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NUCLEAR ENERGY AGENCY
NUCLEAR SCIENCE COMMITTEE

Working Party on International Nuclear Data Evaluation Co-operation

Expert Group on the Recommended Definition of a General Nuclear Database Structure (EG-GNDS)

MANDATE

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Revised Mandate

WPEC EXPERT GROUP ON THE RECOMMENDED DEFINITION OF A GENERAL NUCLEAR DATABASE STRUCTURE (EGGNDS)

Members:	All NEA member countries
Full Participant:	European Commission *Under the NEA Statute*
Observer (International Organisation):	International Atomic Energy Agency (IAEA) *By agreement*
Date of creation:	31 May 2016
Start of current mandate:	31 May 2020
Duration:	31 May 2022

Mandate (Document reference):

- Agreed at the 28th meeting of the Working Party on International Nuclear Data Evaluation Cooperation in May 2016 [NEA/SEN/NSC/WPEC(2016)2]
- Approved at the 27th meeting of the NEA Nuclear Science Committee in June 2016 [NEA/SEN/NSC(2016)2]
- Revised and extended at the 30th meeting of the Working Party on International Nuclear Data Evaluation Co-operation [NEA/SEN/NSC/WPEC(2018)2] and endorsed by the 29th NEA Nuclear Science Committee in June 2018 [NEA/SEN/NSC(2018)6]
- Revised and extended at the 32nd meeting of the Working Party on International Nuclear Data Evaluation Co-operation [NEA/SEN/NSC/WPEC/DOC(2020)11]

Context

The Evaluated Nuclear Data File (ENDF-6) nuclear data format has had a long and fruitful history as the preferred format for storing and exchanging evaluated nuclear data. Together with processing codes, it plays a pivotal role connecting nuclear physicists and reactor physicists, allowing them to exchange data between different computer codes. Today, however, it is showing signs of age. In particular, the ENDF-6 format places unnecessary limitations on the types of reactions and the level of precision at which data can be stored, making it more difficult to ensure quality and consistency of the data. Modern users are applying nuclear data towards solving a broad range of problems (in medical physics, global security and advanced detector designs, among others) that stretch the ENDF-6 format beyond its original design.

Purpose, scope and membership

The Subgroup 38 (SG38) of the Working Party on International Nuclear Data Evaluation Cooperation (WPEC) was formed to solicit feedback from international stakeholders and develop a new General Nuclear Database Structure (GNDS) for storing nuclear data to replace the legacy ENDF-6 format. The SG38 has met its stated goal to develop a nuclear data structure definition that can meet the needs of a broad set of nuclear data users and providers.

In order to take the next step, it was necessary to establish an international expert group to endorse, promote and maintain the new format as the future international standard for disseminating nuclear reaction databases. The Expert Group on the Recommended Definition of a General Nuclear Database Structure (EGGNDS) was established in 2016 and became the steward of a new international definition for the modern nuclear database structure.

Goals and activities

The main objectives of this Expert Group are to make the GNDS:

1. easier for new users, as well as current users, to contribute to the community;
2. general and useful enough that it could also be used to organise nuclear structure data, experimental data and other nuclear data products;
3. adhere to high quality assurance and documentation practices.

Other goals include the development of better open source infrastructure to manipulate, search, plot, process, translate and check nuclear data and the development of new nuclear data products heretofore not possible. The EGGNDS will ensure that important and useful tools for using the new recommended definition are developed and maintained.

The EGGNDS will guide the creation of new infrastructure and promote better evaluation practices. It is foreseen that it will release new GNDS versions with appropriate documentation as necessary, without overburdening stakeholders.

Deliverables

The Expert Group will ensure the recommended definition of the GNDS meets the needs of major international nuclear data communities. In addition, this Expert Group will work on the following deliverables:

- release periodic updates of the GNDS specifications that incorporate approved format proposals;
- organise workshops and other outreach activities to train evaluators and other members of the nuclear data community, especially users, on the new structure.