
NEA-1730: ZZ-COV-15GROUP-2006 - Covariance Data Review

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- ZZ-COV-15GROUP is a 15-group cross section covariance matrix library presenting a general overview of the presently available data. The library includes the covariance matrices from various evaluations: ENDF/B-V, /B-VI.8, JENDL-3.3, JEFF-3.0, IRDF-2002 and IAEA.
- The code ANGELO for the interpolation of the covariance matrices from the original to a user defined energy structure is also included for the convenience of the users. Note nevertheless that the algorithm used in the ANGELO code is relatively simple, therefore the interpolations involving energy group structures which are very different from the original one (like large difference in number of energy groups) are to be avoided as they may not be accurate.

List of processed matrices by origin

- **ENDF/B-V** processed by NJOY/ERROR or ANGELO for:
H1, Li6, B10, natC, N14, O16, natPb, U235, Pu241, Np237
Notes:
10B: reactions except MT=107, which should be taken from IRDF2002 (error - zero above ~1.3MeV)
241Pu: zero for $E < \sim 20\text{eV}$ => not recommended
237Np: strange values below $\sim 20\text{eV}$ => not recommended
- **ENDF/B-VI.8** processed by NJOY/ERROR for:
Li7, F19, Na23, natSi, Cr52, 56, Fe57, Pb206, 207, 208, Bi209, Th232, U235, 238, Pu240
- **JEFF-3.0** processed by NJOY/ERROR and ANGELO for:
Be9, Si28, Fe56, Ni58
- **JENDL-3.3:** processed by ERROR-J for :
Zr90, U238*, Pu239, 240, 241**
Notes:
238U: zero or very low values at some energies, for MT=18 & 102 use of IRDF-2002 is recommended
241Pu: $\sim 20\text{eV}$ unrealistically low uncertainties (due to processing or data).
- **IRDF-2002** processed by NJOY/ERROR for:
Li6(n,t), B10(n,a), F19(n,2n), Al27(n,a), Mn55(n,g), Fe56(n,p), Ni58(n,2n),
Ni58(n,p), Zr90(n,2n), Th232(n,f), Th232(n,g), U235(n,f), U238(n,f), U238(n,g),
Np237(n,f), Pu239(n,f), Am241(n,f)
- **IAEA 2006** processed by ERROR-J-2.2.1 for:
Th-232

ERROR-Jstatus

Go Chiba recently prepared a new version (ERROR-J Version 2.3) which can be incorporated into the NJOY code system.