Plan Overview

A Data Management Plan created using DMPTool

DMP ID: https://doi.org/10.48321/D11D72D456

Title: Acoustic monitoring for structural flaws

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Funder: United States Department of Energy (DOE) (energy.gov)

Template: Department of Energy (DOE): Generic

Project abstract:

Nuclear microreactors prioritize modularity and portability and are intended to be a cost-effective technology for non-conventional nuclear markets. As such, the development of microreactors into a safe and feasible solution for energy security applications will necessitate the development of non-destructive technologies to monitor the integrity of inaccessible reactors components during operation. This demonstration applies linear and nonlinear acoustic techniques, in combination with machine learning, to detect and classify mechanical changes (stress and damage) in a test article which are broadly representative of potential operating challenges within a functioning microreactor. All data for this project will be collected on openly released components (i.e., unclassified non-export-controlled geometries and materials) and made publicly available to provide the community with developmental data to use for future technique and technology development.

Start date: 10-01-2021

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Copyright information:

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Acoustic monitoring for structural flaws

Data sharing and preservation

Data management plans should describe whether and how data generated in the course of the proposed research will be shared and preserved and, at a minimum, describe how data sharing and preservation will enable validation of results, or how results could be validated if data are not shared or preserved.

Data will be generated using various experimental techniques as well as theoretical calculations and simulations. It will be made available to other researchers on request and to students and postdocs for further analysis and validation for academic purposes (i.e., educational purposes and research and development activities).

Data is limited to mechanical vibrational data, settings and parameters important to the collection of the data, and details of the component or test-article under inspection.

Data used in publications

Data management plans should provide a plan for making all research data displayed in publications resulting from the proposed research open, machine-readable, and digitally accessible to the public at the time of publication. This includes data that are displayed in charts, figures, images, etc. In addition, the underlying digital research data used to generate the displayed data should be made as accessible as possible to the public in accordance with the Principles published in the DOE Policy for Digital Research Data Management. The published article should indicate how these data can be accessed.

The results of utilizing the investigations and analyzing the respective data will be published in peer-reviewed scientific and technical journals as appropriate. Appropriate credit (e.g., citation, acknowledgement, and/or co-authorship) must be given to this project and the project contributors when this data is used in publication.

Data management resources

Data management plans should consult and reference available information about data management resources to be used in the course of the proposed research. In particular, DMPs that explicitly or implicitly commit data management resources at a facility beyond what is conventionally made available to approved users should be accompanied by written approval from that facility. In determining the resources available for data management at DOE Scientific User Facilities, researchers should consult the published description of data management resources and practices at that facility and reference it in the DMP.

Data will be made available from direct requests to the PI and/or listed project data managers. Distribution will be arranged on a per request basis, utilizing open file sharing repositories, private communication, et al, as appropriate and available. Open source data repository resources will be used when available and made public whenever possible.

Confidentiality, security and rights

Data management plans must protect confidentiality, personal privacy, Personally Identifiable Information and U.S. national, homeland, and economic security; recognize propriety 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, agreement terms and conditions, and DOE orders and policies.

Data collected and shared will not include any personally identifiable information, nor information deemed controlled (e.g., classified, export controlled, proprietary, official use only, etc.).
**Planned Research Outputs**

**Dataset - "Acoustic monitoring demonstration data"**

Vibrational data collected during a series of experiments on a core-block-like test article. Data includes vibrational source and response signals for various mechanical states (stress and damage).

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**Planned research output details**

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