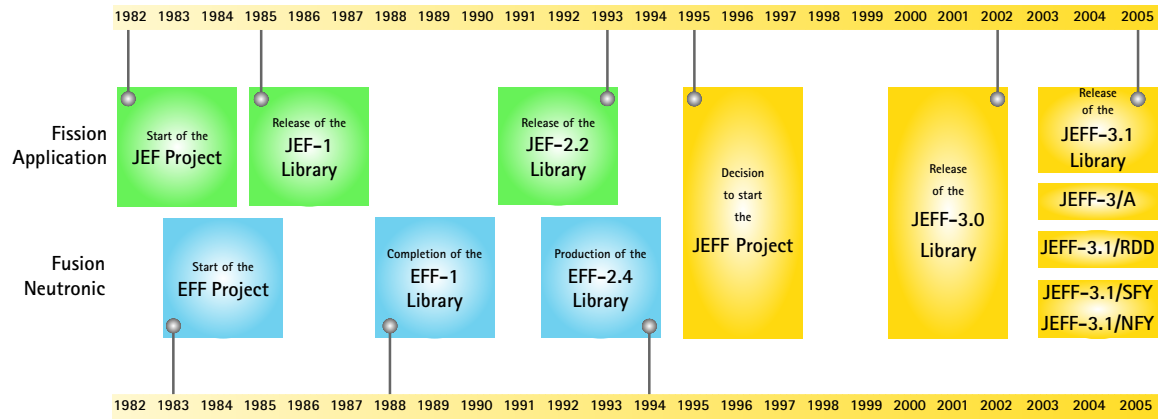


Status of the JEFF project

- General
- Organisation
- The JEFF-3.1 release
- Validation and benchmarking
- Plans for JEFF-3.2

Arjan Koning
NRG, Petten, the Netherlands
WPEC-meeting, Antwerpen, April 8-9, 2005

History



Organisation

- General meeting: Evaluations, processing and benchmarking
- Working Groups:
 - Experimental activities: Peter Rullhusen, IRMM
 - Radioactive Decay and Fission Yield data: Olivier Bersillon, CEA/DAM
 - Fusion data (EFF group) : Robin Forrest, UKAEA
- Chair: Arjan Koning, NRG
- Secretariat : Yolanda Rugama and Hans Henriksson , NEA Data Bank

Two JEFF-meetings per year, with 30-40 participants

The JEFF-3.1 release

JEFF-3.1 will be released in May 2005:

- Neutron General Purpose file
- Decay Data and Fission Yields file
- Neutron Activation file
- Thermal scattering data file
- Proton file

JEFF-3.1T3 file frozen and ready for testing: March 11 2005.

JEFF-3.1: Neutron General Purpose file



AN ECN KEMA COMPANY

New data for neutrons:

- Ca-40, 42, 43, 44, 46, 48 (0-200 MeV, NRG)
- Sc-45 (0-200 MeV, NRG)
- Ti-46, 47, 48, 49, 50 (0-20 MeV, IRK Vienna)
- Fe-54, 56, 57, 58 (0-200 MeV, NRG)
- Ge-70, 72, 73, 74, 76 (0-200 MeV, NRG)
- Tc-99 (0-200 MeV, CEA/Saclay/Cad, NRG)
- Rh-103 (0-20 MeV, CEA/Cad)

JEFF-3.1: Neutron General Purpose file


AN ECN KEMA COMPANY

- I-127, 129 (0-20 MeV, CEA/Cad)
- Hf-174,176,177,178,179,180 (0-20 MeV, CEA/Cad)
- W-182, 183, 184, 186 (0-20 MeV, IRK Vienna, end of 2005)
- Pb-204, 206, 207, 208 (0-200 MeV, NRG)
- Bi-209 (0-200 MeV, NRG)
- U-236, 237 (0-30 MeV, CEA/BRC)
- U-238 (0-30 MeV, CEA)
- Am-241 (thermal, CEA)

JEFF-3.1: Neutron General Purpose file



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- 381 isotopic evaluations.
- Update of source evaluations of JEFF-3.0 (e.g. JENDL-3.2 → JENDL-3.3)
- Alternative choices for evaluations from other libraries if there is a clear indication to change them.
- 8 time group structure for delayed neutrons for most actinides (WPEC/SG6).
- Various small changes to correct format errors and to ensure proper NJOY-processing.

