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Notre Dame Nuclear Database: A New Chart of Nuclides KEVIN LEE, TIMOTHY KHOUW, PATRICK FASANO, MATTHEW MUMPOWER, ANI APRAHAMIAN, University of Notre Dame — Nuclear data is critical to research fields from medicine to astrophysics. We are creating a database, the Notre Dame Nuclear Database, which can store theoretical and experimental datasets. We place emphasis on storing metadata and user interaction with the database. Users are able to search in addition to the specific nuclear datum, the author(s), the facility where the measurements were made, the institution of the facility, and device or method/technique used. We also allow users to interact with the database by providing online search, an interactive nuclide chart, and a command line interface. The nuclide chart is a more descriptive version of the periodic table that can be used to visualize nuclear properties such as half-lives and mass. We achieve this by using D3 (Data Driven Documents), HTML, and CSS3 to plot the nuclides and color them accordingly. Search capabilities can be applied dynamically to the chart by using Python to communicate with MySQL, allowing for customization. Users can save the customized chart they create to any image format. These features provide a unique approach for researchers to interface with nuclear data. We report on the current progress of this project and will present a working demo that highlights each aspect of the aforementioned features. This is the first time that all available technologies are put to use to make nuclear data more accessible than ever before in a manner that is much easier and fully detailed. This is a first and we will make it available as open source ware.

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