T 2A3, Canada*
[c] *School of Physics, Georgia Institute of Technology, Atlanta, GA 30332, USA*

Code developments

Codes released and maintained by the ANU

- BrIcc 2.3e (17-Jun-2020)
- BrIccMixing 2.3e (14-Aug-2020)
- GABS (20-Jun-2021)
- AveTools (10-Dec-2014)

Codes Under development/testing

- NS_RadList & UncTools: α testing (since Jul-2022)

More on Thursday morning

ENSDF related meetings & talks

- 2019 TM on Nuclear data on monitoring (IAEA)
- 2019 GEANT4 workshop (Wollongong)
- 2019 NSDD (IAEA)
- 2020 TM on Nuclear data on monitoring (IAEA, remotely)
- 2020 DDEP workshop (Saclay, remotely)
- 2021 ENSDF code developments (IAEA, remotely)
- 2022 TM on Nuclear data on monitoring (IAEA)
- 2022 ICTP/TRISTE workshop (remotely)
- 2022 INDC, B. Tee was invited to talk on NS_RadList

ENSDF related publications

- **Dowie, Kibédi, Eriksen, Stuchbery,** Table of electronic factors for E0 electron and electron-positron pair conversion transitions, ADNDT **131** (2020) 101283
- **Kibédi, Gamsworthy, Wood, Electric monopole transitions in nuclei, Prog. Part. Nucl. Phys.** 123 (2022) 103930

- Sampaio, et al., *Simulation of ^{125}I Auger emission spectrum with new atomic parameters from MCDHF calculations,* J. Quantitative Spectroscopy & Radiative Transfer 277 (2022) 1
- Bakr S, et al., *A benchmarking study of Geant4 for Auger electrons emitted by medical radioisotopes,* App. Radiation and Isotopes 174(2021)
- Idrissou, et al., *Targeted radionuclide therapy using auger electron emitters: The quest for the right vector and the right radionuclide,* Pharmaceutics 13, 7(2021) 1-21
- *Tee, et al., High-resolution conversion electron spectroscopy of the i 125 electron-capture decay,* Physical Review C: Nuclear Physics 100, 3(2019)

- Tárkányi, et al., *Recommended nuclear data for medical radioisotope production: diagnostic gamma emitters*
  Journal of Radioanalytical and Nuclear Chemistry 319, 2(2019) 487-531
- Tárkányi, et al., *Recommended nuclear data for medical radioisotope production: diagnostic positron emitters,* Journal of Radioanalytical and Nuclear Chemistry 319, 2(2019) 533-666