



Modeling and Simulation (Cross Cutting Thrust)

MTV Kickoff Meeting

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Introduction and Motivation

- Modeling and Simulation (M&S) is used throughout the consortium
 - M&S encompasses: mathematical and system modeling, statistical and data analysis, simulation software, programming and scripting, and more
 - Researchers have similar M&S needs and challenges
 - Projects can benefit from cross-pollination of ideas
 - Positions in DOE/NNSA national labs for postdocs and junior staff require a background in cutting-edge M&S techniques
- Goals of cross cutting thrust:
 - Sharing of M&S capabilities and knowledge throughout consortium
 - Education of students on M&S best practices



Mission Relevance

- DOE/NNSA relies heavily on M&S to accomplish its mission in all areas including nonproliferation
- The M&S cross-cutting thrust will assist researchers in MTV advance capabilities in nonproliferation and provide education and training to future staff for the national labs



Technical Work Plan

- Year 1: Identify M&S Capabilities and Needs of Stakeholders
 - Facilitate discussions with University Co-PIs and national laboratory POCs to identify M&S capabilities and needs
 - Develop information sharing platforms, plan workshops, and implement other activities based on collected information
- Year 2: Deploy Initial Set of M&S Platforms and Activities
 - Collect lessons learned and continue to collect and share information
- Years 3-5: Iterate and Evolve
 - As MTV proceeds, new needs are likely to arise and an open channel of information sharing will continue throughout the project



Expected Impact

- Sharing of M&S knowledge and capabilities throughout MTV and the national labs will make the consortium activities more efficient and ensure the students have M&S skills aligned with program priorities
- Metrics for success:
 - Does M&S cross-cutting thrust enhance MTV research programs?
 - Are students receiving suitable and effective education in M&S?
- Assessment methods:
 - Quarterly assessments from MTV Co-PIs on impact of M&S cross cutting thrust
 - Collect student feedback from M&S workshops for continual improvement
 - Annual surveys with national laboratory POCs about how M&S activities are enhancing the skills of MTV student interns and graduates and identify gaps



MTV Impact

- MTV has a broad and diverse set of researchers from numerous backgrounds that bring a variety of skills, knowledge, and experiences
 - Sharing information among these areas can stimulate new approaches that had not previously been considered
- Provide students with M&S training to facilitate their success in internships and future employment at the national laboratories



Conclusion

- M&S cross-cutting thrust will work with stakeholders within MTV and national lab POCs and mentors to assess M&S needs
 - Sharing of M&S information and capabilities throughout MTV
 - Educational workshops and programs
- Goal is to improve the effectiveness of the research programs in MTV and the skills of future national lab technical staff



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