Benchmark Format Specification

When sending data files for benchmark input/output comparison, participants should also provide the following information,

```
# Date: …
# Lab: …
#
# Benchmark step: 1/2/3 (w/wo integral correlation)
# Status: input/output
```

The scientific format (e.g. E12.4) should generaly be used but for correlation matrix. Integral C/E values for reactivity data should be given with 5 digits (e.g. E13.5). See the sample files for details.

Nuclear data

The following notations are used in the sample files:

MF3/MT2	Elastic scattering infinite-dilution cross section,
MF3/MT4	Total inelastic scattering infinite-dilution cross section,
MF3/MT101	Capture (disappearance) infinite-dilution cross section (includes $^{10}B(n,\alpha)$ reaction),
MF3/MT251	Average cosine of elasticaly scattered neutrons (Mu-bar),
MF3/MT18	Fission infinite-dilution cross section,
MF1/MT456	Average prompt fission neutron multiplicity (Nu-p),
MF5/MT18	Normalized prompt fission neutron spectrum (Chi-p), averaged over incident groups.

Note: For the sake of simplicity, we may assume MT101=MT102 (n,γ) for all isotopes but boron, for which we will assume that MT101=MT107 (n,α)

Sample1: nuclear_data.txt

33 groups data and relative uncertainty (1 sigma) for all nuclear quantities (cross sections, mu-bar, nu-p, Chi-p) and all isotopes. If needed, a similar format can be used to provide the $^{238}U(n,n')$ scattered neutron specrum for selected incident group i (MF6/MT4/Gi) at various scattering angles (or P0, P1 contributions).

Sample2: nuclear_correl.txt

33x33 groups self- and cross-correlation(*1000) matrices for all nuclear data and all isotopes. Nuclear data and both absolute and relative uncertainties are given to facilitate computer use of this file (e.g. for calculation of the covariance or for uncertainty propagation). The proposed format is similar to the njoycovx output (see the file *corr.matrix*).

Integral data

Sample3: integral_data.txt

Initial and final C/E value and relative uncertainty (1 sigma) for all integral quantities of all experiments.

Sensitivity coefficients

Sample4: sensitivity_JEZEBEL.txt

33 groups sensitivity coefficients of all integral quantities (for one experiment) to all nuclear data.