

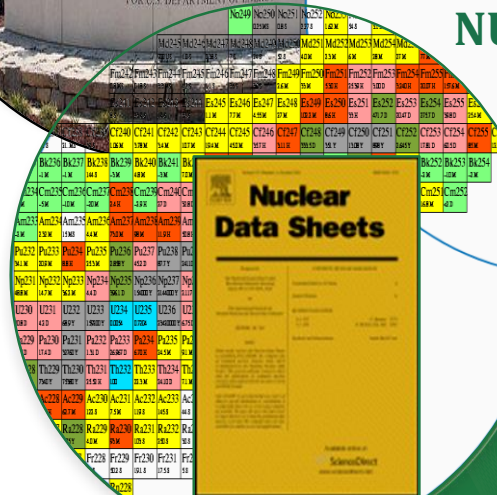
STATUS REPORT ON NUCLEAR STRUCTURE AND DECAY DATA ACTIVITIES AT OAK RIDGE NATIONAL LABORATORY

USNDP 2017

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& Murray Martin



NUCLEAR DATA PROGRAM



Members:

- **Michael Smith**: Group Leader for Experimental Astrophysics & Nuclear Data - nuclear astrophysics data, online software systems
- **Caroline Nesaraja**: Research Staff Member - ENSDF evaluator, XUNDL compiler, and experimentalist
- **Murray Martin**: Subcontractor - ENSDF evaluator and consultant

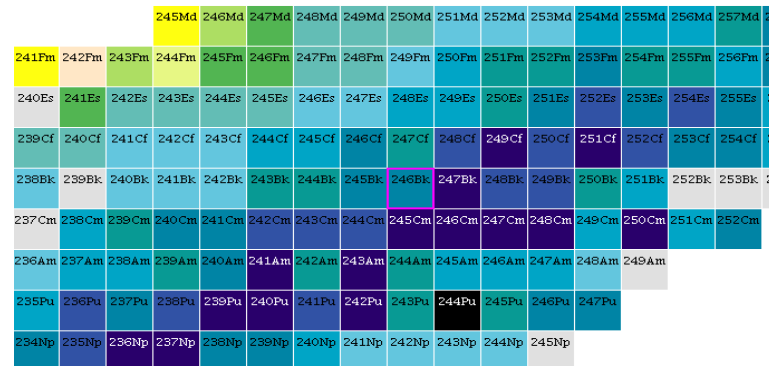
Activities:

- Nuclear Structure Data (**ENSDF and XUNDL**)
- Nuclear Astrophysics Data
- Online Software Systems

Nuclear Structure Data:

Mass Chain Evaluation

ORNL responsibility: A=241-249



Mass Chain

Current ENSDF Database (from NNDC website)

241	C.D. Nesaraja. NDS 130, 183 (2015)	(Lit cut-off June, 2005)
242*	Y. A. Akovali. NDS 96, 177 (2002)	(Lit cut-off Sept., 2001)
243	C.D. Nesaraja & E.A. McCutchan. NDS 121, 695 (2014)	(Lit cut-off Sept., 2013)
244*	Y. A. Akovali : NDS 99, 197 (2003)	(Lit cut-off June, 2002)
245	E. Browne & J.K. Tuli. NDS 112,447 (2011)	(Lit. cut-off June, 2010)
246	E. Browne & J.K. Tuli. NDS 112,1833 (2011)	(Lit. cut-off Jan., 2011)
247	C. D. Nesaraja :NDS 125, 395 (2015)	(Lit. cut-off March, 2014)
248	M.J. Martin :NDS 122, 377 (2014)	(Lit. cut-off Sept., 2014)
249	K. Abusaleem: NDS 112, 2129 (2011)	(Lit. cut-off Dec. 2010)

* Will be updated soon (under various stage of ENSDF processing)

ENSDF

1. Evaluations

Status of mass chain evaluations since October 2016

Mass Chain	Evaluator	#Nuclides	Status
242	Martin	9	submitted to NNDC – now with ORNL
244	Nesaraja	9	post review- now with NNDC

2. Review

A= 76 (C. Nesaraja)

A= 217 (C. Nesaraja)

3. Guidelines for Evaluators

Final version- May 2017 (M. Martin)

Providing prompt and convenient experimental nuclear-structure data of current publications

Caroline Nesaraja- since Oct. 2013

As of October 2016, due to request from XUNDL manager for ORNL either to stop entirely or cut back XUNDL effort, ORNL has opted to cut back

Reasons stated in emails from XUNDL manager in April 2016:

- i) 9 compilers- a lot to coordinate and seems excessive
- ii) Google drive is empty a lot of the time- lack of papers
- iii) NNDC wanting to hire contractors for XUNDL

Status of XUNDL compilations:

FY 2017

11.5 papers/ 15 datasets

XUNDL: FY2017

192Po: 144Sm(51V,p2ng) (2016An10)
194Po: 141Pr(56Fe,p2ng) (2016An10)
41Ca: 27Al(16O,png) (2016Bh07)
234U: 238Pu a decay (2016Di11)
235U: 239Pu a decay (2016Di11)
237Np: 241Am a decay (2016Di11)
75As: 70Zn(9Be, p3ng) (2017Li02)
117Ba: 64Zn(58Ni, 2p3ng) (2017Di02)
169Tm: 169Tm(32S, 32S'g) (2017As01)
124Te: 124Te(n,n'g)(2017Hi02)
66Ga: 56Fe(12C,png)(2017Bh05)
168Tb: 168Tb IT decay (2017Gu24)
*124Xe: 124Cs EC decay (2017Ra20)
*124Cs: 124Cs IT decay (2017Ra20)
219Ra: 208Pb(14, 3ng)(2017He15)
107Mo: 252Cf SF decay (2017MaAA)
*with B. Singh

Future Work

- ENSDF- Mass chain evaluation
- XUNDL- Compilation as requested by NNDC
- Horizontal Evaluation – LBNL
- Murray Martin's continuous guidance and expert consultation
 - benefiting both US and international ENSDF community
- Astrophysics Data Activities

FY18 CR Impact

(based on a total new budget allocation of 400k)

- Cessation of all Nuclear astrophysics data activities
- Cessation of online software activities
- Reduction in nuclear structure data evaluations
- Loss of PI (0.2 FTE)
- Loss of structure evaluator (0.15 FTE)
- Loss of student

* Month of Impact April 2018