JEFF-3.1: Thermal scattering data

- H in H₂O (New, UT Stuttgart)
- H in ZrH (New, UT Stuttgart)
- H in CaH₂ (New, CEA)
- D in D₂O (New, UT Stuttgart)
- Be (UT Stuttgart)
- Graphite (New, UT Stuttgart)
- H in CH₂ (UT Stuttgart)
- Mg (New, CEA)
- Ca in CaH₂ (New, CEA)

JEFF-3.1: Decay Data and Fission Yield file

 AN ECN KEMA COMPANY

- Very complete: 3852 nuclei (226 stable)
- Various consistency checks applied.
- Neutron induced FY: 19 isotopes from Th-232 to Cm-245.
- Spontaneous FY: 3 isotopes; Cm-242, Cm-244 and Cf-252.
- Decay heat benchmarks foreseen at BNFL, UKAEA and CEA.

JEFF-3.1: Activation Data and proton data



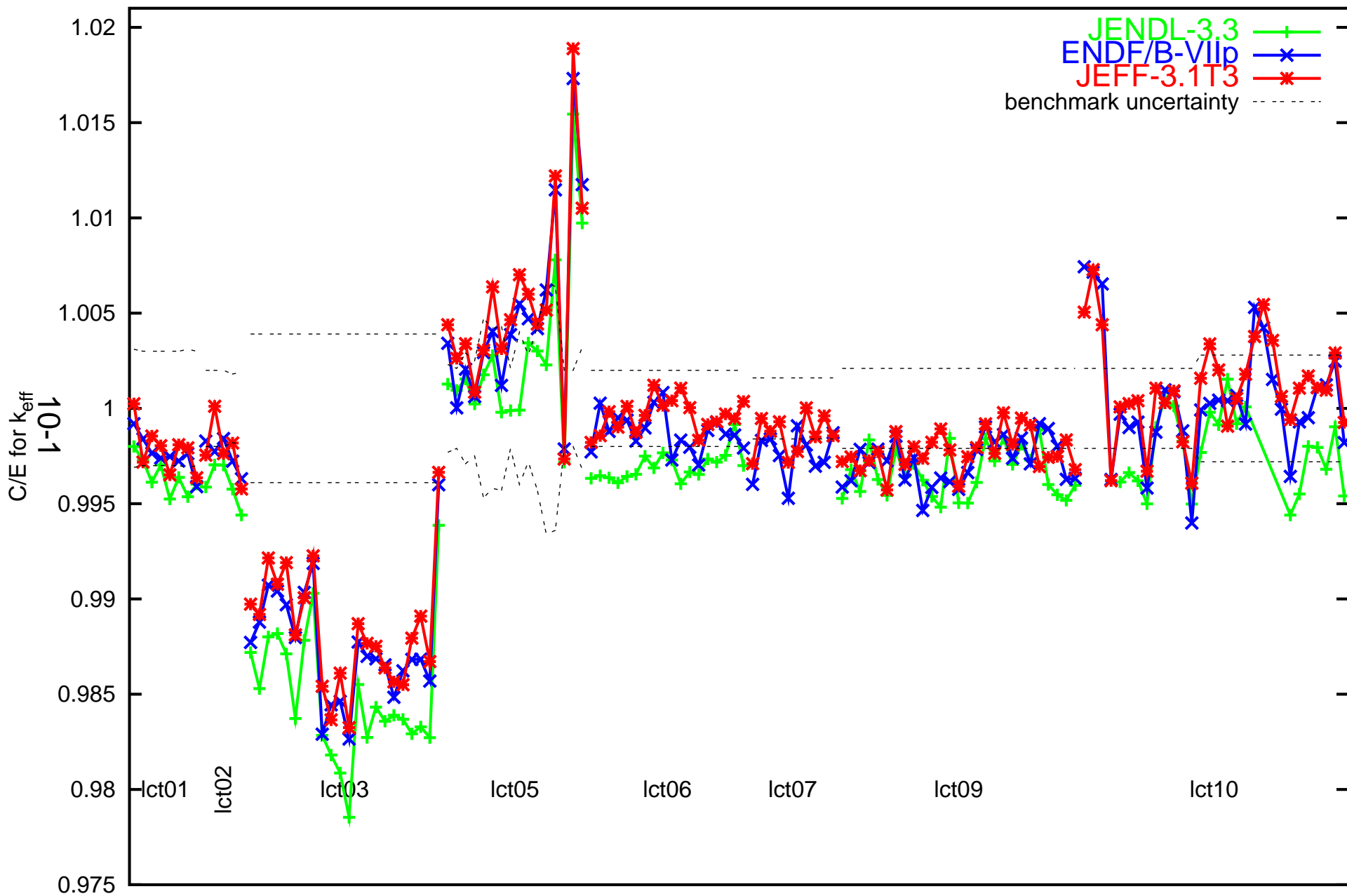
NRG
AN ECN KEMA COMPANY

- JEFF3.1/A = JEFF-3.0/A = EAF-2003 in ENDF-6 format
- Proton data libraries for 26 isotopes (NRG-2004).

