Session 2: Thursday August 10, 2023 10:20 - 11:50 (Eastern Standard Time)
Nuclear Data working group session
https://duke.zoom.us/j/99859721069?pwd=VVQ5TDRvTmxQUytpQ1hjd1JnNHhyZz09
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10:20
Hendrik Schatz (FRIB/MSU)
AAAC Task force on Laboratory Astrophysics 5+2 min

10:27
Jin Wu (NNDC/BNL)
Open Data in Low Energy Nuclear Physics 10+2 min

10:40
Donnie Mason (NNDC/BNL)
ENSDF to NuDat: Search, Filter, and Visualize Nuclear Data 10+2 min

10:52
Chris Morse (NNDC/BNL)
Status of the ENSDF modernization project (Virtual) 10+2 min

11:15
Alex Crowell (Duke University/TUNL)
High-Precision Neutron-Induced Cross-Section Measurements on 191,193Ir 10+2 min (Virtual)

11:28
John Kelley (NCSU/TUNL)
A Quest to find charged-particle-induced reaction cross sections 10+2 min

11: 40
Boris Pritychenko (NNDC/BNL)
ENDF/B-VIII.1beta2 library nuclear astrophysics testing 5+2 min

Abstracts:

Hendrik Schatz (FRIB/MSU)
AAAC Task force on Laboratory Astrophysics

The National Science Foundation (NSF) and the National Aeronautics and Space Administration (NASA) have requested that the Astronomy and Astrophysics Advisory Committee (AAAC) establish a task force to address the following 2020 Decadal Survey on Astronomy and Astrophysics (Astro2020) Recommendation on laboratory astrophysics:

NASA and the National Science Foundation should (1) convene a broad panel of experts to identify the needs for supporting laboratory data to interpret the results from the new generation of astronomical observatories, (2) identify the national resources that can be brought to bear to satisfy those needs, and (3) consider new approaches or programs for building the requisite databases.

You can learn more about the AAAC Task force on the NSF webpage of the task force. The definition of laboratory astrophysics is broad, encompassing laboratory measurements, theoretical calculations, and database development/management aimed at supporting interpretation of astronomical observations and/or astrophysical modeling.

Open Data in Low Energy Nuclear Physics

Jin Wu
National Nuclear Data Center, Brookhaven National Laboratory

Abstract:

Low-energy nuclear physics experiments extend more than a century, have made tremendous progress in the last decades and continue to increase in size, sensitivity and complexity. The ever accelerating development of nuclear physics facilities and radiation detector systems, as well as the growing size of collaboration groups results in a huge amount of nuclear data produced annually with complex data structures. However, there exists no centralized, comprehensive, searchable database of experimental data sets. The data are scattered (both in physical location and storage media type), not well-documented, and typically not accessible over a network. Raw data are usually held by the original researcher, and the associated analysis tools (methods, analysis codes, calibration data, etc.) are often lost. This results in a situation where data discovery, reuse, and reproducibility are often difficult or impossible. This talk will introduce the future potential Open Data project from the key aspects of recently published U.S. policies and leverageable experiences in other research fields.

High-Precision Neutron-Induced Cross-Section Measurements on 191,193Ir
Alex Crowell, Duke University and TUNL

Iridium was one of a number of materials used in the Underground Test Program as a radiochemical detector for neutron fluence. It is unique among those materials because it can be used to sample various components of a neutron energy spectrum. For example, higher energy neutrons can be assessed using (n,2n) reactions while fission neutrons in the mid-range energies of a few MeV can be determined through the use of inelastic reactions creating isomeric states in 191,193Ir. Our work involves measuring a number of neutron-induced reactions on natural iridium targets using the tandem accelerator at the Triangle Universities Nuclear Laboratory with the goal of providing a set of much-improved cross-section data that can be used to infer neutronics performance and to constrain the nuclear reaction models. In this talk, a brief overview of the project will be presented along with some preliminary cross-section data.

John Kelley (NCSU/TUNL)
A Quest to find charged-particle-induced reaction cross sections

I recently searched for various charged-particle induced reaction cross sections. In this talk I review my finding which sent me to NNDC where the ENDF and the Japanese JENDL libraries contain some evaluated data. Searches of the NSR yielded references, but data extraction is a challenge. The IAEA charged-particle reference-cross-section database is evaluated, but the focus is on medical isotope production. On the other hand, the EXFOR Experimental Nuclear Reaction Data library is expansive, but comprises only compiled data from various reports and articles. Lastly, the JANIS interface provides a simple platform to view and search various compiled data.