

Implementation of FAIR Principles on Experimental Nuclear Reaction Database (EXFOR)

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The Experimental Nuclear Reaction Database (EXFOR) database is composed of the numerical data compiled by the international collaboration within the Nuclear Reaction Data Centre (NRDC).

Even though it is digitized and has been used everywhere, the EXFOR format is still under the restrictions of a punch card legacy. It prevents users from using EXFOR data directly by plotting packages such as matplotlib, a Python package used for data plotting and visualization.

Over the past decades, the Open Science movements known as FAIR (Findable, Accessible, Interoperable, Reusable) and digital transformation have gained considerable traction in many scientific fields. The IAEA Nuclear Data Section is expected continue providing free and unrestricted access to its basic nuclear data databases including EXFOR as well as data files and related software by following the FAIR Principles.

As a first trial, we are developing the EXFOR parser to convert EXFOR to JSON and provide data via REST APIs and new interface. In this presentation, we will give an overview and some examples of our developments which would be useful for scientists working on nuclear reaction mechanisms.

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