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Challenges in unifying nuclear data access

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This presentation aims to open the discussion how scientific nuclear reaction data can be best be brought to the users.
As GUI's are no longer the only way to access data, a scheme for basic nuclear data retrieval needs to be set to allow both computational access, though web-api's or similar tools, to the data and plotting abilities.

While quite some progress has been made for nuclear structure (ENSDF) data (see other contributions to this meeting), the tools for arguably the most important reaction databases, EXFOR and ENDF, are not yet in a state of general access: the user is forced to understand the ENDF and EXFOR logic and to work through a variety of format and exception rules.
Some initiatives are halfway. Modest examples by the author given here are EXFORtables and ENDFtables, to represent experimental and evaluated nuclear reaction data respectively, both meant to represent very format and database specific data into easy accessible form for nuclear scientists
Other, more complete, tools by others for this are underway but still need to prove its success and comprehensiveness.

A relatively light unifying format called YANDF (Yet Another Nuclear Data Format) is proposed.
Several relevant nuclear databases require an update, both in completeness and in format unification.
Examples are thermal neutron cross sections, resonance integrals, resonance parameters, Maxwellian-averaged cross sections, average radiative widths, evaluated gamma activation data, etc. etc.
If these and the other abovementioned databases should ever make it to ML applications, rich metadata will be required.

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