
Plan Overview

A Data Management Plan created using DMPTool

Title: Laser-Driven Pulsed Neutron Source using Near-Critical Plasmas

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Laser-Driven Pulsed Neutron Source using Near-Critical Plasmas

Data types and sources

The sections in the template outline are based on Suggested Elements of a DMP (see Links tab) provided by DOE, but DMPs are not required to follow this template. For the data types and sources suggested element, a brief, high-level description of the data to be generated or used through the course of the proposed research and which of these are considered digital research data necessary to validate the research findings may be included.

Data will be generated from experiments and simulations using Vector-Particle-In-Cell (VPIC) kinetic code and Monte-Carlo N-Particle transport code. Both the experimental and simulation results will be published in open journals. The raw data will be archived in the LANL institutional storage facilities. A few research journals also provide associated raw data storage service. The raw data will be made available to other researchers, students and post-docs for further analysis and validation. Data will not include any trade secrets or PIO.

Content and format

A statement of plans for data and metadata content and format including, where applicable, a description of documentation plans, annotation of relevant software, and the rationale for the selection of appropriate standards. (Existing, accepted community standards should be used where possible. Where community standards are missing or inadequate, the DMP could propose alternate strategies that facilitate sharing, and should advise the sponsoring program of any need to develop or generalize standards.)

Most of the raw experimental data will be stored as images in various formats such as TIFF, HDF. Analyzed experimental data will be stored in a table format using Excel. The simulation data will be stored at the LANL archive tapes.

Sharing and preservation

A description of the plans for data sharing and preservation.

The publications will largely include the analyzed data. we will try to add raw data to the publications to the possible extent. We will utilize the raw data storage service if the journals provide one. The raw data will be made available upon request. The publications provide the contact information for requesting additional data.

Protection

A statement of plans, where appropriate and necessary, to protect confidentiality, personal privacy, Personally Identifiable Information, and U.S. national, homeland, and economic security; recognize proprietary interests, business confidential information, and intellectual property rights; and avoid significant negative impact on innovation, and U.S. competitiveness.

The data generated will not contain PIO or compromise U.S. national, homeland, and economic security. It will recognize proprietary interests, business confidential information, and intellectual property rights; avoid significant negative impact on innovation and U.S. competitiveness; and otherwise be consistent with all applicable laws, regulations, and DOE orders and policies. The data will not involve human or animal subjects.

Rationale

A discussion of the rationale or justification for the proposed data management plan including, for example, the potential impact of the data within the immediate field and in other fields, and any broader societal impact.

The data generated will help elucidate the intense laser interaction with near-critical plasmas. The data will help us interpret the experiments and verify important scaling laws for compact neutron source development using lasers.

Software & Codes

Both the Advanced Scientific Computing Research and Fusion Energy Sciences program areas address software and codes. Program specifics are listed below.

The kinetic code VPIC is an open source code. Improvements to the VPIC code will be properly annotated and made available as an open source code.