

**Usage of TSUNAMI in a hierarchical Bayesian procedure
for calculating the bias and the a posteriori uncertainty of k_{eff}**

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In the paper which will be presented under the title “General hierarchical Bayesian procedures for calculating the bias and the a posteriori uncertainty of neutron multiplication factors” the uncertainties in the nuclear data involved in the criticality safety analysis of a Nuclear Fuel System (NFS) are considered in the most general way possible. This way cannot be realized at present through lack of information about variances and covariances in the basic nuclear data. However, multi-group-based covariance matrices are available in the SCALE system [1] for usage with the TSUNAMI module sequences of this system. It will be shown how results from a TSUNAMI analysis of an NFS of interest can be integrated in a hierarchical Bayesian procedure for calculating the bias and the a posteriori uncertainty of the neutron multiplication factor of the NFS.

Reference:

- [1] SCALE: “A Modular Code System for Performing Standardized Computer Analyses for Licensing Evaluation”, Version 6, RSICC, CCC-750/01