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## Uncertainty Analysis of Kinetic Parameters for Design, Operation and Safety Analysis of SFRs

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An OECD/NEA sub-group on Uncertainty Analysis in Modelling (UAM) for Design, Operation and Safety Analysis of Sodium-cooled Fast Reactors (SFR-UAM) has been initiated in 2015 under the NSC/WPRS/EGUAM with the objective to study the uncertainties in different stages of Sodium Fast Reactors.

Best-estimate codes and data together with an evaluation of the uncertainties are required for that purpose, which challenges existing calculation methods. Neutronic feedback coefficients as well as the kinetic parameters are being calculated for transient analyses. Experimental evidence in support of the studies is also being developed.

The use of the Iterated Fission Probability method in the Monte Carlo codes such as Tripoli4<sup>®</sup> Serpent-2 and MCNP-5 gives reference values for calculating  $\beta_{eff}$ . Deterministic codes like ERANOS and PARTISN/SUSD3D are also used for nuclear data sensitivity analysis and uncertainty propagation. The derived values are validated against experiments and their uncertainties. A vast series of experiments has been selected and analysed leading to recommendations on the tools, procedures and data to be used for beta-eff calculating of the benchmarks including uncertainties.

### Country/Int. Organization

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