

LLNL contributions to ENDF-B-VII

(a partly random collection of data we haven't gotten around to submitting...)

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How to submit?

- Evaluations are all cross section data
- Submit full evaluations? or is partial OK?
- If need full, how to get extras (at least for the cases where we can't steal from existing evaluation)?
 - Resonance data?
 - Outgoing distributions? Probably run EMPIRE then swap
- Far off stability, no use in transporting products, just want production/depletion info in applications

Charged particle cross sections (all new!)

- $d+{}^3\text{He} \langle \boxtimes \rangle p + \alpha$
- $d+{}^6\text{Li} \langle \boxtimes \rangle 2\alpha$
- $d+{}^9\text{Be} \langle \boxtimes \rangle p+{}^{10}\text{Be}, p+{}^{10}\text{Be}^*, t+{}^8\text{Be}, \alpha+{}^7\text{Li}, \alpha+{}^7\text{Li}^*$
- $d+{}^{10}\text{B} \langle \boxtimes \rangle \alpha+{}^8\text{Be}, \alpha+{}^8\text{Be}^*$
- $d+{}^{11}\text{B} \langle \boxtimes \rangle \alpha+{}^9\text{Be}, \alpha+{}^9\text{Be}^*$
- $p+{}^9\text{Be} \langle \boxtimes \rangle 2\alpha + d, \alpha+{}^6\text{Li}$
- $p+{}^{10}\text{B} \langle \boxtimes \rangle \alpha+{}^7\text{Be}$
- $p+{}^{11}\text{B} \langle \boxtimes \rangle \alpha+{}^8\text{Be}$

Jeff McAninch
Scott McKinley

Also, peer review of G. Hale evaluations

Rare Earths

- neutron reactions for Br, Kr, I, Xe, Sm
- charged particle for Eu, Gd
- up to 2 units off-stability, “new isotopes”
- no resonance data, outgoing particle distributions

Rob Hoffman

Cross section, model-based evaluations for radiochemistry applications

- Calculations performed with modified STAPRE & ECIS
 - (n,g), (n,n'), (n,p), (n,a), (n,2n) ONLY
 - Parameters based on local systematics
 - Extensively documented
 - Including a few renormalizations to data
- $Z = 21$ Sc $43 < A < 49$
 - $Z = 22$ Ti $45 < A < 50$
 - $Z = 23$ V $47 < A < 51$
 - $Z = 24$ Cr $47 < A < 53$
 - $Z = 25$ Mn $51 < A < 54$
 - $Z = 26$ Fe $52 < A < 60$
 - $Z = 27$ Co $A = 59$
 - $Z = 28$ Ni $58 < A < 64$

Continued... (about 170 targets in all)

- $Z = 34$ Se $75 < A < 81$
- $Z = 35$ Br $76 < A < 82$
- $Z = 36$ Kr $77 < A < 86$
- $Z = 37$ Rb $78 < A < 87$
- $Z = 38$ Sr $84 < A < 88$
- $Z = 39$ Y $85 < A < 89$
- $Z = 40$ Zr $87 < A < 96$
- $Z = 41$ Nb $A = 93$
- $Z = 42$ Mo $92 < A < 100$
- $Z = 43$ Tc $A = 99$
- $Z = 51$ Sb $A = 121, 123$
- $Z = 52$ Te $123 < A < 128$
- $Z = 53$ I $124 < A < 129$
- $Z = 54$ Xe $125 < A < 130$
- $Z = 55$ Cs $A = 133$
- $Z = 62$ Sm $144 < A < 155$
- $Z = 63$ Eu $145 < A < 156$
- $Z = 64$ Gd $146 < A < 160$
- $Z = 69$ Tm $165 < A < 172$

Actinides

David Brown
Walid Younes

- Collaboration w/ LANL
- Surrogate fission cross sections
- $^{232-241}\text{U}(n,\gamma)$, (n,f) , $(n,2n)$ peer review/fixes
- Other actinide peer review/fixes in progress

Miscellaneous

Dennis McNabb
Walid Younes

- $^{75}\text{As}(n,2n)^{74,74\text{m}}\text{As}$ (new reaction!)
- Lot's of thermal neutron capture gamma data in progress