

NASA SBIR/STTR Technologies

Charlotte: Scientific Modeling and Simulation Under the Software as a Service Paradigm

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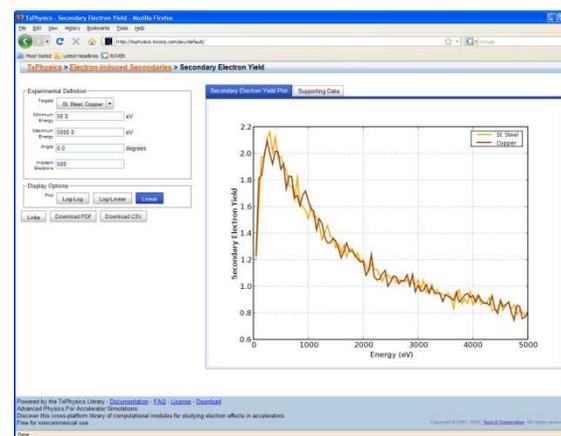
Identification and Significance of Innovation

Identification:

- Web-based application allowing for the investigation of scientific models under the Software as a Service paradigm
- Allows for collaborative setup, running, and monitoring of research codes by remote users

Significance:

- Traditional means of distributing complex legacy codes are inefficient and costly
- Using a service, web-application model results in savings for both NASA and for its collaborators



The proposed innovation allows users to remotely investigate scientific models.

Technical Objectives

- Demonstrate the feasibility of developing web services that provide the ability to edit input files, initiate simulations, monitor ongoing simulations, and access completed simulation results.
- Demonstrate the feasibility of a web application that allows users to interact with web services to remotely investigate scientific models via computer simulation
- Investigate candidate mechanisms that would allow users to remotely modify model elements and recompile legacy codes.

Work Plan

- Develop web service that allows for the collaborative editing of simulation parameters.
- Develop web service that allows simulations to be initiated and monitored.
- Develop web service that allows the results of completed simulations to be accessed.
- Develop web application that uses web services to allow users to perform remote investigations.
- Test mechanisms by which elements of a remote model could be modified and the entire code remotely recompiled.

NASA Applications

- NASA provides complex scientific models to a large number of collaborators worldwide
- Local installation and debugging of legacy codes containing these models represents a significant cost

Non-NASA Applications

- The sharing of scientific models is vital to many different communities, both governmental and private
- The ability to provide access to models and codes under the Software as a Service paradigm would be highly advantageous

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