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NA-22 Quarterly Report Project

Title: Radiation Detector Simulator (RadSim)

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NA-22 Quarterly Report

Project Title: Radiation Detector Simulator (RadSim)

Quarter: Q2FY23

Lab: Lawrence Livermore National Laboratory

Principal Investigator: Dhanush Anil Hangal

HQ Project Manager: Jake Zappala

Date: 5 April 2023

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Programmatic Summary

Summary: The project had a late start and began in Q2 of FY23. The project kick-off meetings with the N-program and DNN R&D were held on March 11, 2023. We have created a roadmap and started initial work on building a source-generation tool and ensuring that it can be released as an open-source package.

FY23 Tasks

Task	Programmatic Progress
Task # 1 Source Generation	10% complete, on track as expected.
Task # 2 Flux Translation	0% complete, work on this task will begin later in the FY.

Milestone Progress

Task	Due Date	Date Completed	Comments
Milestone #1 Source emission library	30 June 2023	30 June 2023 (Estimated)	On track as expected.
Milestone #2 Validate source decay calculator	30 Sep 2023	30 Sep 2023 (Estimated)	

FY23 Deliverables

Task	Due Date	Date Completed	Comments
Deliverable #1 Source Generation	30 Dec 2023		On track as expected.

Interagency Interactions/Meetings/Conferences/Other Project Related Travel

Summary: Kickoff meeting held with DNN R&D on March 11, 2023. Weekly project meetings are being held within the lab to discuss strategy for source generation tool. Dhanush Hangal will be attending NSARD 2023 in April 2023 at PNNL to present a poster on the project.

Notable Technical Highlights

Summary: We have outlined a roadmap and next steps in creating an open-source source-generation tool. Codebase development for extracting relevant information from ENSDF nuclear datasets and building libraries for the source generation tool has begun. The open-source nature of tools which will be used in building the source-generation module is also being analyzed to ensure that it can be released to an external audience.

Outlook

Summary: Dhanush Hangal will be presenting a poster on the details of the project at NSARD 2023 in PNNL in April 2023. We will complete building the full libraries for the source-generation tool and begin work on assembling the necessary pieces to be able to release it as an open-source package. Work will also begin on unit testing the various packages of the source generation tool.

Issues/Risks

Lab Program Manager Comments (optional)

Appendix