

Abstract Submitted
for the 4CF17 Meeting of
The American Physical Society

Python-Based Tool for Universal Nuclear Data Extraction

WILLIAM MCDONALD, HAYDEN BLAIR, JESSICA BERRY, PETER CONSALVI, MARKUS GARBISO, YANINA LIKTENSHEYN, MATTHEW MARTIN, KYLE LEACH, Colorado Sch of Mines — Over the past 70 years, nuclear physics experiments have provided a vast wealth of experimental data on both ground and excited state properties across the nuclear chart. In many cases, searching for and parsing the relevant nuclear structure data from previous work can be tedious and difficult. Although the compilation, evaluation, and digitization of this data by multiple groups around the world over the past several decades has helped dramatically in this respect, the process of performing systematic studies using this data can still be cumbersome and limited. We are in the process of creating a python-based program to extract, sort, and manipulate nuclear and atomic data efficiently. In its current state, the program is able to extract all atomic-shell ionization energies, excited- and ground-state nuclear properties, and all beta-decay rates and ratios. As a part of this ongoing project, we plan to use this tool to examine beta-decay rates in extreme astrophysical environments.

William McDonald
Colorado Sch of Mines

Date submitted: 14 Sep 2017

Electronic form version 1.4