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Modernization and Expansion of the Evaluated Nuclear Structure Data File Database[1] ADAM HAYES, ELIZABETH MCCUTCHAN, SHIN-JAE YOO, ANDREA MATTERA, SEAN MCCORKLE, BENJAMIN SHU, ALEJANDRO SONZOGNI, CARLOS SOTO, SHAOFEI ZHU, Brookhaven National Laboratory, FILIP KONDEV, Argonne National Laboratory, CALEB MATTOON, Lawrence Livermore National Laboratory — The Evaluated Nuclear Structure Data File (ENSDF) database is the comprehensive nuclear structure and decay database, containing all published experimental nuclear structure and decay data for the 3300 observed nuclides, along with carefully evaluated recommended values and uncertainties. ENSDF is the leading source of nuclear structure and decay data worldwide for both basic and applied sciences, exceeding 3.2M lookups per year via the NNDC website. A complete modernization of the ENSDF database is underway, creating an expansible object-oriented database and API from the restrictive 80-column ASCII format in use since its inception. The upgrade will allow for the addition of a wide variety of content, such as continuous spectra, and provide access to modern computational and search tools. Machine learning techniques are being developed in parallel to automate the insertion of new results into the companion database for pre-evaluated published results (XUNDL), reducing the time between ENSDF evaluations and improving database currency. The modernized database will be amenable to the addition of arbitrary types of open data.

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Adam Hayes
Brookhaven National Laboratory

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