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General views on evaluations and uncertainties for EURATOM WP2018

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Zertifiziertes Managementsystem STARS ISO 9001

General comments for the EURATOM project

Modern nuclear data libraries must fulfill (see next slides):

1. Needs of modern nuclear data evaluation procedures,

2. Guidance and tools developed in International efforts (see Oscar's presentation)

3. Current/future needs of the industry and basic research (energy, medical, astrophysics,…)

Such project will help in

- defining evaluation & processing methods,
- Producing nuclear data evaluations (adjusted/non adjusted),
- Answering user needs.

Evaluation procedures

1. Needs of modern nuclear data evaluation procedures
   - With uncertainties,
   - Complete (all isotopes, all quantities),
   - Uniform format, processing,
   - Reproducible, QA, open evaluation process and proven technology

   - Benchmarked on many different quantities: criticality, spent fuel, reactor data, PIE, shielding,… → *in short: more than criticality*

   - Satisfying the users: be aware of the current needs of the industries (safety margins, shielding, transport, intermediate and long-term storage, penalty factors…) → *in short: smaller bias, smaller uncertainties*

   - Satisfying the nuclear data community: latest methods, latest and new measurements, latest and newest theoretical developments,

   - Satisfying basic research: reactor development, medical (isotope production), astrophysics → *in short: not only neutron data and more than 300 isotopes*

International efforts

2. International efforts (see Oscar's presentation for details)
   - NEA tools
   - IAEA tools

   - WPEC activities
   - CRP activities

   - Such EURATOM project needs to be strongly linked to the existing libraries (JEFF/ENDF/JENDL/TENDL…)

Follow needs of users and possible outcome

3. Libraries for the current/future needs of the industry and basic research

   – Energy (current LWR, Gen-IV, fusion): better predictions, smaller and justified uncertainties, complete data…
   – Medical: charged-particle reactions, isomeric data…
   – Astrophysics: 8000 isotopes ?
   – Nuclear/radiological security: more data than currently in libraries ?

- Outcome: adjusting data or not ?
  – Independently of the answer: needs of open and clear procedures,
  – If adjusted: needs to be produced at the evaluation level to be accepted by users

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Wir schaffen Wissen – heute für morgen