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NSR Modernization

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The National Nuclear Data Center (NNDC) at Brookhaven National Laboratory (BNL) maintains several databases dedicated to physics research. One of these is Nuclear Science References (NSR), a bibliographic database for tracking research articles. The NNDC provides access to NSR through a website of the same name. However, several aspects of NSR's design make it difficult to maintain. NSR entries are stored in an 80-column "exchange"text file format which requires custom parsing. This format also lacks space for adding further information (i.e. ORCID for authors). Lastly, NSR only exists as a MariaDB database with no mechanisms for version control or tracking changes.

The NNDC is addressing these issues by taking steps to modernize the NSR database. A JSON schema for NSR has been developed to provide its data in a standard, widely used format. This schema will have room for additional fields to enable updating older entries. A set of executable programs has also been written to standardize conversion from exchange files to JSON files. Finally, all of NSR's exchange and JSON files have been stored in a Git repository from which they can be tracked and shared among developers. These modernization efforts have already facilitated website updates and collaboration with other bibliographic databases. In future, they will also help make NSR easier to distribute and expand upon.

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