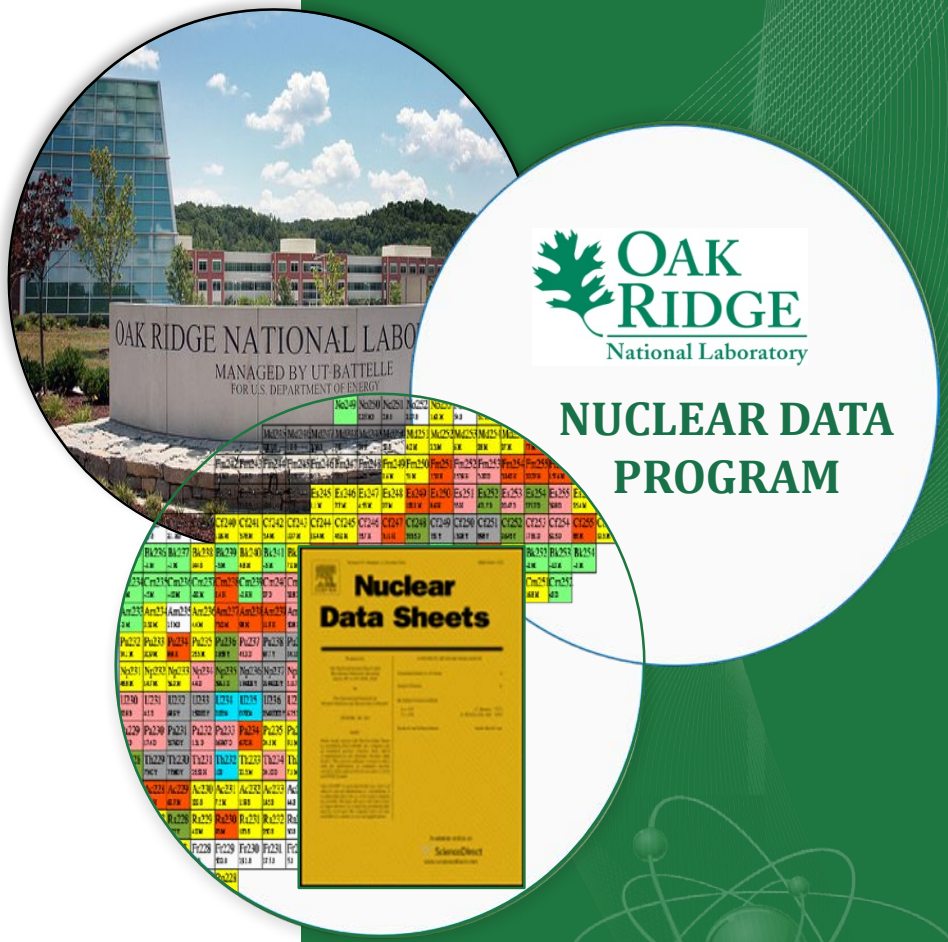
STATUS REPORT ON NUCLEAR STRUCTURE AND DECAY DATA ACTIVITIES AT OAK RIDGE NATIONAL LABORATORY



22nd Technical Meeting of the Nuclear Structure and Decay Data (NSDD) Network

Caroline Nesaraja, Michael Smith,

& Murray Martin

ORNL is managed by UT-Battelle
for the US Department of Energy

OAK RIDGE National Laboratory

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
- **Eric Lingerfelt**: Lead Software Developer - online software systems
- **Chris Smith** (till August 2016): Student - nuclear astrophysics data and XUNDL Compiler

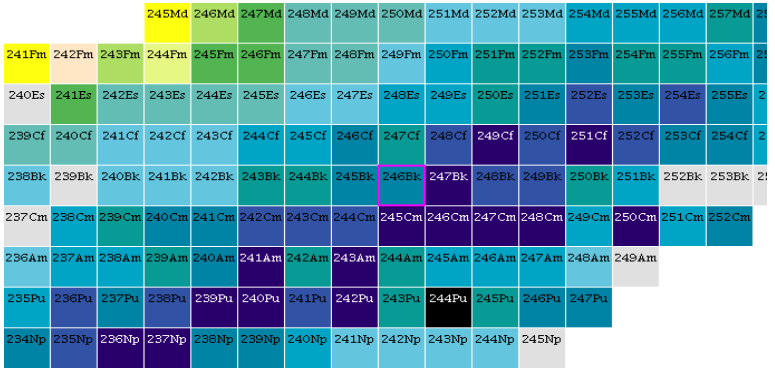
Activities:

- **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 the last NSDD meeting in 2015

Mass Chain	Evaluator	#Nuclides	Status
41	Nesaraja & McCutchan	10	Published
241	Nesaraja	8	Published
242	Martin	12	To be submitted soon
244	Nesaraja	9	Post Review

2. **Reviews:** M. Martin & C. Nesaraja
(A=40 and A=76)

3. **Guidelines for Evaluators** : M. Martin
(under final revision)