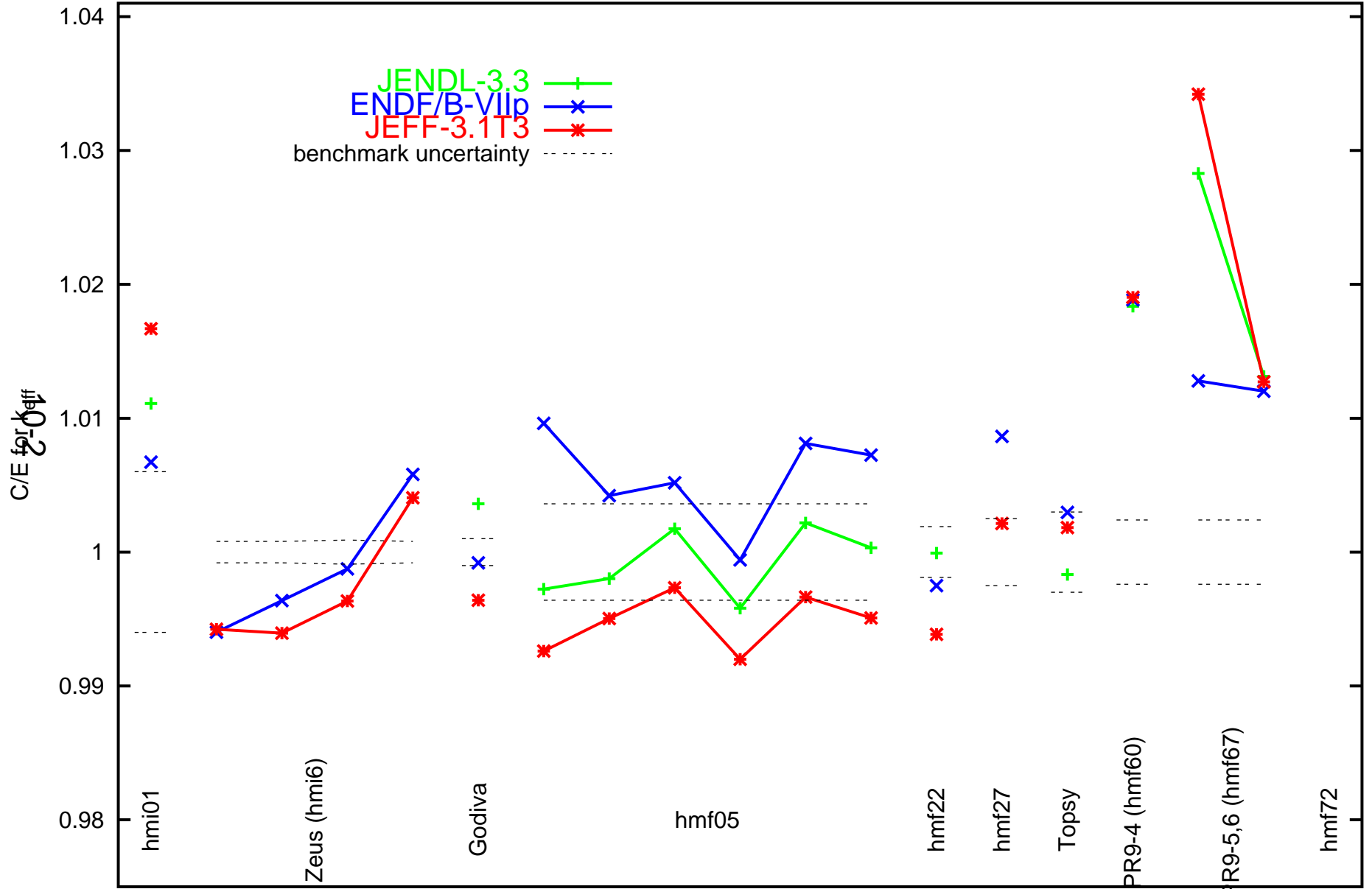
Validation and benchmarking

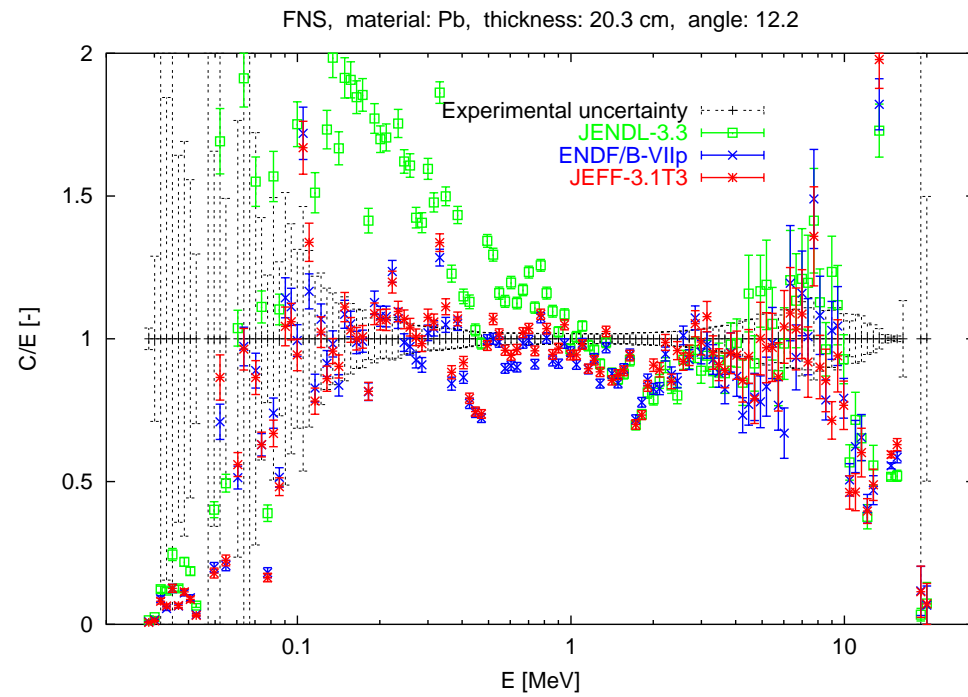
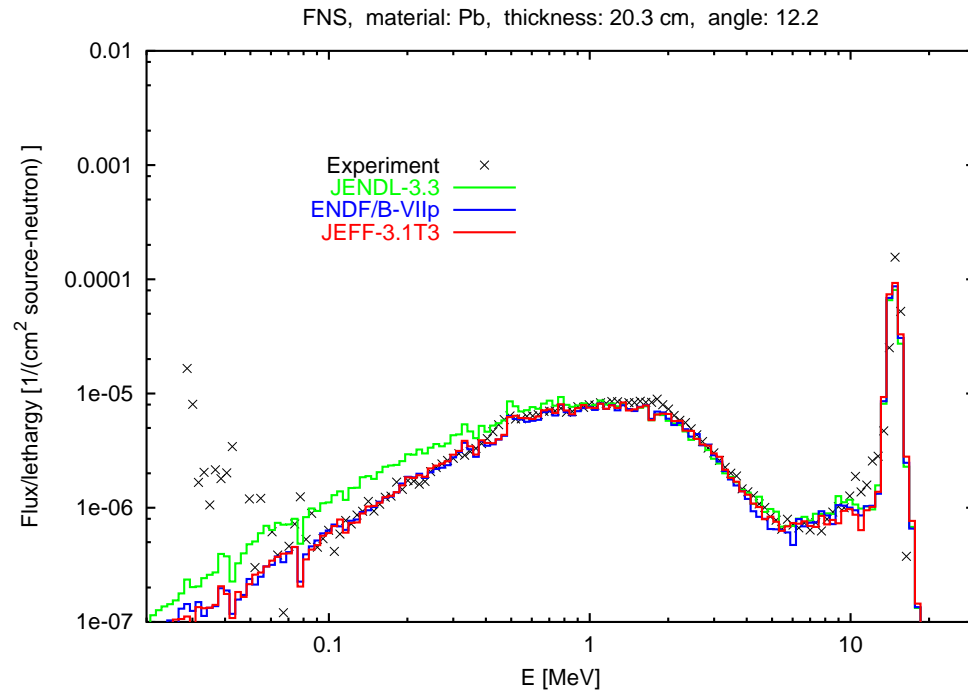
- Extensive benchmarking schemes for JEFF-3.0 (mostly criticality)
- Test results expected from CEA, NRG, SERCO and VTT.
- Promising progress for U-238 file (CEA)
- Activation and shielding benchmarks for EFF

leu-comp-therm (1)



heu-met-fast, heu-met-inter





Plans for JEFF-3.2

- Testing and revision of fission products.
- More emphasis on minor actinides.
- Testing and revision of U-235.
- Adoption of EAF-2005 or EAF-2007 for activation (up to 60 MeV).
- If available, inclusion of more covariance data.