

## **YANDF: An attempt to unify TALYS, EXFOR and ENDF data formats**

*Monday, 22 May 2023 15:30 (1 hour)*

There are 3 sources of nuclear reaction data:

- Experimental data, as compiled in the EXFOR database
- Theoretical data: nuclear model code output, with TALYS as a prime example
- Evaluated nuclear data: as present in ENDF or GNDS nuclear data libraries, and underlying data libraries such as EGAF, RIPL etc.

The output of TALYS was already rather systematic in terms of data files and meta data, and at least two codes, TEFAL and TAGNDS, successfully transform the TALYS output into nuclear data libraries. However, a higher degree of automation in the nuclear data pipeline and AI/ML applications require that consistent serialization of the TALYS output is taken a step further. Therefore, Yet Another Nuclear Data Format (YANDF) is presented here, primarily to provide a consistent schema for TALYS output enabling easy processing. In addition, starting from the fundamental definition of a nuclear reaction, the same schema can be used to provide the metadata for EXFOR and ENDF data. The resulting keyword-driven data files are not as non-descriptive as ENDF and not as heavy as EXFOR or GNDS, and should be an easy starting point for direct use, especially to numerically compare or plot data, or for parsing into GNDS, JSON, ENDF or other formats.

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