XUNDL

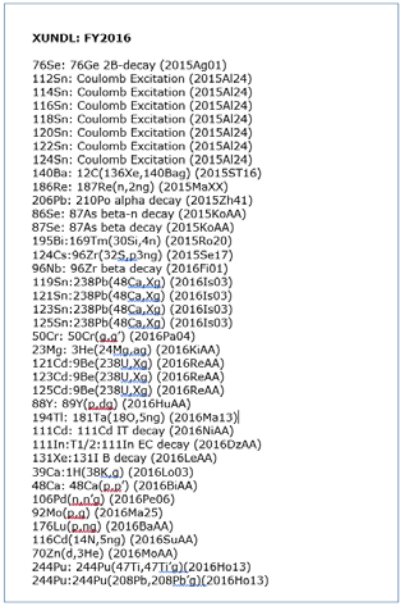
Critical compilation of current papers -XUNDL

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

Caroline Nesaraja- since Oct. 2013
Chris Smith- August 2014 - August 2016

XUNDL: FY2015

66Ge: Coulomb Excitation (2013Co23)
66Ge: 9Be(66Ge,Ge'γ) (2013Co23)
66Ge: 9Be(67As,Ge'γ) (2013Co23)
67As: Coulomb Excitation (2013Co23)
67As: 9Be(67As,67As'γ) (2013Co23)
41Sc: 40Ca(p,γ) (2014Sc05)
220Th: 224U a decay (2014Lo10)
221Th: 206Pb(22Ne,A3N) (2104Lo10)
37Mg: C(37Mg,37Mgg) (2014Ko14)
36Mg C(37Mg,36Mgg) (2014Ko14)
208Pb: 208Pb(p,p') (2014He09)
207Pb: 207Pb(p,p') (2014He09)
48Ca: 48Ca(α,α'γ) (2014De04)
240Pu: 240Pu SF Decay (2013Sa65)
242Pu: 242Pu SF Decay (2013Sa65)
27P: Coulomb Excitation (2013Xu13)
28S: Coulomb Excitation (2013Xu13)
35Si: 2H(34Si,p) (2014Bu01)
37S: 2H(37S,p) (2014Bu01)
107In: Coulomb Excitation (2013Di01)
58Ti: 1H(58TI,58TI'G)(2013SU20)
45Fe: Ni(58Ni,X) (2012Au08)
43Cr: 45Fe2p (2012Au08)
43Cr: Ni(58Ni,X) (2012Au08)
42Ti: 43Crb+p Decay(2012Au08)
41Sc: 43Crb+2p Decay(2012Au08)
40Ca: 43Crb+3p Decay(2012Au08)
49Mn: 43Crb+p Decay(2012Au08)
51Ni: Ni(58Ni ,X) (2012Au08)
24Mg: 93NB(24MG,24MG'G):(2015Ku05)
147Pm:151Eu A Decay: (2012Da16)
149Pm:153Eu A Decay: (2012Da16)
149Sm:149 B Decay: (2012Da16)
122Te: 122I[+53] B+ Decay (2012At01)
122Te: 122I[+52] EC Decay (2012At01)
9Be(132Xe, X) (2012At01)



XUNDL: FY2016

76Se: 76Ge 2B-decay (2015Ag01)
112Sn: Coulomb Excitation (2015Al24)
114Sn: Coulomb Excitation (2015Al24)
116Sn: Coulomb Excitation (2015Al24)
118Sn: Coulomb Excitation (2015Al24)
120Sn: Coulomb Excitation (2015Al24)
122Sn: Coulomb Excitation (2015Al24)
124Sn: Coulomb Excitation (2015Al24)
140Ba: 12C(136Xe,140Bag) (2015ST16)
186Re: 187Re(n,2ng) (2015MaXX)
206Pb: 210Po alpha decay (2015Zh41)
86Se: 87As beta-n decay (2015KoAA)
87Se: 87As beta decay (2015KoAA)
195Bi:169Tm(30Si,4n) (2015Ro20)
124Cs:96Zr(32S,p3ng) (2015Se17)
96Nb: 96Zr beta decay (2016Fi01)
119Sn:238Pb(48Ca,Xg) (2016Is03)
121Sn:238Pb(48Ca,Xg) (2016Is03)
123Sn:238Pb(48Ca,Xg) (2016Is03)
125Sn:238Pb(48Ca,Xg) (2016Is03)
50Cr: 50Cr(g,g') (2016Pa04)
23Mg: 3He(24Mg,ag) (2016KiAA)
121Cd:9Be(238U,Xg) (2016ReAA)
123Cd:9Be(238U,Xg) (2016ReAA)
125Cd:9Be(238U,Xg) (2016ReAA)
88Y: 89Y(p,dg) (2016HuAA)
194Tl: 181Ta(18O,5ng) (2016Ma13)
111Cd: 111Cd IT decay (2016NiAA)
111In:T1/2:111In EC decay (2016DzAA)
131Xe:131I B decay (2016LeAA)
39Ca:1H(38K,g) (2016Lo03)
48Ca: 48Ca(p,p') (2016BiAA)
106Pd(n,n'g) (2016Pe06)
92Mo(p,g) (2016Ma25)
176Lu(p,ng) (2016BaAA)
116Cd(14N,5ng) (2016SuAA)
70Zn(d,3He) (2016MoAA)
244Pu: 244Pu(47Ti,47Ti'g)(2016Ho13)
244Pu:244Pu(208Pb,208Pb'g)(2016Ho13)

Status of XUNDL compilations:

FY 2015

36 datasets (15 papers)

FY 2016

39 datasets (26 papers)

FY 2017

Based on request from XUNDL coordinator,
ORNL will be compiling 12 papers/year for FY2017